



BASIC COURSE IN BIOMEDICAL RESEARCH Q-BANK (CYCLE 1-5)

BY - DR.N.G.PRADEEP KUMAR

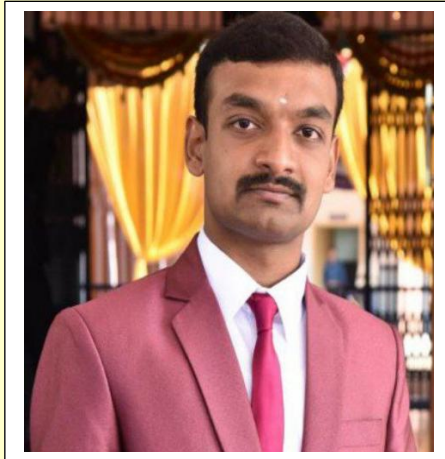
POSTGRADUATE IN M.D.COMMUNITY MEDICINE

BANGALORE MEDICAL COLLEGE

**EDITION -1
BCBR CYCLE 1-5
COMPILED MCQS**

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COMPILED BY



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FOREWORD

Evidence based medicine is an integral part of medical practice today therefore doctors need to have an understanding of research methods and its principles.

The (National Medical Council) NMC has recently released the details of Online Research Method course for Postgraduate students and Medical teachers and is a NMC mandated course.

Apart from academic point of view this course also facilitates for those who are interested in research field.

The National Institute of Epidemiology of the India Council of Medical Research is the designated institution for the conduct of the ONLINE research methods course for postgraduate students and medical teachers in India.

This book contains compiled MCQs from cycle 1 to 5 with solutions for mathematical problems. There are 23 assignments. Each assignment contains 50 MCQs from all previous 5 cycles. So in total there are 1150 MCQs.

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ASSIGNMENT - 1

1) Which of the following areas can be included in health research?

- i. Improving the health of the population.
- ii. Predicting progression of a disease in a patient
- iii. Prevention of various diseases
- iv. To explore various societal, community based and programmatic interventions for disease prevention and control

- a) i and ii
- b) i, ii and iv
- c) All of the above
- d) None of the above

Answer: c)

2) What is appropriate for sample and sample size?

- a) Should be representative of the population [External validity or generalizability]
- b) Should be adequate [power to draw meaningful inferences]
- c) Both 'a' and 'b'
- d) Neither 'a' nor 'b'

Answer: c)

3) Which of the following statements are correct regarding defining inclusion and exclusion criteria in a study protocol?

- a) They should be vague because this will allow greater and easy enrolment
- b) They should be very specific
- c) They should be very large in number
- d) It is not important to define exclusion criteria in a clinical trial

Answer: b)

4) Which of the following are examined as part of regulatory review?

- a) Information regarding transfer of funds and utilization of funds
- b) Shipment of samples and transfer of data outside the country
- c) Sharing and protection of intellectual property
- d) All of the above

Answer: d)

5) Which of the following statements is not true in case of pilot study?

- a) They are conducted for developing and testing adequacy of research instruments
- b) They establish whether the sampling frame and technique are effective
- c) Ethics committee approves the main study only after successful completion of the pilot study
- d) They are small scale studies

Answer: c)

6) Before initiating a study involving primary data collection, the Principal Investigator must ensure that various approvals are obtained. Which of the following approvals is absolutely mandatory?

- a) Scientific committee approval

ASSIGNMENT - 1

- b) Ethics committee approval
- c) Technical committee approval
- d) Regulatory authority approval

Answer: b)

7) Which is the best source of information on 'effect modifiers' while exploring cause and effect relationship in a research study?

- a) Deductive thinking
- b) Thorough review of literature
- c) Intelligent guessing
- d) Discussing with experienced researchers

Answer: b)

8) The policy makers want to know whether introduction of pentavalent vaccine in the national program is resulting in reduction in the number of Hemophilus influenza cases. Which of the following studies will they have to conduct to find an answer?

- a) Case-control study
- b) Field trial
- c) Ecological study
- d) Case series

Answer: b)

9) What is true about Confounders?

- a) They affect both study variable as well as outcome
- b) Their effect can be minimized by proper study design and through stratified analysis
- c) Both 'a' and 'b'
- d) None of the above

Answer: c)

10) Which of the following is not a type of study design?

- a) Qualitative study
- b) Observational study
- c) Retrospective study
- d) Pilot study

Answer: d)

11) Any systematic error in the design, conduct or analysis of a study that results in an erroneous estimate of an exposure's effect on the risk of disease is called:

- a) Confounding
- b) Bias
- c) Interaction
- d) Stratification

Answer: b)

12) Which of the following is not part of ethics review of a project?

ASSIGNMENT - 1

- a) Informed consent document and procedure
- b) Ethics committee approval
- c) Technical committee approval
- d) Regulatory authority approval

Answer: b)

7) Which is the best source of information on 'effect modifiers' while exploring cause and effect relationship in a research study?

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- a) Confounding
- b) Bias
- c) Interaction
- d) Stratification

Answer: b)

ASSIGNMENT - 1

12) Which of the following is not part of ethics review of a project?

- a) Informed consent document and procedure
- b) Competence of researcher and institute conducting research
- c) Sharing and protection of intellectual property
- d) Care and support during and after completion of research

Answer: c)

13) A study was conducted to assess the extrapyramidal side effects of a new antipsychotic drug in patients with schizophrenia. Many of these patients were smokers and some of them were on anticholinergic drugs. What was the role of the anticholinergic drugs in this study?

- a) Confounder
- b) Random Variable
- c) Effect Modifier
- d) Independent Variable

Answer: c)

14) Before initiating a study involving primary data collection, the Principal Investigator must ensure that various approvals are obtained. Which of the following approvals is absolutely mandatory?

- a) Scientific committee approval
- b) Ethics committee approval
- c) Technical committee approval
- d) Regulatory authority approval

Answer: b)

15) The policy makers want to know whether introduction of a new rotavirus vaccine in the national immunization programme is resulting in reduction of morbidity and mortality from rotavirus disease. Which of the following studies will they have to conduct to find an answer?

- a) Case-control study
- b) Ecological study
- c) Field randomized trial
- d) Case-series

Answer: c)

16) What effect does increasing the sample size have upon the random error?

- a) It increases the random error
- b) It has no effect on the random error
- c) It reduces the random error
- d) None of the above

Answer: c)

17) Which of the following will best describe the scientific inquiry that seeks to understand the acceptability and functionality of a health program?

- a) Basic science research
- b) Translational research

ASSIGNMENT - 1

- c) Clinical research
- d) Implementation research

Answer: d)

18) The following statements describe confounding and effect modification. Which of the statement is/are correct?

- a) In a study of relationship between coffee drinking and Oro-pharyngeal cancer; smoking is a confounder.
- b) In a study to explore relationship between hepatitis B infection and post-infection hepatic sequelae, habit of alcohol drinking acts as an effect modifier and patients with this habit may be excluded from the study
- c) 'a' and 'b' Correct
- d) 'a' and 'b' Wrong

Answer: c)

19) Issues regarding shipment of samples and transfer of data outside the country are examined by:

- a) Regulatory review
- b) Ethics review
- c) Scientific review
- d) None

Answer: a)

20) Which of the following disciplines contribute to health research?

- a) Bio-medical research
- b) Biostatistics
- c) Social science research
- d) All of the above

Answer: d)

21) Which of the following best describes a study done in a laboratory setting using animals?

- a) Translational research
- b) Bench-based research
- c) Theoretical research
- d) Preventive research

Answer: b)

22) Which of the following review is NOT essential before initiating a clinical trial?

- a) Scientific review
- b) Peer review
- c) Regulatory review
- d) Ethics review

Answer: b)

23) Which of the following is NOT a type of study design?

ASSIGNMENT - 1

- a) Qualitative study
- b) Observational study
- c) Retrospective study
- d) Translational study

Answer: d)

24) Which of the following statements is NOT correct regarding errors in a health research?

- a) Random error is due to chance
- b) Systematic error is due to bias
- c) Random errors can be eliminated by improving study design
- d) Bias distorts the study results in one direction

Answer: c)

25) State whether true or false. Assigning roles and responsibilities to the team members is one of the fundamental principles of a research

- a) True
- b) False

Answer: a)

26) Health research is usually focused on which of the following areas?

- a) Estimation of disease burden in a population
- b) Prevention of common diseases in the community
- c) Evaluation of public health programs
- d) All the above

Answer: d)

27) Which of the following is NOT a component of a research study?

- a) Setting up the institute scientific committee
- b) Calculating sample size
- c) Development of a study tool
- d) Framing the research question

Answer: a)

28) A researcher wants to study the relationship between COVID-19 infection in pregnancy and birth weight. Currently, there is no evidence on this topic. Which of the following options is the scope of this health research?

- a) Verifying and confirming known information
- b) Getting additional or new information
- c) Evaluating ongoing programs
- d) All of the above

Answer: b)

29) Which of the following is NOT a critical consideration in planning a health research?

- a) Adequate justification

ASSIGNMENT - 1

- b) Clear and focused research question
- c) Standard case definitions
- d) Financial gain

Answer: d)

30) Identify the CORRECT statement about implementation of a research

- a) Research findings must be approved by the funder
- b) Research finding must be error free
- c) Adequate sample size is a prerequisite
- d) Pilot study can be done during data analysis stage

Answer: c)

31) Which of the following best describes a study done in a laboratory setting using animals?

- a) Translational research
- b) Bench-based research
- c) Theoretical research
- d) Preventive research

Answer: b)

32) Which of the following review is NOT essential before initiating a research study?

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- d) Ethics review

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- c) Retrospective study
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34) Which of the following statements is NOT correct regarding errors in a health research?

- a) Random error is due to chance
- b) Systematic error is due to bias
- c) Random errors can be eliminated by random sampling
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Answer: c)

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- a) True
- b) False

Answer: a)

ASSIGNMENT - 1

36) Health research is usually focused on which of the following areas?

- a) Estimation of disease burden in a population
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- a) Research findings must be approved by the funder
- b) Research finding must be error free
- c) Adequate sample size is a prerequisite
- d) Pilot study can be done during data analysis stage

Answer: c)

41) A researcher conducted a study to know the efficacy of a new chemotherapeutic agent among mice with renal cell carcinoma. What type of research is this?

- a) Translational research
- b) Bench side research
- c) Bed side research
- d) Implementation research

Answer: b)

ASSIGNMENT - 1

42) What is the type of research that takes evidence-based interventions in tobacco cessation for taking informed policy decisions?

- a) Bench side research
- b) Bed side research
- c) Implementation research
- d) Translational research

Answer: c)

43) A researcher proposed a novel research question. 'What are the differences in full genome structure of Sars-CoV-2 variants?' Which of the following is a scope of this research?

- a) Getting new information
- b) Verifying available information
- c) Confirming available information
- d) Explaining cause and effect relationship

Answer: a)

44) What is the scope of a research in which the occurrence of one event is followed by the occurrence of a subsequent event?

- a) Getting new information
- b) Verifying available information
- c) Confirming available information
- d) Explaining cause and effect relationship

Answer: d)

45) What is the type of study that uses only the information recorded in the past?

- a) Retrospective
- b) Prospective
- c) Randomised clinical trial
- d) Ambispective

Answer: a)

46) What is another term used for random error?

- a) Bias
- b) Chance
- c) Instrumental error
- d) Systematic error

Answer: b)

47) How can systematic errors be minimized?

- a) By increasing sample size
- b) By increasing precision
- c) By calibrating the instrument
- d) By stratification

Answer: c)

ASSIGNMENT - 1

48) What is the term used to denote 'a small-scale study with minimal study participants which examines the feasibility of procedures intended to be performed in the main study'?

- a) Pilot study
- b) Pre-testing
- c) Case study
- d) Cohort study

Answer: a)

49) Choose whether the following statement is true or false. 'Inclusion and Exclusion criteria should be mutually exclusive'.

- a) True
- b) False

Answer: a)

50) What is the term used to denote 'a variable that can alter the relationship between the study variable and outcome by independently affecting outcome' called?

- a) Confounder
- b) Effect modifier
- c) Intervening variable
- d) Outcome variable

Answer: b)

ASSIGNMENT - 2

1) Which of the following is an element of life cycle of research?

- a) Identify data needs and spell out the research question
- b) Formulate the objective and design the study
- c) Draw conclusion and give recommendation to stakeholders
- d) All of the above

Answer: d)

2) Which of the following verbs is preferably used in the statement of objectives of an analytical research study?

- a) Estimate
- b) Determine
- c) Study
- d) Describe

Answer: b)

3) Source(s) of research question is/are

- a) Published literature
- b) Being alert to new ideas
- c) Careful observation and teaching
- d) All of the above

Answer: d)

4) Which of the following is stated mainly for statistical purpose?

- a) Research question
- b) Objectives
- c) Research hypothesis
- d) All of the above

Answer: c)

5) If your objective is to estimate the prevalence of a health problem in a community in 2019, Identify the type of research question this study is addressing

- a) Analytical research question
- b) Descriptive research question
- c) Hypothetical research question
- d) Experimental research question

Answer: b)

6) What is the first step in the life cycle of research?

- a) Spell out the research question
- b) Formulate the objective of the study
- c) Identify the data needs
- d) Choose the study design

Answer: c)

7) A clear research question facilitates to do the following

- a) Choose the most optimal design

ASSIGNMENT - 2

- b) Identify who should be included as study population
- c) Specify the outcomes that should be measured
- d) All of the above

Answer: d)

8) Which of the following statements is incorrect?

- a) A good research question should be Feasible, Interesting, Novel, Ethical and Relevant
- b) A good research question should be in epidemiological terms
- c) A good research question facilitates to choose optimal design
- d) A good research question will focus on one issue

Answer: b)

9) The verb "estimate" is used in the objective of analytical research studies

- a) True
- b) False

Answer: b)

10) The process of refining the "ideas" into research questions begins with general uncertainty about a health issue and narrow down to a specific, concrete researchable issue

- a) True
- b) False

Answer: a)

11) Which of the following statement is incorrect about a good research question?

- a) Research question should advance scientific knowledge, improve practice, influence policy
- b) Research question should be approved by the ethics committee
- c) Research question should confirms, refutes or extends previous findings
- d) Feasibility should not be a criterion while developing research question

Answer: d)

12) All the following are characteristic of good research hypothesis EXCEPT

- a) Research hypothesis should be simple
- b) Research hypothesis should be devoid of any ambiguity about study participants and variables
- c) Research hypothesis should be focused on primary objective
- d) Research hypothesis should be written once the study is completed

Answer: d)

13) Which of the following verb is used in the statement of objective of a descriptive research study?

- a) Estimate
- b) Determine
- c) Examine
- d) Compare

Answer: a)

ASSIGNMENT - 2

14) A research question states about what the results of the study might ultimately contribute to that particular field of science

- a) True
- b) False

Answer: b)

15) Purely descriptive research questions do not require a hypothesis

- a) True
- b) False

Answer: b)

16) Identify the type of research question if the objective of a study is "To determine the effect of tobacco cessation services on tuberculosis treatment outcomes among patients with tuberculosis under National Tuberculosis Elimination Program"?

- a) Descriptive research question
- b) Hypothetical research question
- c) Analytical research question
- d) Experimental research question

Answer: c)

17) As per the following objectives a hypothesis should be stated for which study?

- a) To determine the association of maternal smoking during pregnancy with respiratory infectious disease morbidity and mortality in infants
- b) To estimate the lifetime prevalence of mental health morbidities among elderly people in India
- c) To describe the pattern of physical activity among school going children aged 6-18 years
- d) To describe the temporal and spatial trends of mortality due to cardiovascular diseases, by age and sex in India during 2009-2019

Answer: a)

18) All the following are components of 'FINER' criteria for a research question EXCEPT

- a) Feasible
- b) Reliable
- c) Novel
- d) Ethical

Answer: b)

19) Which is the last step in the life cycle of research?

- a) Spell out the research question
- b) Formulate the objective of the study
- c) Formulate recommendations
- d) Choose the study design

Answer: c)

20) The following are the steps in framing a research question.

I. Review of state-of-art information

II. Define measurable exposures & outcomes

ASSIGNMENT - 2

III. Raise a question

IV. Decide worth investigating by peer-review

Choose the correct sequence of framing a research question from below.

- a) I, II, III, IV
- b) II, IV, III, I
- c) I, III, IV, II
- d) III, I, II, IV

Answer: c)

21) A clear research question is required in order to facilitate the following:

- a) To choose an optimal study design
- b) To identify the outcomes that need to be measured
- c) To decide when the outcomes need to be measured
- d) All the above

Answer: d)

22) Characteristics of a good hypothesis are all, EXCEPT:

- a) There should be no ambiguity about the study variables
- b) It should be stated 'a priori'
- c) It can be revised based on the study findings
- d) It should specify one exposure and one outcome

Answer: c)

23) Which of the following is NOT an ideal source of a research question?

- a) Reviewing the published literature
- b) Attending conferences where latest findings are shared
- c) Observing keenly in the out-patient clinic
- d) Mining existing datasets for research question

Answer: d)

24) Which of the following is TRUE for a 'Descriptive Research Question'?

- a) Involves observations to measure a quantity
- b) Involves comparison groups
- c) Tests the efficacy of interventions
- d) Requires hypothesis testing

Answer: a)

25) Which of the following characteristics best describe a good research question?

- a) Feasible, Novel, Ethical
- b) Feasible, Noble, Ethical
- c) Ethical, Novel, Intuitive
- d) Fantastic, Novel, Relevant

Answer: a)

ASSIGNMENT - 2

26) State whether true or false. A research study is conducted to estimate the seroprevalence of COVID-19 in Ahmedabad city during April-June 2020. This is an example of analytical research question.

- a) True
- b) False

Answer: b)

27) Which of the following statement about study objective/s is FALSE?

- a) Objectives are stated in scientific terms
- b) Objectives can be primary and secondary
- c) Each objective is written using multiple verbs
- d) Objectives should be specific

Answer: c)

28) In the life cycle of research, 'spelling out the research question' is followed by

- a) Preparing data collection instrument
- b) Formulating study objectives
- c) Collecting data
- d) Formulating recommendation

Answer: b)

29) How can the given study objective be improved? "To understand the anaemia in pregnancy"

- a) Using appropriate action verb
- b) Specifying the outcome measure
- c) Specifying the study setting and time period
- d) All the above

Answer: d)

30) Which of the following is NOT a step in framing an ideal research question?

- a) Literature review
- b) Peer review
- c) Broadening the initial question
- d) Defining measurable outcomes

Answer: c)

31) A clear research question is required in order to facilitate the following:

- a) To choose an optimal study design
- b) To identify the outcomes that need to be measured
- c) To decide when the outcomes need to be measured
- d) All the above

Answer: d)

32) Characteristics of a good hypothesis are all, EXCEPT:

- a) There should be no ambiguity about the study variables
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ASSIGNMENT - 2

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Answer: b)

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- c) Each objective is written using multiple verbs
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- a) Preparing data collection instrument
- b) Formulating study objectives
- c) Collecting data
- d) Formulating recommendations

Answer: b)

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- a) Using appropriate action verb

ASSIGNMENT - 2

- b) Specifying the outcome measure
- c) Specifying the study setting and time period
- d) All the above

Answer: d)

40) Which of the following is NOT a step in framing an ideal research question?

- a) Literature review
- b) Peer review
- c) Broadening the initial question
- d) Defining measurable outcomes

Answer: c)

41) A postgraduate researcher wishes to estimate the prevalence of autism and the co-morbidities among children referred to the outpatient clinics for neurodevelopmental disorders. Which of the following study designs should be used by the researcher?

- a) Descriptive study
- b) Analytical study
- c) Literature review
- d) Experimental study

Answer: a)

42) A postgraduate researcher proposes to investigate the association between childhood trauma and psychosis in a particular area. Identify the type of research study.

- a) Descriptive study
- b) Analytical study
- c) Experimental study
- d) Systematic Review

Answer: b)

43) All the following are components of 'FINER' criteria for a research question EXCEPT:

- a) Feasible
- b) Novel
- c) Ethical
- d) Reliable

Answer: d)

44) State whether true or false: A single research study can be designed to answer both descriptive and analytical questions.

- a) True
- b) False

Answer: a)

45) All are source(s) of research question EXCEPT:

- a) Published literature
- b) Being alert to new ideas
- c) Careful observation and teaching

ASSIGNMENT - 2

d) Personal experiences

Answer: d)

46) What is the first step in the life cycle of research?

- a) Spelling out the research question
- b) Identifying the data needs
- c) Formulating the objective of the study
- d) Choosing the study design

Answer: b)

47) Which of the following statements is INCORRECT regarding a good research question?

- a) A good research question should be Feasible, Interesting, Novel, Ethical and Relevant
- b) A good research question facilitates the choice of optimal study design
- c) A good research question should focus on one issue
- d) A good research question should be in epidemiological terms

Answer: d)

48) Fill in the blank with the appropriate option. Each research study uses a specific participant or patient population (P), an intervention or issue of interest (I), a _____ (C) and an outcome of interest (O) or 'PICO'.

- a) Condition of interest
- b) Comparison of interest
- c) Consequence of interest
- d) Correlation of interest

Answer: b)

49) State whether true or false. The null hypothesis states that there is no difference between the experimental and control groups.

- a) True
- b) False

Answer: a)

50) When we are formulating a research question we should consider the following points EXCEPT:

- a) Use specific terms to describe the problem
- b) Preferably focus on multiple issues
- c) Write in everyday language
- d) Use more than one operational verb, if needed

Answer: b)

ASSIGNMENT - 3

1) The ability to apply the principles of analysis to identify those studies which are unbiased and valid is called as

- a) Critical appraisal
- b) Information seeking
- c) Information management
- d) Systematic Review

Answer: a)

2) A _____ is a collection of articles, abstracts, scientific proceedings, books, citations etc. that is organized so that it can easily be accessed while doing literature review

- a) Database
- b) Critical appraisal
- c) Hard disk
- d) Index

Answer: a)

3) Why should we need to do a literature review?

- a) Save yourself from work
- b) Know the subject matter better
- c) Suggest new research topics, questions and methods
- d) All of the above

Answer: d)

4) The process of scanning the literature efficiently using manual or computerized methods to identify a set of potentially useful articles and books is called as

- a) Information seeking
- b) Critical appraisal
- c) Database management
- d) Information retrieval

Answer: a)

5) In the Boolean search strategy AND tells that database that you want records that contain all the words you specify

- a) True
- b) False

Answer: a)

6) Which of the following is unethical while writing a Literature Review?

- a) The contents from the studies should be presented honestly
- b) The contents from the studies should not be distorted
- c) It is not necessary to address the weakness of the study in a scholarly manner
- d) Sources should be accurately documented

Answer: c)

7) Critical appraisal is done in an organized and systematic manner

- a) True

ASSIGNMENT - 3

b) False

Answer: a)

8) The process of identifying, within a large document collection, a subset of documents whose content is most relevant to user's need is called as

- a) Information retrieval
- b) Information management
- c) Systematic Review
- d) Narrative Review

Answer: a)

9) The query system in the information retrieval process of literature review is

- a) User defined
- b) Provider defined
- c) Conditional
- d) Not structured

Answer: a)

10) In the National Library of Medicine (NLM), MeSH means

- a) Medical Services Heading
- b) Medical Subject Heading
- c) Medical Subject Helpline
- d) Medicine Services Helpline

Answer: b)

11) In literature review method of identifying studies which are unbiased and valid is known as critical appraisal.

- a) True
- b) False

Answer: b)

12) Choose the correct sequence of the steps of systematically doing literature search from below

- a) Organize the information, identify the lacunae, develop the research question, synthesize the results
- b) Identify the lacunae, develop the research question, synthesize the results, organize the information
- c) Develop the research question, synthesize the results, organize the information, identify the lacunae
- d) Organize information, synthesize the results, identify the lacunae, develop the research question

Answer: d)

13) All the following about literature review is correct EXCEPT

- a) It identifies lacunae in the existing knowledge about a topic
- b) It saves valuable time for a researcher
- c) It helps the researcher in arriving the conclusion of a study

d) It suggests the researcher about new research topics

Answer: c)

14) While drafting a scientific manuscript, literature review is useful on the following section EXCEPT

- a) Introduction
- b) Methods
- c) Results
- d) Discussion

Answer: c)

15) Which of the following about PubMed is incorrect?

- a) PubMed comprises more than 25 million citations for biomedical literature
- b) Citations may include links to full-text article from PubMed Central
- c) PubMed is developed and maintained by the National Centre for Biotechnology Information (NCBI), at the U.S. National Library of Medicine (NLM)
- d) PubMed is a paid service provider for searching of literature

Answer: d)

16) All the following are examples of databases

- a) MEDLINE
- b) EMBASE
- c) CINAHL
- d) Google scholar

Answer: c)

17) Literature searches are important to do at the start of a project; and do not need to continue throughout the project.

- a) True
- b) False

Answer: b)

18) Which of the following search query should be used to find the articles on chest pain other than angina?

- a) Chest pain AND angina
- b) Chest pain OR angina
- c) Chest pain NOT angina
- d) Chest pain EXCEPT angina

Answer: c)

19) A researcher wants to assess effects of polyunsaturated fatty acids (PUFA) on diabetes prognosis. For this, the researcher searches related articles in PubMed and Google scholar. This process is known as

- a) Information retrieval
- b) Indexing
- c) Critical appraisal

ASSIGNMENT - 3

d) Data management

Answer: a)

20) Which of the following about MeSH is incorrect?

- a) MeSH thesaurus is controlled vocabulary produced by the National Library of Medicine
- b) It consists of sets of terms naming descriptors in a hierarchical structure that permits searching at various levels of specificity
- c) It is used for indexing and searching of biomedical and health-related information
- d) MeSH is used for EMBASE database

Answer: d)

21) Which of the following is INCORRECT about literature review for a proposed study?

- a) Begins with a systematic literature search
- b) Involves critical appraisal of retrieved studies
- c) Presents existing knowledge concisely
- d) Guides the findings of the proposed study

Answer: d)

22) A researcher conducts a review of literature to identify a set of potentially useful articles and books related to their research topic. This process is known as

- a) Indexing
- b) Critical appraisal
- c) Data management
- d) Information seeking

Answer: d)

23) Literature review is a well thought out and organized search for all literature published on a particular topic in a library or online database.

- a) True
- b) False

Answer: b)

24) Which of the following search query in PubMed will give relevant articles for the following question? "What is the burden of gastroenteritis among children?"

- a) Gastroenteritis OR children
- b) Gastroenteritis AND children
- c) Gastroenteritis BUT children
- d) Gastroenteritis NOT children

Answer: b)

25) Which of the following Boolean operator will give the highest number of results when used between two given search terms?

- a) AND
- b) NOT
- c) OR
- d) ALL

Answer: c)

26) A researcher wants to study the effect of physical activity on reduction of systolic blood pressure among patients with hypertension. The researcher has identified a subset of document which are most relevant to the research question within a large document collection. This process is known as

- a) Information management
- b) Critical appraisal
- c) Information retrieval
- d) Literature organization

Answer: c)

27) The organized collection of articles, abstracts, scientific proceedings, books, and citations used for the purpose of literature review, is known as

- a) Database
- b) Data management
- c) Critical appraisal
- d) Index

Answer: a)

28) Which of the following does not satisfy the ethical principles in conducting a literature review?

- a) Results of previous studies are presented without distortion
- b) Weaknesses of previous studies are highlighted
- c) Previous studies are accurately cited
- d) Reputation of study authors are questioned

Answer: d)

29) For which of the following purpose is the Boolean operator 'OR' commonly used in literature search?

- a) Connecting synonyms of one key concept
- b) Connecting different key concepts
- c) Connecting keywords which need to be excluded
- d) Connecting keywords to narrow down the results

Answer: a)

30) Medical Subject Headings is a controlled vocabulary thesaurus used for indexing articles in

- a) PubMed
- b) Google scholar
- c) Scopus
- d) Health on Net

Answer: a)

31) Which of the following is INCORRECT about literature review for a proposed study?

- a) Begins with a systematic literature search
- b) Involves critical appraisal of retrieved studies
- c) Presents existing knowledge concisely

ASSIGNMENT - 3

d) Guides the findings of the proposed study

Answer: d)

32) A researcher conducts a review of literature to identify a set of potentially useful articles and books related to their research topic. This process is known as

- a) Indexing
- b) Critical appraisal
- c) Data management
- d) Information seeking

Answer: d)

33) Literature review is a well thought out and organised search for all literature published on a particular topic in a library or online database.

- a) True
- b) False

Answer: b)

34) Which of the following search query in PubMed will give relevant articles for the following question? "What is the burden of gastroenteritis among children?"

- a) Gastroenteritis OR children
- b) Gastroenteritis AND children
- c) Gastroenteritis BUT children
- d) Gastroenteritis NOT children

Answer: b)

35) Which of the following Boolean operator will give the highest number of results when used between two given search terms?

- a) AND
- b) NOT
- c) OR
- d) ALL

Answer: c)

36) A researcher wants to study the effect of physical activity on reduction of systolic blood pressure among patients with hypertension. The researcher has identified a subset of document which are most relevant to the research question within a large document collection. This process is known as...

- a) Information management
- b) Critical appraisal
- c) Information retrieval
- d) Literature organization

Answer: c)

37) The organized collection of articles, abstracts, scientific proceedings, books, and citations used for the purpose of literature review, is known as

- a) Database
- b) Data management

ASSIGNMENT - 3

c) Critical appraisal

d) Index

Answer: a)

38) Which of the following does not satisfy the ethical principles in conducting a literature review?

a) Results of previous studies are presented without distortion

b) Weaknesses of previous studies are highlighted

c) Previous studies are accurately cited

d) Reputation of study authors are questioned

Answer: d)

39) For which of the following purpose is the Boolean operator „OR“ commonly used in literature search?

a) Connecting synonyms of one key concept

b) Connecting different key concepts

c) Connecting keywords which need to be excluded

d) Connecting keywords to narrow down the results

Answer: a)

40) Medical Subject Headings is a controlled vocabulary thesaurus used for indexing articles in

a) PubMed

b) Google scholar

c) Scopus

d) Health on Net

Answer: a)

41) State whether true or false. Literature review helps us to understand the gaps in the existing knowledge about the concerned subject.

a) True

b) False

Answer: a)

42) All of the following about literature review are correct EXCEPT:

a) Literature review saves lot of time in your research

b) Critical appraisal is an important step in the process of literature review

c) Literature review is the identification a subset of document which are most relevant to the research question

d) Literature review helps to develop new research questions

Answer: c)

43) The process of identifying relevant documents from a large database by a set of queries refers to _____.

a) Citation

b) Critical appraisal

c) Information retrieval

d) Indexing

ASSIGNMENT - 3

Answer: c)

44) All of the following are steps in performing a literature review EXCEPT:

- a) Selecting the studies reported in the last 5 years
- b) Comparing methods of identified studies
- c) Tabulation of findings from each study
- d) Scholarly critical appraisal of studies

Answer: a)

45) Which among the following is not generally reported in the table of literature review?

- a) Study design
- b) Study population
- c) Primary outcomes
- d) Impact factor

Answer: d)

46) Which among the following is NOT a search engine for retrieving published medical literature?

- a) PubMed
- b) Ovid
- c) Google Scholar
- d) Mendeley

Answer: d)

47) An investigator is interested to find literature on the effectiveness of COVID vaccination for reducing severe COVID-19 illness that requires ICU care. Which of the following search strategy will yield the most appropriate results?

- a) "COVID-19 Vaccine" AND ("Severe COVID-19" OR "Intensive Care Units")
- b) ("COVID-19 Vaccine" OR "Severe COVID-19") AND "Intensive Care Units"
- c) "COVID-19 Vaccine" AND "Severe COVID-19" AND "Intensive Care Units"
- d) "COVID-19 Vaccine" OR "Severe COVID-19" OR "Intensive Care Units"

Answer: c)

48) Which of the following Boolean operators is used for connecting two keywords, the latter of which needs to be excluded from searches?

- a) AND
- b) OR
- c) NOT
- d) BUT

Answer: c)

49) Which of the following pose an ethical challenge in performing a literature review?

- a) Contents from individual studies are presented without distortion
- b) Scholarly appraisal of the weakness of the studies without being too critical
- c) Studies supporting our proposed hypothesis are selectively reported and highlighted
- d) Documenting the source accurately

Answer: c)

ASSIGNMENT - 3

50) An investigator is interested to summarise the prevalence of hookworm infections among children. Which among the following search strategy would yield the appropriate result?

- a) "Hookworm infections" AND "Child"
- b) "Hookworm infections" OR "Child"
- c) "Hookworm infections" NOT "Child"
- d) "Hookworm infections" BUT "Child"

Answer: a)

NOT A

ASSIGNMENT - 4

1) Which of the following must be considered while measuring occurrence of a disease?

- a) The number of people affected by the disease
- b) The population size from which the cases of disease arise
- c) The length of the time the population is followed
- d) All of the above

Answer: d)

2) _____ is most useful for evaluating the impact of prevention programme

- a) Point prevalence
- b) Period prevalence
- c) Case fatality
- d) Incidence

Answer: d)

3) Which one of the following statements is true?

- a) High cure rate can increase the prevalence of a disease
- b) Low case fatality can reduce the prevalence of a disease
- c) Both 'a' and 'b' are true
- d) High cure rate and high case fatality can reduce the prevalence of a disease

Answer: d)

4) Measures of disease frequency

- a) Incidence
- b) Prevalence
- c) Birth rate
- d) 'a' and 'b'

Answer: d)

5) A measure that reflects severity of an acute infectious disease

- a) Case fatality ratio
- b) Incidence rate
- c) Prevalence
- d) Mortality rate

Answer: a)

6) Incidence data can be used to measure the occurrence of disease with gradual onset

- a) True
- b) False

Answer: b)

7) This measure reflects the impact of a disease on population in terms of death

- a) Incidence density
- b) Case fatality
- c) Disease specific mortality
- d) Attack rate

Answer: c)

ASSIGNMENT - 4

8) While measuring the frequency of a chronic disease in a community in terms of Incidence per 1000 persons per year, and point prevalence per 1000 persons, what is the expected pattern of incidence and prevalence?

- a) Low prevalence, high incidence
- b) High prevalence, low incidence
- c) Both prevalence and incidence will be similar
- d) None of the above statements are true

Answer: b)

9) In a study among 3400 children aged 5-10 years, 16 children were diagnosed with autistic disorder. Calculate the prevalence of autism per 1000 children

- a) 4.01
- b) 5.53
- c) 3.35
- d) 4.71

Answer: d)

SOLUTION:- Formula, $P = C / N$

where, P = Prevalence = ?

C = no of observed cases at time 't' = 16

N = Population size at time 't' = 3400

On substitution, $P = 16/3400 = 0.004705$

Therefore prevalence of autism per 1000 children = $0.004705 \times 1000 = 4.71$

10) Statistic used to estimate the risk of acquiring a disease

- a) Prevalence
- b) Incidence
- c) Mortality rate
- d) All of the above

Answer: b)

11) What is the appropriate measure when a researcher wishes to know the burden of a particular disease in terms of the number of deaths it causes in a specified geographical region and population?

- a) Incidence density
- b) Case fatality
- c) Attack rate
- d) Disease specific mortality

Answer: d)

12) If health policy makers want to evaluate the impact of a prevention program, which is the appropriate measure to be considered?

- a) Period prevalence
- b) Incidence
- c) Point prevalence
- d) Case fatality

Answer: b)

13) Select the correct statement among the following

- a) Prevalence of a disease will increase when it has a high cure rate
- b) Prevalence of a disease will decrease when it has a low case fatality ratio
- c) Prevalence of a disease will increase when it has a low cure rate
- d) Prevalence of a disease will increase when it is acute in nature

Answer: c)

14) What is the appropriate epidemiologic measure to determine the severity of an acute disease?

- a) Incidence rate
- b) Prevalence
- c) Mortality rate
- d) Case fatality ratio

Answer: d)

15) Cumulative incidence is otherwise known as

- a) Attack rate
- b) Case fatality rate
- c) Mortality rate
- d) Morbidity rate

Answer: a)

16) The healthcare professionals working in an intensive care unit were asked whether there has been an increase in the number of new pneumonia cases. Which of the following factor(s) is inappropriate in the calculation of cumulative incidence?

- a) Number of new cases of pneumonia during a specific period of time
- b) Total number of people at risk of developing the disease in that population during the same period of time
- c) Pre-existing cases of pneumonia
- d) Both 'a' and 'b'

Answer: c)

17) When measuring the frequency for an acute infectious disease in a community in terms of incidence per 1000 persons per year and point prevalence per 1000 persons, how will the pattern of incidence and prevalence be?

- a) High prevalence
- b) Low incidence
- c) Both prevalence and incidence will be similar
- d) Low prevalence and high incidence

Answer: d)

18) Among 25000 population in a city, 105 residents were identified with Hepatitis B infection. Calculate the prevalence of Hepatitis B per 1000 population.

- a) 5.2
- b) 4.2

ASSIGNMENT - 4

c) 3.2

d) 2.2

Answer: b)

SOLUTION → $P = C / N$

where, $P = \text{Prevalence} = ?$

$C = \text{no of observed cases at time 't'} = 105$

$N = \text{Population size at time 't'} = 25000$

On substitution, $P = 105/25000 = 0.0042$

Therefore prevalence of Hepatitis B per 1000 population = $0.0042 \times 1000 = 4.2$

19) Which of the following condition tends to increase the prevalence of a particular disease?

a) High cure rate

b) Low case fatality ratio

c) Short duration

d) Emigration of patients

Answer: b)

20) Which of the following is true about incidence density?

a) Numerator has number of new cases

b) Also called cumulative incidence

c) Denominator is number of persons at risk

d) Numerator has person-years at risk

Answer: a)

21) In a rural block with 1,00,000 population, 250 residents were identified with cardiovascular disease. Calculate the prevalence of cardiovascular disease per 1000 population.

a) 0.2

b) 0.5

c) 2.5

d) 25

Answer: c)

SOLUTION, $P = C / N$

where, $P = \text{Prevalence} = ?$

$C = \text{no of observed cases at time 't'} = 250$

$N = \text{Population size at time 't'} = 1,00,000$

On substitution, $P = 250/1,00,000 = 0.0025$

Therefore prevalence of cardiovascular disease per 1000 population = $0.0025 \times 1000 = 2.5$

22) What is the appropriate epidemiologic measure to determine the burden of a disease in terms of number of cases presenting a specified geographical area at a specific point in time?

a) Cumulative Incidence

b) Point Prevalence

c) Incidence rate

d) Case fatality ratio

Answer: b)

23) In a study, 300 children were followed up for a period of one year to determine the burden of acute respiratory infections (ARI). Calculate the incidence density if the total number of ARI episodes recorded was 1500.

- a) 5 episodes per child year
- b) 0.2 episodes per child year
- c) 3 episodes per child year
- d) 0.5 episodes per child year

Answer: a)

SOLUTION → Incidence Density(ID) = $\frac{\text{no of new cases}}{\text{Total person time of observation}}$

$$ID = \frac{1500}{300} = 5 \text{ episodes per child year}$$

24) A total of 100 people with hypertension were followed up for 3 years to observe for the development of myocardial infarction in a cohort study. At the end of first year, 10 people developed myocardial infarction, at the end of second year 10 people left the study and at the end of third year, another 10 people developed myocardial infarction. Calculate the total person-years of observation in this study?

- a) 250
- b) 260
- c) 270
- d) 280

Answer: c)

SOLUTION → Given, no of people with HTN = 100

Duration of observation = 3yrs

Total person years of observation = (Sum of the time that each person remained under observation and free from the disease) = ?

Suppose one person who is at risk of a disease is observed for one year, this is called 'one person-year'.

No of participants observed during 1st yr = 100 -----> 1

No of participants observed during 2nd yr = 90 (10 people developed MI at the end of 1st yr) -----> 2

No of participants observed during 3rd yr = 80 (10 people left the study) -----> 3

Total person-years of observation in this study = Add equation 1,2,3 = 100 + 90 + 80 = **270**

(NOTE: no of people who develop disease at the end of last yr wont be considered for person yrs)

25) During a one-year follow-up, a psychiatrist determined the burden of suicidal ideation among 100 patients with drug addiction. Seven patients had previous history of suicidal ideation and 20 patients developed it for the first time. What is the incidence of suicidal ideation in the study population?

- a) 7% per year
- b) 20% per year
- c) 21.5% per year
- d) 27 per year

ASSIGNMENT - 4

Answer: c)

SOLUTION → $I = \frac{\text{no of new cases in a specified time interval}}{\text{Total population at risk at the beginning during same time interval}}$

Given, New cases = 20

Total population = 93

(Because out of 100 patients 7 had past h/o suicidal ideation hence we wont consider them .Therefore total population becomes 93)

On substitution, $I = \frac{20}{93} = 21.5\%$ per year

26) In a food poisoning outbreak, 75 people were affected. Among them, 50 were hospitalized, and two died. Calculate the case-fatality ratio.

- a) 1.2%
- b) 2.7%
- c) 4%
- d) 8%

Answer: b)

SOLUTION → Formula, Case fatality ratio (CFR) = $\frac{\text{No of deaths}}{\text{No of cases}}$

Given, No of deaths = 2

No of people affected = 75

On substitution, $CFR = \frac{2}{75} = 2.7\%$

27) Which of the following is NOT required for calculating prevalence of a disease?

- a) Pre-existing cases of the disease
- b) New cases of the disease
- c) Total number of people at risk
- d) Total person-time of observation

Answer: d)

28) Which of the following condition tends to reduce the prevalence of a particular disease?

- a) High cure rate
- b) Low case fatality ratio
- c) Improved case detection rate
- d) Immigration of diseased people

Answer: a)

29) In which of the following conditions, prevalence is an appropriate measure of disease frequency?

- a) Common cold episodes in elderly
- b) Number of exacerbations in asthma patients
- c) Proportion of foot ulcers in Diabetes Mellitus
- d) Number of diarrhoea episodes in children

Answer: c)

ASSIGNMENT - 4

30) Which of the following is INCORRECT about case fatality?

- a) It reflects the severity of a disease
- b) High case fatality indicates poor prognosis
- c) It relates the number of deaths to the number of cases of a disease
- d) It is a true rate

Answer: d)

31) In a rural block with 1,00,000 population, 250 residents were identified with cardiovascular disease. Calculate the prevalence of cardiovascular disease per 1000 population.

- a) 0.2
- b) 0.5
- c) 2.5
- d) 25

Answer: c)

SOLUTION → Formula, $P = C / N$

where, P = Prevalence = ?

C = no of observed cases at time 't' = 250

N = Population size at time 't' = 1,00,000

On substitution, $P = 250 / 1,00,000 = 0.0025$

Therefore prevalence of cardiovascular disease per 1000 population = $0.0025 \times 1000 = 2.5$

32) What is the appropriate epidemiologic measure to determine the burden of a disease in terms of number of cases present in a specified geographical area at a specific point in time?

- a) Cumulative Incidence
- b) Point Prevalence
- c) Incidence rate
- d) Case fatality ratio

Answer: b)

33) In a study, 300 children were followed up for a period of one year to determine the burden of acute respiratory infections (ARI). Calculate the incidence density if the total number of ARI episodes recorded was 1500.

- a) 5 episodes per child year
- b) 0.2 episodes per child year
- c) 3 episodes per child year
- d) 0.5 episodes per child year

Answer: a)

SOLUTION → Incidence Density(ID) = $\frac{\text{no of new cases}}{\text{Total person time of observation}}$

$$ID = \frac{1500}{300} = 5 \text{ episodes}$$

34) 100 people with hypertension are followed up for 5 years to observe for development of myocardial infarction. At the end of second year 5 people develop myocardial infarction, at the

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end of third year another 2 people develop myocardial infarction and at the end of five years 3 people develop myocardial infarction. Calculate the incidence rate of myocardial infarction.

- a) 10 cases per five person-years
- b) 10 percentage
- c) 10/481 cases per person-year
- d) 10/500 cases per person-year

Answer: c)

SOLUTION → Given, no of people with HTN = 100

Duration of observation = 5yrs

Total person years of observation = (Sum of the time that each person remained under observation and free from the disease) = ?

Suppose one person who is at risk of a disease is observed for one year, this is called 'one person-year'.

No of participants observed during 1st yr = 100 -----> 1

No of participants observed during 2nd yr = 100 -----> 2

No of participants observed during 3rd yr = 95 (5 people developed MI at the end of 2nd yr) -----> 3

No of participants observed during 4th yr = 93 (3 people developed MI at the end of 3rd yr) -----> 4

No of participants observed during 5th yr = 93 -----> 5

(NOTE: no of people who develop disease at the end of last yr wont be considered for person yrs)

Therefore total no of participants who developed MI = 5 + 3 + 2 = 10

Total person-years of observation in this study = Add equation 1,2,3,4,5 = 100 + 100 + 95 + 93 + 93 = 481

35) During a one-year follow-up, a psychiatrist determined the burden of suicidal ideation among 100 patients with drug addiction. Seven patients had previous history of suicidal ideation and 20 patients developed it for the first time. What is the incidence of suicidal ideation in the study population?

- a) 7% per year
- b) 20% per year
- c) 21.5% per year
- d) 27 per year

Answer: c)

SOLUTION → $I = \frac{\text{no of new cases in a specified time interval}}{\text{Total population at risk at the beginning during same time interval}}$

Given, New cases = 20

Total population = 93

(Because out of 100 patients 7 had past h/o suicidal ideation hence we wont consider them .Therefore total population becomes 93)

On substitution, $I = \frac{20}{93} = 21.5\%$ per year

36) In a food poisoning outbreak, 75 people were affected. Among them, 50 were hospitalized, and two died. Calculate the case-fatality ratio.

- a) 1.2%
- b) 2.7%

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c) 4%

d) 8%

Answer: b)

SOLUTION → Case fatality ratio (CFR) = $\frac{\text{No of deaths}}{\text{No of cases}}$

Given, No of deaths = 2

No of people affected = 75

On substitution, CFR = $\frac{2}{75} = 2.7\%$

37) Which of the following is not required for calculating prevalence of a disease?

- a) Pre-existing cases of the disease
- b) New cases of the disease
- c) Total number of people at risk of developing the disease at that time
- d) Total person-time of observation

Answer: d)

38) Which of the following condition tends to reduce the prevalence of a particular disease?

- a) High cure rate
- b) Low case fatality ratio
- c) Improved case detection rate
- d) Immigration of diseased people

Answer: a)

39) In which of the following conditions, prevalence is an appropriate measure of disease frequency?

- a) Common cold episodes in elderly
- b) Number of exacerbations in asthma patients
- c) Proportion of foot ulcers in Diabetes Mellitus
- d) Number of diarrhoea episodes in children

Answer: c)

40) Which of the following is INCORRECT about case fatality?

- a) It reflects the severity of a disease
- b) High case fatality indicates poor prognosis
- c) It relates the number of deaths to the number of cases of a disease
- d) It is a true rate

Answer: d)

41) All of the following are measures of morbidity EXCEPT:

- a) Incidence
- b) Probability of experiencing a disease condition
- c) Population at risk of a disease
- d) Period prevalence

Answer: c)

42) The ratio of the number of new cases to the total time the population is at risk of disease refers to _____.

ASSIGNMENT - 4

- a) Cumulative incidence
- b) Incidence density
- c) Risk
- d) Incidence proportion

Answer: b)

43) A cross sectional survey was undertaken to estimate the prevalence of refractive errors among adults in a village with a population of 10,000. During the survey, about 400 reported spectacle use for refractive error and another 800 individuals were identified with refractive error during the survey. What is the prevalence of refractive error?

- a) 8.0%
- b) 8.3%
- c) 12.0%
- d) 12.3%

Answer: c)

SOLUTION → Formula, $P = C / N$

where, P = Prevalence = ?

C = no of observed cases = 400+800 = 1200

N = Population size = 10,000

On substitution, $P = 1200/10000 = 0.12$

Therefore prevalence of refractive error = 12%

44) Which of the following is FALSE about disease prevalence?

- a) It is the ratio of existing cases to the total population at risk during a specified time point
- b) Total mid-year population is used as an approximation for population at risk wherever at risk population is not available
- c) The multiplier is chosen depending upon how rare or common the disease being studied is.
- d) Prevalence is the appropriate for measuring burden of diseases with high fatality

Answer: d)

45) Which of the following can decrease the prevalence of a disease?

- a) Increase in the incidence of the disease
- b) Improved detection of diseased individuals
- c) High case fatality
- d) Immigration of persons with the disease into study area

Answer: c)

46) Which of the following statement is FALSE about incidence of disease?

- a) It measures the rapidity with which new cases are occurring in a population
- b) It is the number of all existing cases (new and old) during a given period in a specified population
- c) It can be expressed as cumulative incidence or incidence density
- d) Cumulative incidence is also referred to as attack rate

Answer: b)

ASSIGNMENT - 4

47) A cohort of women who smoked cigarettes was followed-up to study the incidence of cleft lip among the children born to these women. Of the total 9,500 children born to these women, 228 children had cleft lip. What is the risk of cleft lip among women who smoke cigarettes?

- a) 2.4 per 100 persons
- b) 0.24 per 100 persons
- c) 0.24 per lakh persons
- d) 0.024 per 1000 persons

Answer: a)

SOLUTION → $I = \frac{\text{no of new cases in a specified time interval}}{\text{Total population at risk at the beginning during same time interval}}$

Given, New cases = 228

Total population = 9500

On substitution, $I = \frac{228}{9500} = 0.24 = 0.24 \times 100 = 2.4$ per 100 persons

48) Which of the following is TRUE about case fatality?

- a) It reflects the severity of the disease
- b) It can be expressed as a rate
- c) It cannot be expressed as a proportion
- d) It expresses a relation between the number of deaths due to a disease to the total number of deaths

Answer: a)

49) About 1000 prison inmates were followed up for one year to study the occurrence of Tuberculosis (TB) among them. Of the total, 10 had TB at the beginning and another 25 persons developed TB during one year of follow-up. What is the period prevalence for that year?

- a) 2.5%
- b) 3.0%
- c) 3.5%
- d) 4.0%

Answer: c)

SOLUTION → Formula, Point prevalence (PP) = $\frac{C+I}{N}$

where, PP = ?

I = Incidence = 25

C = Prevalent cases = 10

N = Population size = 1000

On substitution, $PP = \frac{25+10}{1000} = 0.035 \times 100 = 3.5\%$

50) State whether true or false. Change in prevalence from one time period to another may be the result of changes in incidence rates, changes in the duration of disease, or both.

- a) True
- b) False

Answer: a)

ASSIGNMENT - 5

1) Study design(s) useful for describing uncommon clinical manifestations

- a) Case reports
- b) Case series
- c) Both 'a' and 'b'
- d) Ecological study

Answer: c)

2) Cross-sectional studies are used to

- a) Estimate prevalence
- b) Generate hypotheses
- c) Describe trends
- d) All of the above

Answer: d)

3) In a cross-sectional study, we can observe one or more outcomes

- a) True
- b) False

Answer: a)

4) Which one of the following is useful to measure the burden or magnitude of a disease or risk factor?

- a) Case-control study
- b) Cross-sectional study
- c) Case report
- d) Case series

Answer: b)

5) Which of the following is wrong about descriptive study designs?

- a) Describe the study outcome for 1 group
- b) Compare the study outcomes for 2 group
- c) Calculate the incidence for surveillance data
- d) Calculate prevalence for cross-sectional study

Answer: b)

6) Descriptive epidemiology study designs can answer all of the following questions EXCEPT:

- a) Who
- b) When
- c) Where
- d) Why

Answer: d)

7. Which one of the following study designs does not employ comparison groups to answer the primary study objectives?

- a) Cross-sectional study
- b) Cohort study
- c) Ecological study

ASSIGNMENT - 5

d) Clinical trials

Answer: a)

8) Unit of observation in the cross-sectional study is

a) Individual

b) Group

c) Both 'a' and 'b'

d) None of the above

Answer: a)

9) Case reports can include presentation of

a) Unique features/symptoms of a disease

b) Rare manifestation of common disease

c) New or unfamiliar diseases

d) All of the above

Answer: d)

10) Advantage of the ecological study is

a) Relate rate of disease and exposure

b) Useful to test hypothesis

c) Useful to study rare diseases

d) All of the above

Answer: a)

11) A researcher can assess the following by conducting a descriptive study EXCEPT

a) Population in which the disease was prevalent

b) Period in which the disease occurred

c) Risk factors of the disease

d) Place distribution of the disease

Answer: c)

12) The following study design provides group exposure and group response/outcome without knowing the individual exposure and response for a specific health problem

a) Ecological study

b) Cross sectional survey

c) Case report

d) Case series

Answer: a)

13) Which of the following study design will be helpful if the department of health wants to know the burden of a particular disease?

a) Ecological study

b) Cross sectional survey

c) Case series

d) Case report

Answer: b)

ASSIGNMENT - 5

14) A clinician comes across an unusual presentation of a particular neurological disorder. If the clinician describes this single case in detail and publishes the same in a journal, then it will be called

- a) Analytical study
- b) Case report
- c) Cross sectional survey
- d) Ecological study

Answer: b)

15) The advantage of an ecological study is that

- a) It is analytical in nature
- b) It will cover individual level information on risk factors and disease
- c) It will be useful to test hypotheses
- d) It will be useful to generate hypotheses

Answer: d)

16) In a tertiary care hospital, a surgeon collected information on quality of life and outcome among a small group of (about 15) post-operative patients after using a novel surgical device. But this is not sufficient to establish the efficacy of the surgical device because

- a) There is no comparison group
- b) There is no information of risk factors
- c) We do not have details of the outcome
- d) We do not have individual level data

Answer: a)

17) Population census is a

- a) Cross sectional survey
- b) Ecological study
- c) Analytical study
- d) None of the above

Answer: a)

18) One of the major limitations of a cross-sectional study is that

- a) It is time consuming
- b) It has lower validity
- c) It does not establish disease etiology
- d) It requires a large sample size

Answer: c)

19) Characteristic of a cross sectional study is that

- a) We can calculate the incidence of a disease
- b) We can test a hypotheses
- c) It is difficult to conduct
- d) Exposure and outcome are assessed at the same time

ASSIGNMENT - 5

Answer: d)

20) If a researcher wishes to estimate the incidence of Myocardial infarction cases among a group of women using oral contraceptive pills followed up for 10year, the researcher has to carry out

- a) Case series
- b) Cohort study
- c) Cross sectional study
- d) Ecological study

Answer: b)

21) Case series are useful

- a) To estimate burden of a disease
- b) To determine risk factors of a disease
- c) To determine efficacy of a new drug
- d) To describe uncommon clinical manifestation

Answer: d)

22) All the following are true about cross-sectional survey, EXCEPT

- a) Individual is the unit of observation
- b) Involves only incident cases
- c) Estimate the burden of a disease
- d) It can be used to generate hypothesis

Answer: b)

23) A detailed presentation of a single case which is rare and unfamiliar, is called

- a) Case report
- b) Case series
- c) Ecological study
- d) Cross-sectional study

Answer: a)

24) Which of the following is INCORRECT about ecological study?

- a) It relates the rate of disease and frequency of exposure
- b) It is an example of observational study
- c) It uses individual level data
- d) It helps in generating hypothesis

Answer: c)

25) Which of the following is NOT applicable in a case study?

- a) Clinical features
- b) Laboratory parameters
- c) Socio-demographic background
- d) Incidence

Answer: d)

ASSIGNMENT - 5

26) To determine the association between air pollution and male infertility, data on air quality index and prevalence of male infertility was collected for 183 countries for the year 2019. What best describes the study?

- a) Case report
- b) Case series
- c) Ecological study
- d) Cross-sectional study

Answer: c)

27) In a medical journal, 18 cases of Creutzfeldt Jakob disease were reported from a tertiary care hospital in Sikkim. The authors of the paper gave a description of the socio-demographic, clinical, and laboratory features of the 18 patients. What best describes this study design?

- a) Case study
- b) Case series
- c) Case control study
- d) Ecological study

Answer: b)

28) Which of the following is FALSE about cross-sectional studies?

- a) Can be used to generate hypothesis
- b) Can be used to establish temporality of association
- c) Can be used to estimate disease burden
- d) Can be used to identify factors associated with outcome

Answer: b)

29) State whether true or false. Descriptive cross-sectional study does not have a comparison group.

- a) True
- b) False

Answer: a)

30) Which of the following studies can be used to identify the factors associated with an outcome?

- a) Descriptive cross-sectional study
- b) Analytical cross-sectional study
- c) Case study
- d) Case series

Answer: b)

31) Case series are useful-

- a) To estimate burden of a disease
- b) To determine risk factor of a disease
- c) To determine efficacy of a new drug
- d) To describe uncommon clinical manifestation

Answer: d)

32) All the following are true about cross-sectional survey, EXCEPT

ASSIGNMENT - 5

- a) Individual is the unit of observation
- b) Involves only incident cases
- c) Estimate the burden of a disease
- d) It can be used to generate hypotheses

Answer: b)

33) A detailed presentation of a single case which is rare and unfamiliar, is called

- a) Case report
- b) Case series
- c) Ecological study
- d) Cross-sectional study

Answer: a)

34) Which of the following is INCORRECT about ecological study?

- a) It relates the rate of disease and frequency of exposure
- b) It is an example of observational study
- c) It uses individual level data
- d) It helps in generating hypothesis

Answer: c)

35) Which of the following is not applicable in a case study?

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- c) Socio-demographic background
- d) Incidence

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- a) Case report
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- c) Ecological study
- d) Cross-sectional study

Answer: c)

37) In a medical journal, 18 cases of Creutzfeldt Jakob disease were reported from a tertiary care hospital in Sikkim. The authors of the paper gave a description of the socio-demographic, clinical, and laboratory features of the 18 patients. What best describes this study design?

- a) Case study
- b) Case series
- c) Case control study
- d) Ecological study

Answer: b)

38) Which of the following is FALSE about cross-sectional studies?

ASSIGNMENT - 5

- a) Can be used to generate hypothesis
- b) Can be used to establish temporality of association
- c) Can be used to estimate disease burden
- d) Can be used to identify factors associated with outcome

Answer: b)

39) Descriptive cross-sectional study does not have a comparison group

- a) True
- b) False

Answer: a)

40) Which of the following studies can be used to identify the factors associated with an outcome?

- a) Descriptive cross-sectional study
- b) Analytical cross-sectional study
- c) Case study
- d) Case series

Answer: b)

41) Which of the following study designs is most appropriate to disseminate information on rare clinical manifestation of a particular disease?

- a) Case series
- b) Cross sectional study
- c) Ecological study
- d) Case control study

Answer: a)

42) State whether True or False: Population is the unit of observation in an ecological study.

- a) True
- b) False

Answer: a)

43) State whether True or False. All analytical studies are interventional in nature.

- a) True
- b) False

Answer: b)

44) Population level information is required in which of the following study designs?

- a) Case control study
- b) Ecological study
- c) Randomized control trial
- d) Cohort study

Answer: b)

45) Which of the following is used to provide information on a patient's response to an innovative intervention?

- a) Case study
- b) Cross sectional study

ASSIGNMENT - 5

- c) Case control study
- d) Ecological study

Answer: a)

46) Findings from which of the following study designs is LEAST generalizable to the population?

- a) Case series
- b) Cross sectional study
- c) Case control study
- d) Cohort study

Answer: a)

47) Which of the following statement is (are) referring an ecological study?

- a) Individual is the unit of study
- b) Relate the exposure and outcome at the population level
- c) It is a detail description of a rare clinical condition of a specific disease
- d) It is an interventional study

Answer: b)

48) Population census can be classified under which of the following study design?

- a) Cohort study
- b) Case control study
- c) Cross sectional study
- d) Ecological study

Answer: c)

49) Estimating the disease burden will be helpful in which of the following activity?

- a) To develop the treatment protocol
- b) To know the causal relationship between an exposure and an outcome
- c) To plan health care service delivery
- d) Both 'b' and 'c'

Answer: c)

50) Which of the following is a major limitation of a cross-sectional study compared to a cohort study?

- a) Exposure and outcome are examined at the same time
- b) High attrition rate
- c) Expensive to conduct
- d) It takes a long time to complete

Answer: a)

ASSIGNMENT - 6

1) Exposure is not assigned by the investigator in the following study design

- a) Cohort
- b) Case-control
- c) Cross-sectional
- d) All of the above

Answer: d)

2) Which of the following statement(s) is true about the cohort study?

- a) It is not suitable for disease with a long latency period
- b) Loss to follow up can introduce bias
- c) Both 'a' and 'b'
- d) None of the above

Answer: c)

3) Which of the following study design is better suited to demonstrate a temporal association between exposure and disease?

- a) Cross-sectional study
- b) Case-control study
- c) Cohort study
- d) Ecological study

Answer: c)

4) Relative risk of more than 1 indicates

- a) Incidence in unexposed is higher than exposed
- b) Incidence in exposed and unexposed are same
- c) Incidence in exposed is higher than unexposed
- d) Relative risk is significant

Answer: c)

5) If the odds of exposure among cases is lower than the odds of exposure among the controls, the odds ratio will be

- a) More than 1
- b) Less than 1
- c) It depends on other factors
- d) None of the above

Answer: b)

6) All babies born in a particular year will form a birth cohort

- a) True
- b) False

Answer: a)

7) Cohort study is suitable for rare diseases

- a) True
- b) False

Answer: c)

ASSIGNMENT - 6

8) Which of the following is NOT true regarding case-control study?

- i. Appropriate for study of rare outcome
- ii. More time consuming than cohort study
- iii. Multiple exposures can be examined
- iv. Relatively expensive compared to cohort study

- a) Both (i) and (ii)
- b) Both (ii) and (iii)
- c) Both (ii) and (iv)
- d) Both (iii) and (iv)

Answer: c)

9) What is an appropriate measure of statistical association in a cohort study?

- a) Prevalence ratio
- b) Risk ratio
- c) Odds ratio
- d) Pearson's correlation coefficient

Answer: b)

10) The entire population of a given community is screened and all those judged as being free of Colon cancer are questioned extensively about their diet. These people are then followed-up for several years to see whether their eating habits will predict their risk of developing Colon cancer -

This is an example of

- a) Case-control study
- b) Clinical trial
- c) Cross-sectional study
- d) Cohort study

Answer: d)

11) Exposure is assigned by the investigator in which of the following epidemiological study?

- a) Case-control
- b) Cross-sectional
- c) Experimental
- d) Cohort

Answer: c)

12) When a group of people with defined characteristics are followed up to determine incidence is known as

- a) Case series
- b) Cohort
- c) Case control
- d) Experimental

Answer: b)

13) Relative risk is a

- a) Rate
- b) Ratio

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- c) Proportion
- d) None of the above

Answer: b)

14) Relative risk of one in a cohort study indicates

- a) Incidence in unexposed is higher than exposed
- b) Incidence in exposed is higher than unexposed
- c) Relative risk is significant
- d) Incidence in the exposed and unexposed groups are same

Answer: d)

15) Women aged above 35 years were screened for the HPV (Human papilloma virus) infection and those who had HPV infection were then followed for several years to predict the risk of developing cervical cancer. This study is known as

- a) Prospective cohort
- b) Retrospective cohort
- c) Case control
- d) Cross sectional

Answer: a)

16) Which of the following is appropriate regarding a cohort study?

- i. Multiple exposures can be examined
- ii. Appropriate for studying rare exposures
- iii. Expensive and time consuming
- iv. Appropriate for studying rare diseases

- a) Both (i) and (ii)
- b) Both (iii) and (iv)
- c) Both (ii) and (iv)
- d) Both (ii) and (iii)

Answer: d)

17) Which of the following statement regarding the cohort study is FALSE?

- a) Suitable to study a disease with long latency period
- b) Loss to follow up can introduce bias
- c) Relative risk can be calculated
- d) Temporal association with the risk factor can be established

Answer: a)

18) Odds ratio of more than one indicates

- a) Odds of exposure among cases is lower than the odds of exposure among the controls
- b) Odds of exposure among cases is equal to the odds of exposure among the controls
- c) Odds of exposure among cases is higher than the odds of exposure among the controls
- d) Exposure is negatively associated with the disease

Answer: c)

19) If there is a comparison group in an epidemiological study design, it is called

ASSIGNMENT - 6

- a) Descriptive
- b) Analytical
- c) Ecological
- d) None of the above

Answer: b)

20) Which of the following statements about case control/cohort studies is correct?

- a) Case control study always establishes temporal association
- b) Cohort study establishes temporal association
- c) Cohort has lower level of evidence than case-control
- d) Do case control for rare exposures and cohort for rare diseases

Answer: b)

21) To determine the associated factors of anti-hypertensive drug compliance, an investigator selected 384 participants with hypertension who were undergoing treatment in a tertiary care hospital. The investigator collected the details on the socio-economic background of the participants and took history regarding the consumption of medicines in the past two weeks. Then the drug compliant group and the non-compliant group were compared to identify factors associated with drug compliance. What is the type of the study design?

- a) Case control study
- b) Prospective cohort study
- c) Case study
- d) Analytical cross-sectional study

Answer: d)

22) A gynaecology resident intends to determine the association between intra-uterine device (IUD) use and risk of extrauterine pregnancy. The investigator recruited 100 cases of extrauterine pregnancy and 200 participants who had intrauterine pregnancy as controls from the obstetrics ward of a tertiary care hospital over a period of 2 years. Both cases and controls were interviewed about the history of IUD use. Among the cases, 6 participants had history of IUD use and among controls, 4 had history of IUD use. Calculate the odds ratio of extrauterine pregnancies among women with history of IUD use?

- a) 0.32
- b) 1.39
- c) 3.12
- d) 0.72

Answer: c)

SOLUTION → no of cases = 100
no of controls = 200
h/o IUD use among cases = 6
h/o IUD use among controls = 4
odds ratio = ad/bc
 $= 6 \times 196 / 4 \times 94$
 $= 3.12$

	CASES	CONTROLS
EXPOSED	6(a)	4(b)
UNEXPOSED	94(c)	196(d)

ASSIGNMENT - 6

23) An investigator conducted a case control study with psoriasis patients as cases and other skin disease patients as controls. Those having hypertension were considered as exposed and non-hypertensives as non-exposed. The study found an odds ratio of 1.45. Which of the following is correct?

- a) Psoriasis is positively associated with hypertension
- b) Odds of hypertension among psoriasis patients is lower than the odds of hypertension among patients without psoriasis
- c) Odds of psoriasis among hypertensive patients is lower than the odds of psoriasis among non-hypertensives
- d) Hypertension is a causative factor of psoriasis

Answer: a)

24) A prospective cohort study was conducted to determine the association between coffee consumption and risk of pancreatitis among 10000 healthy participants. Among the participants 3500 participants consumed coffee, whereas 6500 participants did not. After a follow up of 10 years 85 participants in the coffee consumption group developed pancreatitis, whereas among the non-coffee consumption group 130 in developed pancreatitis. Calculate the relative risk of pancreatitis due to coffee consumption.

- a) 0.04
- b) 0.85
- c) 1.21
- d) 1.50

Answer: c)

SOLUTION → Total participants = 10000

No of participants who consumed coffee(exposed) = 3500(a)

No of participants who did not consume coffee(unexposed) = 6500(c)

$$\text{Relative risk(RR)} = \frac{\text{Incidence of disease exposed}}{\text{Incidence of disease unexposed}} = \frac{a/a+b}{c/c+d}$$

$$\text{On substituting values} = \frac{85/85+3415}{130/130+6370}$$

$$\text{RR} = 1.2$$

	DISEASE(+)	DISEASE(-)
EXPOSED	85(a)	3415(b)
UNEXPOSED	130(c)	6370(d)

25) All the following are elements of a cohort study, EXCEPT

- a) It involves calculation of incidence rate
- b) It proceeds from exposure to outcome
- c) It involves randomization of participants
- d) It involves follow-up of the participants

Answer: c)

26) All the following are limitations of a case control study, EXCEPT

- a) It can introduce recall bias
- b) Incidence of disease cannot be determined
- c) Selection of appropriate control group may be difficult
- d) It can introduce attrition bias

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Answer: d)

27) Using medical records from a tertiary care cancer hospital, a researcher collected data on occupational exposure and lung carcinoma on patients admitted between 2000 and 2010. He classified the patients who had history of working in coal mines as exposed and others as unexposed. He then compared the frequency of lung carcinoma among the exposed and the unexposed. What best describes the study design?

- a) Case control study
- b) Retrospective cohort study
- c) Cross-sectional study
- d) Analytical cross-sectional study

Answer: b)

28) A paediatrician recruited 120 children with Crohn's disease and their matched sibling controls. The researcher collected history of exclusive breastfeeding (EBF) from the mothers. Presence/absence of EBF was compared between the diseased and the non-diseased children. Identify the study design in this research?

- a) Case series
- b) Cross-sectional study
- c) Case control study
- d) Cohort study

Answer: c)

29) Which of the following is INCORRECT about selection of cases in case control study?

- a) Cases are study participants who had the disease in the source population
- b) Selection of cases should be based on the exposure status
- c) Inclusion of prevalent cases can save time and money
- d) Inclusion of prevalent cases may introduce survivor bias

Answer: b)

30) A multicentric study was conducted to determine the association between diabetes and cataract. The investigators recruited 1000 diabetics and 2500 non-diabetics. The participants were examined to exclude presence of cataract at the time of recruitment. They were followed once yearly for 10 years to document the development of cataract. The study found that the incidence of cataract among diabetics was more when compared with the non-diabetics. Identify the study design in this study?

- a) Cross-sectional study
- b) Case control study
- c) Prospective cohort study
- d) Experimental study

Answer: c)

31) A study was conducted to determine the factors associated with malnutrition in under-5 children. The researcher screened 350 children from 25 randomly selected villages. Among them 150 children were either underweight and/or stunted. Socio-demographic characteristics, birth

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history, and childhood clinical history were recorded for the screened children. What is the type of the study design used here?

- a) Descriptive cross-sectional study
- b) Analytical cross-sectional study
- c) Case control study
- d) Prospective cohort study

Answer: b)

32) A gynaecology resident intends to determine the association between pre-pregnancy weight and the risk of preeclampsia. The investigator recruited 50 women diagnosed with preeclampsia as cases and 50 women without preeclampsia as controls in a tertiary care hospital. Both cases and controls were interviewed and asked about their pre-pregnancy weight and height. The pre-pregnancy body mass index (BMI) was calculated for all. Among the cases, 15 women with preeclampsia and 5 women without preeclampsia had BMI > 25 kg/m². Calculate the odds ratio for the association between preeclampsia and BMI.

- a) 1.1
- b) 1.5
- c) 2.8
- d) 3.8

Answer: d)

SOLUTION → no of cases = 50
no of controls = 50

odds ratio = ad/bc
= $15 \times 45 / 5 \times 35$
= 3.85

	CASES	CONTROLS
BMI > 25	15(a)	5(b)
BMI < 25	35(c)	45(d)

33) Which of the following is correct about selection of cases in case-control study?

- a) Cases are the study participants in the source population who are exposed
- b) Selection of cases and controls should be based on the exposure
- c) Including incident cases in case-control study can save time and money
- d) Including prevalent cases may lead to survival bias

Answer: d)

34) Which of the following is an element of a case control study?

- a) It starts with selection of study participants who are exposed
- b) It involves matching of cases with controls
- c) It includes randomization of cases and controls
- d) It involves prospective follow up of the cases and controls

Answer: b)

35) A study was conducted to determine the association between coronary artery disease and age-related macular degeneration in people aged 60 years or more. The investigators included 150 participants with age-related macular degeneration and 150 participants without age-related

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macular degeneration. The participants were interviewed for major risk factors for the disease. Among participants with age-related macular degeneration, 25 had history of coronary artery disease while among those without age-related macular degeneration, only 10 had history of coronary artery disease. Identify the study design in this case?

- a) Cross-sectional study
- b) Case control study
- c) Prospective cohort study
- d) Experimental study

Answer: b)

36) A cohort study was conducted to examine the association between anemia and incidence of dementia in patients with newly diagnosed type 2 diabetes mellitus. The study included 4000 participants aged more than 30 years who were diagnosed with type 2 diabetes between 2006 and 2010 and were followed up until 2019. Anemia status was recorded at the time of enrolment into the study and development of dementia was recorded between 2011 and 2019. At the end of the study period, 200 diabetics developed dementia in total. Among those with dementia 90 were diagnosed with anaemia, while among those without dementia 1400 had anemia. Calculate the measure of association between dementia and anemia in type 2 diabetics.

- a) 1.0
- b) 1.4
- c) 2.1
- d) 2.5

Answer: b)

Since it's a cohort study relative risk is calculated

SOLUTION → Total participants(T2DM) = 4000
 no of dementia patients with anemia = 90(a)
 no of non-dementia patients with anemia = 1400(b)
 Total dementia in both groups = 200(a+c)

$$\text{Relative risk(RR)} = \frac{\text{Incidence of disease exposed}}{\text{Incidence of disease unexposed}} = \frac{a/a+b}{c/c+d}$$

$$\text{On substituting values} = \frac{90/90+1400}{110/110+2400}$$

$$\text{RR} = 1.4$$

	DEMENTIA(+)	DEMENTIA(-)
ANEMIA(+)	90(a)	1400(b)
ANEMIA (-)	110(c)	2400(d)

37) In 2020, a study was conducted by a researcher to determine the relationship between implanted medical devices and connective tissue diseases. The researcher selected 5000 individuals who had a medical device implanted between 2000 and 2002 from the medical records department of a hospital. These patients' records were followed upto the year 2019 for a diagnosis of connective tissue disease. It was observed that 20% of the individual with medical devices had developed a connective tissue disease. Identify the study design in this case.

- a) Cross-sectional study
- b) Case control study
- c) Prospective cohort study
- d) Retrospective cohort study

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Answer: d)

38) All of the following are true about cohort study EXCEPT

- a) It is can be expensive and time consuming
- b) It is appropriate for diseases with long latency period
- c) Incidence of disease can be determined
- d) Loss to follow up can introduce bias

Answer: b)

39) All of the following are types of analytical studies EXCEPT

- a) Case study
- b) Case control study
- c) Experimental study
- d) Cohort study

Answer: a)

40) An investigator conducted a cohort study to determine the association between exposure to second-hand smoke during childhood and asthma in adulthood. The study reported a relative risk of 2.1 between asthma and exposure to second-hand smoke. Which of the following interpretation is correct?

- a) The incidence of asthma in children exposed to second-hand smoke is lower than the children not exposed to second-hand smoke
- b) The incidence of asthma in children exposed to second-hand smoke is higher than the children not exposed to second-hand smoke
- c) The incidence of second-hand smoke is lower in children with asthma than in children without asthma
- d) The incidence of second-hand smoke is higher in children with asthma than in children without asthma

Answer: b)

41) The following are true about a case-control study EXCEPT:

- a) It is suitable for examining rare exposures
- b) It can be completed in a shorter duration
- c) It is relatively inexpensive to conduct
- d) It is prone to information bias due to problems in recall

Answer: a)

42) A researcher is following up a group of workers employed in aniline dye industry for 20 years to assess development of skin cancers. The comparison group consisted of workers employed in clerical job. The incidence of skin cancers was compared between the study groups. This is an example of _____.

- a) Cross-sectional study
- b) Cohort study
- c) Case-control study
- d) Ecological study

Answer: b)

ASSIGNMENT - 6

43) A relative risk of one would denote that _____.

- a) The incidence among non-exposed is higher than the incidence among exposed
- b) The exposure is positively associated with the disease
- c) The incidence among exposed is same as the incidence among the unexposed
- d) The incidence among exposed is higher than the incidence among non-exposed

Answer: c)

44) Which of the following information about cohort study is INCORRECT?

- a) Study population can be selected from the general population or subgroups
- b) Exposure status of the participants is collected at the baseline
- c) Individuals who had outcome of interest at the baseline will form the cohort
- d) Follow-up and outcome ascertainment in the exposed and the unexposed groups should be uniform

Answer: c)

45) In a cohort study, 29 out of 1530 individuals who received COVID-19 vaccine and 217 out of 1880 individuals who did not get COVID-19 vaccine developed severe COVID-19. The suitable measure of association in the above study is _____.

- a) Relative risk of 0.16
- b) Odds ratio of 0.14
- c) Prevalence ratio of 0.14
- d) Relative risk of 0.14

Answer: a)

Since it's a cohort study relative risk is calculated

SOLUTION →

No of participants who received covid vaccine (exposed) = 1530

No of participants who did not receive covid vaccine (unexposed) = 1880

No of participants who developed COVID 19 among vaccinated people = 29(a)

No of participants who developed COVID 19 among unvaccinated people = 217(c)

Relative risk(RR) =

$$\frac{\text{Incidence of disease exposed}}{\text{Incidence of disease unexposed}} = \frac{a/a+b}{c/c+d}$$

On substituting values = $\frac{29/29+1530}{217/217+1880}$

	COVID-19(+)	COVID-19(-)
VACCINE (+)	29(a)	1501(b)
VACCINE (-)	217(c)	1880(d)

$$\text{RR} = 0.16$$

46) All of the following are true regarding selection of participants in a case control study EXCEPT:

- a) Controls should represent the distribution of exposure in the source population
- b) Controls are selected from the same source population that gave rise to the cases
- c) Controls are selected depending on their exposure status

ASSIGNMENT - 6

d) Controls can be selected from population or health care facility or from the neighbourhood of cases

Answer: c)

47) A researcher wants to determine the risk factors for Mucormycosis among patients who had COVID-19. Steroid usage was compared between patients who developed and those who did not develop Mucormycosis. This is an example of a _____

- a) Cohort study
- b) Case-control study
- c) Cross-sectional study
- d) Retrospective study

Answer: b)

48) Persons diagnosed with COVID-19 disease in a hospital were asked for COVID-19 vaccination status. An equal number of patients without COVID-19 disease were asked for COVID-19 vaccination status, and the responses in the two groups were compared. The appropriate measure of association in this study would be:

- a) Risk ratio
- b) Incidence density
- c) Odds ratio
- d) Prevalence ratio

Answer: c)

49) A researcher intends to determine the association between salt intake and hypertension. 100 out of the 600 hypertension patients and 40 out of 600 patients without hypertension had high salt intake. Calculate the odds ratio for the association between salt intake and hypertension.

- a) 2.2
- b) 2.5
- c) 3.3
- d) 3.8

Answer: None of the above***

SOLUTION → No of HTN participants = 600 (CASES)

No of non-HTN participants = 600 (CONTROLS)

No of HTN participants with high salt intake = 100(a)

No of non-HTN participants with high salt intake = 40(b)

odds ratio = ad/bc

= $100 \times 560 / 40 \times 500$

= 2.8 ***

*****Actual answer is 2.8 but none of the above given answers are**

	HTN (+)	HTN (-)
HIGH SALT(+)	100(a)	40(b)
HIGH SALT(-)	500(c)	560(d)

50) Which among the following is an advantage of cohort study compared to a case-control study?

- a) Incidence of the disease can be calculated
- b) Less prone to loss to follow-up of participants

ASSIGNMENT - 6

- c) Less costly and less time consuming
- d) They are suitable for studying rare disease

Answer: a)

NOT FOR

ASSIGNMENT - 7

1) One of the cornerstones of the randomized controlled trials is

- a) Recruitment
- b) Randomization
- c) Blinding
- d) Placebo

Answer: b)

2) Randomized clinical trials can be best described as

- a) Experimental studies
- b) Analytic studies
- c) Descriptive studies
- d) Observational studies

Answer: a)

3) Which of the following is/are true in a clinical trial?

- a) Sample size determination
- b) Approval from regulatory authority
- c) Agreement between the investigators and sponsors
- d) All of the above

Answer: d)

4) A pharmacologically inactive agent that investigators administer to participants in the control group of a trial

- a) Comparator drug
- b) Placebo
- c) Conjugate
- d) Drug under investigation

Answer: b)

5) Key methodological components of a Randomized Controlled Trials are

- a) Use of a control to which the experimental intervention is compared
- b) Random assignment of participants to intervention
- c) Taking informed consent from all study participants
- d) All of the above

Answer: d)

6) Double-blinding in a clinical trial involves

- a) Participants before and after study
- b) Participants and investigators
- c) Investigators and analysts
- d) Participants and analysis

Answer: b)

7) The purpose of a double-blinding in a clinical trial is to

- a) Achieve comparability of all arms of a clinical trial
- b) Avoid observer and participant bias
- c) Avoid observer bias and sampling variation

ASSIGNMENT - 7

d) Avoid subject bias and sampling variation

Answer: b)

8) What is the purpose of randomization in a clinical trial?

- a) Get better power for data analysis
- b) Generalizing the study findings to the population which is not studied
- c) Achieve balance in baseline characteristics
- d) Guarantee that the statistical tests have valid significance levels

Answer: c)

9) Which phase of a clinical trial is referred to as post-marketing surveillance?

- a) Phase 1
- b) Phase 2
- c) Phase 3
- d) Phase 4

Answer: d)

10) Long-term adverse effects and efficacy of a new drug can be tested in which of the following phases of a clinical trial?

- a) Phase 1
- b) Phase 2
- c) Phase 3
- d) Phase 4

Answer: b)

11) Which of the following is incorrect in case of a clinical trial?

- a) All clinical trials must be blinded
- b) Randomization is a critically important step in a clinical trial
- c) All clinical trials must be approved by Institutional Ethics Committee before initiation
- d) It is mandatory to register clinical trials with Clinical Trials Registry of India

Answer: c)

12) Which of the following procedures ensure safety of the clinical trial participants?

- i) Adverse events reporting
- ii) Serious adverse events reporting
- iii) Periodic follow-up
- iv) Review by Data Safety Monitoring Board

- a) i, ii, iii, & iv
- b) i, ii & iv
- c) iii & iv
- d) iv

Answer: a)

13) All the following correctly describe a clinical trial, except

- a) It has all advantages of a cohort study
- b) It is possible to analyze the confounders

- c) Loss to follow up of study participants does not affect the study outcome
- d) Appropriate implemented informed consent procedure as well as long-term care and support to trial participants help to overcome several ethical concerns

Answer: c)

14) Which of the following can be considered as an advantage of a double blinding in a randomized controlled trial?

- a) Equally distributes known and unknown confounders in experiment and control arm
- b) Ensures that participants adhere to the protocol
- c) Gives benefits of an intervention to some of the study participants
- d) Prevent bias that arises from researchers being able to influence the data due to knowledge of allocated groups

Answer: d)

15) Biased outcome ascertainment results from:

- a) Participants reporting symptoms or outcomes differently
- b) Investigators eliciting symptoms or outcomes following a standardized technique
- c) None of the above
- d) Both "a" and "b"

Answer: a)

16) In a clinical trial, what is the main purpose of randomization?

- a) To get more power for data analysis
- b) To reduce investigator bias
- c) To get groups with comparable baseline characteristics
- d) To ensure optimum number of participants in each trial arm

Answer: c)

17) Which of the following can eliminate the problem of Co-intervention?

- a) Random sampling
- b) Allocation concealment
- c) Informed consent
- d) Blinding

Answer: d)

18) Which of the following is not true in case of a clinical trial?

- a) Clinical trials are planned experiments designed to assess the efficacy of an intervention
- b) Clinical trials usually involve comparing the outcomes in two or more groups of individuals
- c) Clinical trials are usually free from selection bias
- d) Clinical trials are usually prospective in nature

Answer: c)

19) Which of the following trials assesses effectiveness of a new vaccine?

- a) Phase 1 trial done in healthy volunteers
- b) Phase 2 trial done in a susceptible population

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- c) Phase 3 trial done in healthy volunteers
- d) Phase 3 trial done in a susceptible population

Answer: d)

20) Which of the following is not true about a randomized control trial?

- a) Baseline characteristics of intervention and control groups must be similar
- b) Investigator bias can be minimized by double blinding
- c) The sample size depends on the hypothesis being tested
- d) Drop outs should be excluded from the analysis

Answer: d)

21) State whether true or false. In a randomized controlled trial, the investigator is unaware of the sequence of allocation of the participants to one of the study arms before and until the assignment is complete. This process is known as allocation concealment.

- a) True
- b) False

Answer: a)

22) Which of the following is NOT a feature of randomized controlled trials?

- a) Simple random sampling
- b) Randomization
- c) Allocation concealment
- d) Blinding

Answer: a)

23) A research group from a medical college in Lucknow conducted a study to assess the efficacy of a new herbal medicine for the prevention of pneumonia in elderly. What type of randomized controlled trial is this study?

- a) Screening RCT
- b) Diagnostic RCT
- c) Therapeutic RCT
- d) Prophylactic RCT

Answer: d)

24) In which type of population is a phase-I vaccine trial conducted?

- a) Healthy volunteers
- b) High risk group
- c) Diseased population
- d) Laboratory animals

Answer: a)

25) State whether true or false. Randomization is a process, where the participants have an equal chance of being assigned to any one of the study groups.

- a) True
- b) False

Answer: a)

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26) Which of the following is NOT an advantage of randomized controlled trials?

- a) Provides high quality evidence
- b) Controls for selection and confounding bias
- c) Establishes temporality of association
- d) Entails minimal ethical issues

Answer: d)

27) Post-marketing surveillance is done in which of the clinical trial phases?

- a) Phase 1
- b) Phase 2
- c) Phase 3
- d) Phase 4

Answer: d)

28) State whether true or false. Randomized controlled trials are retrospective in nature.

- a) True
- b) False

Answer: b)

29) In a clinical trial conducted by the Orthopaedic department of a medical college in Bhubaneswar, the investigators compared the wound healing time between conventional suturing technique and stapling technique for open fractures. The investigators, patients and data analysts were aware about the treatment assignment. What best describes this study design?

- a) Open-label RCT
- b) Single blind RCT
- c) Double blind RCT
- d) Triple blind RCT

Answer: a)

30) Blinding in a randomized controlled trial addresses which of the following biases?

- a) Ascertainment bias
- b) Recall bias
- c) Volunteer bias
- d) Attrition bias

Answer: a)

31) State whether True or False. In a randomized controlled trial, the investigator is unaware of the sequence of allocation of the participants to one of the study arms before and until the assignment is complete. This process is known as allocation concealment.

- a) True
- b) False

Answer: a)

32) Which of the following is NOT a feature of randomized controlled trials?

- a) Simple random sampling

ASSIGNMENT - 7

- b) Randomization
- c) Allocation concealment
- d) Blinding

Answer: a)

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- a) Screening RCT
- b) Diagnostic RCT
- c) Therapeutic RCT
- d) Prophylactic RCT

Answer: d)

34) In which type of population is a phase-I vaccine trial conducted?

- a) Healthy volunteers
- b) High risk group
- c) Diseased population
- d) Laboratory animals

Answer: a)

35) State whether true or false. Randomization is a process, where the participants have an equal chance of being assigned to any one of the study groups.

- a) True
- b) False

Answer: a)

36) Which of the following is NOT an advantage of randomized controlled trials?

- a) Provides the highest level of evidence
- b) Controls for selection and confounding bias
- c) Establishes temporality of association
- d) Entails minimal ethical issues

Answer: d)

37) Post-marketing surveillance is done in which of the clinical trial phases?

- a) Phase 1
- b) Phase 2
- c) Phase 3
- d) Phase 4

Answer: d)

38) State whether true or false. Randomized controlled trials are retrospective in nature.

- a) True
- b) False

Answer: b)

ASSIGNMENT - 7

39) In a clinical trial conducted by the Orthopaedic department of a medical college in Bhubaneswar, the investigators compared the wound healing time between conventional suturing technique and stapling technique for open fractures. The investigators, patients and data analysts were aware about the treatment assignment. What best describes this study design?

- a) Open-label RCT
- b) Single blind RCT
- c) Double blind RCT
- d) Triple blind RCT

Answer: a)

40) Blinding in a randomized controlled trial addresses which of the following biases?

- a) Ascertainment bias
- b) Recall bias
- c) Volunteer bias
- d) Attrition bias

Answer: a)

41) State whether true or false. In a randomized controlled trial, the investigator is unaware of the sequence of allocation of the participants to one of the study arms before and until the assignment is complete. This process is known as 'Blinding'.

- a) True
- b) False

Answer: b)

42) The following are a feature of randomized controlled trials EXCEPT

- a) Randomization
- b) Simple random sampling
- c) Allocation concealment
- d) Blinding

Answer: b)

43) State whether true or false. Randomized controlled trials are prospective in nature.

- a) True
- b) False

Answer: a)

44) a new vaccine for the prevention of COVID-19 among children. What type of randomized controlled trial is this study?

- a) Screening RCT
- b) Diagnostic RCT
- c) Therapeutic RCT
- d) Prophylactic RCT

Answer: d)

45) In a clinical trial of an investigational new drug, the participants were blinded to their treatment allocation. However, the investigators and data analysts were aware about the

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treatment allocation. Therefore, this randomized controlled trial would be considered as

- a) Double blinded
- b) Triple blinded
- c) Single blinded
- d) None of the above

Answer: c)

46) State whether true or false. Participants are randomized in a randomized controlled trial to ensure that the groups are similar apart from the intervention.

- a) True
- b) False

Answer: a)

47) In a randomized controlled trial, overly restrictive exclusion criteria may result in which of the following?

- a) Decreased external validity
- b) Decreased internal validity
- c) Problems with recruitment
- d) Both 'Decreased external validity' and 'Problems with recruitment'

Answer: d)

48) A pharmacologically inactive agent that investigators administer to participants in the control group of a randomized controlled trial is called as:

- a) Comparator drug
- b) Conjugate
- c) Placebo
- d) Drug under investigation

Answer: c)

49) External validity of an experiment refers to which of the following?

- a) Results have been obtained from cross cultural studies
- b) Results are generalizable to the general population
- c) Experiments were performed in the laboratory
- d) Results are replicable

Answer: b)

50) In a clinical trial, the study investigators compared a new analgesic with placebo for the control of pain in arthritis. The investigators and patients were not aware about the treatment assignment. What best describes this study design?

- a) Open-label RCT
- b) Single blind RCT
- c) Double blind RCT
- d) Triple blind RCT

Answer: c)

ASSIGNMENT - 8

1) Obtaining an estimate that is generalizable to relevant study population in a research study is

- a) External validity
- b) Internal validity
- c) Bias
- d) Confounding

Answer: a)

2) Any process that tends to produce results that depart systematically from true values in a research study

- a) Chance
- b) Bias
- c) Random error
- d) Effect Modification

Answer: b)

3) Systematic selection of more number of exposed participants with the higher risk of outcome in a cohort study will result in

- a) Selection bias
- b) Information bias
- c) Confounding
- d) Random error

Answer: a)

4) The effect of the exposure of interest on the outcome is distorted because of the effect of extraneous factors that are related to both the exposure and outcome. This phenomenon is called

- a) Correlation effect
- b) Confounding
- c) Recall bias
- d) Measurement error

Answer: b)

5) Biases can occur during which stage of research study?

- a) Study design
- b) Study implementation
- c) Data analysis
- d) At any of the above stages

Answer: d)

6) All are true regarding measures to reduce information bias, EXCEPT

- a) Precise operational definitions of all variables
- b) Detailed measurement protocols
- c) Adequate sample size
- d) Training, Certification and re-certification of data collectors

Answer: c)

ASSIGNMENT - 8

7) Variability in estimation due to unknown/uncontrollable factors

- a) Chance
- b) Bias
- c) Confounding
- d) Effect modification

Answer: a)

8) All are true regarding confounding in an epidemiological study, EXCEPT

- a) May simulate an association that does not exist
- b) May increase or decrease the strength of association
- c) May not reveal an association that does exist
- d) Always change the direction of effect

Answer: d)

9) The method which can be used to alleviate confounding during data analysis in an epidemiological study

- a) Multivariate analysis
- b) Restriction
- c) Matching
- d) Randomization

Answer: a)

10) To reduce selection bias in case-control studies, all of the following are true EXCEPT

- a) Use population-based design
- b) Apply different eligibility criteria for selecting cases and controls
- c) Both cases and controls undergo the same diagnostic procedures
- d) Avoid hospital-based design

Answer: b)

11) Obtaining an accurate estimate of disease frequency and effect of exposure on health outcomes in study population pertains to

- a) External Validity
- b) Internal Validity
- c) Bias
- d) Confounding Assignment

Answer: b)

12) Blinding in an epidemiological study is a way to deal with

- a) Chance
- b) Selection Bias
- c) Information Bias
- d) Sampling Error

Answer: b)

13) Better recall of exposure only among the cases in a case control study can result in

- a) Information bias

ASSIGNMENT - 8

- b) Confounding
- c) Investigator bias
- d) Selection bias

Answer: a)

14) The ability of a tool to correctly measure what it is supposed to measure is called as

- a) Precision
- b) Validity
- c) Reliability
- d) Consistency

Answer: b)

15) Bias may distort the association between exposure and outcome among the study participants

- a) True
- b) False

Answer: a)

16) A case control study was conducted to know the effect of smoking on lung cancer among hospitalized patients. The controls were recruited from patients admitted to the respiratory ward for other conditions. What type of bias will be introduced by virtue of recruiting controls from the hospital who are potentially different from the general population?

- a) Selection bias
- b) Information bias
- c) Confounding
- d) Random error

Answer: a)

17) A researcher studied the effect of coffee drinking on Myocardial Infarction. The effect of coffee drinking on Myocardial Infarction was distorted because of the presence of a third factor, i.e., smoking. This phenomenon is called as

- a) Correlation effect
- b) Confounding
- c) Recall bias
- d) Measurement error

Answer: b)

18) Which of the following method is used to address for known confounders at the designing stage of a study

- a) Matching
- b) Regression
- c) Stratification
- d) Adjusted analysis

Answer: a)

19) Systematic distortion of the truth by study subjects is called as

ASSIGNMENT - 8

- a) Plagiarism
- b) Chance
- c) Confounding
- d) Prevarication

Answer: d)

20) Crude association in the presence of a confounder is the actual causal association

- a) True
- b) False

Answer: b)

21) Which of the following is the best method of ensuring that the experimental and control arms in an experimental study are similar with regard to known and unknown confounders at the planning stage?

- a) Matching
- b) Randomization
- c) Stratification
- d) Multivariate analysis

Answer: b)

22) When the study finding is generalizable to the target population, then it is

- a) Internally valid
- b) Reliable
- c) Accurate
- d) Externally valid

Answer: d)

23) Which of the following can introduce selection bias in a case control study?

- a) Differential recall about exposure by the cases
- b) Collecting data differently from the exposed and unexposed
- c) Inclusion of controls not representative of the target population
- d) Systematic distortion of the truth by the study participants

Answer: c)

24) Which of the following is TRUE about information bias in a cohort study?

- a) It is caused by higher attrition rate among the exposed group
- b) It can be caused by selecting controls from the community
- c) It can be avoided by uniform outcome ascertainment
- d) It can be minimised by reducing loss to follow-up

Answer: c)

25) Which of the following is NOT a systematic error in an epidemiological study?

- a) Random error
- b) Confounding
- c) Selection bias
- d) Information bias

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Answer: a)

26) Which of the following measure is related to ensuring the internal validity of a study?

- a) Using a validated study questionnaire to assess outcomes
- b) Including an adequate number of study participants
- c) Complying strictly with the study protocol
- d) All the above

Answer: d)

27) Which of the following is FALSE about confounding in epidemiological studies?

- a) Confounding may simulate an association when it does not exist
- b) Confounding does not increase or decrease the strength of the association
- c) Confounding may hide an association that exists
- d) Confounding may change the direction of an exposure-outcome association

Answer: b)

28) Systematic collection of data by an investigator supporting an expected conclusion in an epidemiological study may result in

- a) Confounding
- b) Information bias
- c) Selection bias
- d) Random error

Answer: b)

29) Which of the following is NOT a method of dealing with confounding during the design stage?

- a) Restriction
- b) Stratification
- c) Matching
- d) Randomization

Answer: b)

30) A cohort study was conducted to examine the association between obesity and cardiovascular disease. During analysis, gender was suspected to be a confounder. Which of the following methods will help in examining the confounding effect due to gender?

- a) Matching
- b) Restriction
- c) Randomization
- d) Multivariate regression

Answer: d)

31) Which of the following is the best method of ensuring that the experimental and control arms in a experiment study are similar with regard to known and unknown confounders at the planning stage?

- a) Matching
- b) Randomization
- c) Stratification

ASSIGNMENT - 8

d) Multivariate analysis

Answer: b)

32) When the study findings are generalizable to the target population, the study is considered to be...

- a) Internally valid
- b) Reliable
- c) Accurate
- d) Externally valid

Answer: d)

33) Which of the following can introduce selection bias in a case control study?

- a) Differential recall about exposure by the cases
- b) Collecting data differently from the exposed and unexposed
- c) Inclusion of controls not representative of the target population
- d) Systematic distortion of the truth by the study participants

Answer: c)

34) Which of the following is TRUE about information bias in a cohort study?

- a) It is caused by higher attrition rate among the exposed group
- b) It can be caused by selecting controls from the community
- c) It can be avoided by uniform outcome ascertainment
- d) It can be minimised by reducing loss to follow-up

Answer: c)

35) Which of the following is NOT a systematic error in an epidemiological study?

- a) Random error
- b) Confounding
- c) Selection bias
- d) Information bias

Answer: a)

36) Which of the following measure is related to ensuring the internal validity of a study?

- a) Using a validated study questionnaire to assess outcomes
- b) Including an adequate number of study participants
- c) Complying strictly with the study protocol
- d) All the above

Answer: d)

37) Which of the following is FALSE about confounding in epidemiological studies?

- a) Confounding may simulate an association when it does not exist
- b) Confounding does not increase or decrease the strength of the association
- c) Confounding may hide an association that exists
- d) Confounding may change the direction of an exposure-outcome association

Answer: b)

ASSIGNMENT - 8

38) Intentional collection of data by an investigator supporting an expected conclusion in an epidemiological study may result in...

- a) Confounding
- b) Information bias
- c) Selection bias
- d) Random error

Answer: b)

39) Which of the following is NOT a method of dealing with confounding during the design stage?

- a) Restriction
- b) Stratification
- c) Matching
- d) Randomization

Answer: b)

40) In a cohort study to examine the association between obesity and cardiovascular disease, gender was suspected to be a confounder. Which of the following methods will help in examining the confounding effect due to gender?

- a) Matching
- b) Restriction
- c) Randomisation
- d) Multivariate regression

Answer: d)

41) What is the term used to denote generalizability of the study results to target population?

- a) Internal validity
- b) External validity
- c) Precision
- d) Credibility

Answer: b)

42) A researcher measures blood pressure using a sphygmomanometer on three different occasions. The values were found to be close to one another. What is the term used to denote this phenomenon?

- a) Reliable
- b) Valid
- c) Precision
- d) Accuracy

Answer: c)

43) The estimates that researchers produce are based on samples, and samples may not accurately reflect what is really going on in the population. Which of the following threats to validity does it results in?

- a) Random error
- b) Systematic error
- c) Confounding

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d) Effect modification

Answer: a)

44) A researcher planned a prospective study on healthy eating habits among adolescents. If the people who have healthy lifestyles and healthy behaviours were more likely to participate in the study, due to the proposed study method, what bias is likely to occur?

- a) Information bias
- b) Selection bias
- c) Measurement bias
- d) Confounding bias

Answer: b)

45) Missing data can result in which of the following?

- a) Selection bias
- b) Loss to follow up bias
- c) Information bias
- d) Volunteer bias

Answer: c)

46) What is the term used to denote 'Association between exposure and outcome among the study participants differs from the causal association in the population'?

- a) Errors in estimation
- b) Effect modification
- c) Precision
- d) Causal association

Answer: a)

47) Which of the following method can be used to control confounding at the analysis stage?

- a) Restriction
- b) Matching
- c) Stratification
- d) Randomization

Answer: c)

48) Which of the following is a method to deal with information bias?

- 4a) Repeated measurements on key variables
- b) Minimize non-response
- c) Comparison of baseline variables
- d) Sensitivity analysis

Answer: a)

49) Which of the following is a method to deal with selection bias?

- a) Precise operation definition of variables
- b) Detailed measurement protocols
- c) Training data collectors
- d) Apply same eligibility criteria across groups

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Answer: d)

50) A researcher wanted to know if treating index osteoporotic vertebral fractures with vertebroplasty increased the risk of subsequent vertebral fractures. A total of 500 patients were included of whom, 250 underwent vertebroplasty while the remaining underwent the conventional standard of care. The study population was stratified to check whether the significant association ($RR=2$) found in the study was true or not. On comparison, the participants had similar age and gender characteristics. The researchers conducted a stratified analysis based on smoking. The estimate ($RR=1$) was same in both groups. What does this indicate?

- a) Effect modification
- b) Interaction
- c) Confounding
- d) Random error

Answer: c)

ASSIGNMENT - 9

1) Which methods in qualitative research use flexible interview guide?

- a) In depth Interviews and participant observation
- b) Focus Group Discussions and In-depth interviews
- c) Participant Observation and focus group discussions
- d) Structure interviews and surveys

Answer: b)

2) Which of the following study designs can be used as a tool to generate ideas/hypotheses?

- a) Qualitative study
- b) Case-control study
- c) Experimental study
- d) Cohort study

Answer: a)

3) The qualitative data analysis method in which investigators code text into categories and build theoretical models

- a) Content analysis
- b) Grounded theory
- c) Schema analysis
- d) Hermeneutics

Answer: b)

4) Open-ended, one-to-one interviews to discover interviewee's own framework of meanings

- a) In-depth Interviews
- b) Focus Group Discussions
- c) Participant observation
- d) Structured interviews

Answer: a)

5) Audio recordings during Focus Group Discussions

- a) Can be done without any prior informed written consent
- b) Cannot be done
- c) Should always be done
- d) Can be done with prior informed consent

Answer: d)

6) All of the following are situations in which qualitative research methods can be used, EXCEPT

- a) Familiar and sufficiently researched matter
- b) To seek the depth of understanding
- c) Exploration of behaviours
- d) View the social phenomenon holistically

Answer: d)

7) The main methods used in qualitative research method include all EXCEPT

- a) In-depth Interviews

ASSIGNMENT - 9

- b) Focus Group Discussions
- c) Participant observation
- d) Structured questionnaire based interviews

3Answer: d)

8) The observer becomes a part of the group or event in this method of qualitative study

- a) In-depth Interviews
- b) Focus Group Discussions
- c) Participant observation
- d) Structured interviews

Answer: c)

9) All the statements regarding Participant Observation is true EXCEPT

- a) Observer becomes a part of the event/group
- b) Systematic collection of data is easy
- c) Analytic methods for observation are not well described
- d) Data is very detailed

Answer: b)

10) The qualitative data analysis method which uses theoretical framework as the basis for analysis

- a) Content analysis
- b) Grounded theory
- c) Schema Analysis
- d) Hermeneutics

Answer: a)

11) Which of the following are characteristics of qualitative research methods?

- a) Objective, measurable, reliable and repeatable
- b) Subjective, measurable, credible and repeatable
- c) Subjective, credible, inductive and interpretation of responses
- d) Objective, credible, inductive and interpretation of responses Assignment

Answer: c)

12) The research method which is best suited for collection of information regarding highly sensitive matters such as alcohol use

- a) Focus Group Discussions
- b) Participant Observation
- c) In-Depth Interview
- d) Group discussions

Answer: c)

13) Which of the following is not the utility of qualitative research

- a) To provide insight to why people behave in a certain way
- b) To estimate the prevalence of disease
- c) To help understand the results of a quantitative study

ASSIGNMENT - 9

d) For developing a questionnaire

Answer: d)

14) Which of the following statement is true regarding Participant Observation

- a) Observer becomes a part of the event/group
- b) Systematic collection of data is easy
- c) Analytic methods for observation are well described
- d) Data is brief as compared to in-depth interviews

Answer: a)

15) Open ended group interviews that promotes discussion among participants is called as

- a) In depth Interviews
- b) Focus Group Discussions
- c) Participant Observation
- d) Structured interviews

Answer: b)

16) A researcher decided to conduct a study to explore the child feeding practices among mothers of under five children in a community. Which of the following qualitative techniques can the researcher employ to gather wide range of information on the topic in a short span of time?

- a) Structured interview
- b) In depth Interview
- c) Participant Observation
- d) Focus Group Discussion

Answer: d)

17) In qualitative research, researchers interpret the social reality from the participants' point of view.

- a) True
- b) False

Answer: a)

18) Which of the following statements is "Incorrect" about in-depth interviews?

- a) Findings are always generalizable
- b) The transcripts are time consuming to analyze
- c) Helps understand sensitive issues
- d) Useful when participants are knowledgeable on a particular topic

Answer: a)

19) Which of the following statement is "False" about focus group discussion.

- a) Focus group discussions help understand local terminologies
- b) Group interaction is integral for an effective discussion
- c) Heterogeneity of the group is a pre-requisite
- d) Audio and video recordings are done with prior consent

Answer: c)

ASSIGNMENT - 9

20) Triangulation is the use of multiple methods, multiple theories and or multiple sources for a comprehensive understanding of the topic in question

- a) True
- b) False

Answer: a)

21) Which of the following characteristics is NOT related to qualitative research data?

- a) Subjective validity
- b) Data is in text form
- c) Hypothesis testing is a goal
- d) It involves interpretation of responses

Answer: c)

22) Which of the following CANNOT be done using qualitative research?

- a) Viewing a social phenomenon holistically
- b) Estimating the burden of a disease
- c) Seeking in-depth understanding of a phenomenon
- d) Unfamiliar subject matter

Answer: b)

23) A researcher wants to estimate the prevalence of exclusive breast feeding in a remote tribal population. She also wants to understand the myths and taboos associated with breast feeding. Which of the following approaches can be employed in this scenario?

- a) Qualitative study
- b) Clinical trial
- c) Mixed-methods study
- d) Cross-sectional study

Answer: c)

24) Which of the following is NOT a data collection method used in qualitative research?

- a) Interviews
- b) Sociogram
- c) Participant observation
- d) Focus group discussion

Answer: b)

25) Which of the following is NOT a feature of 'In-depth interviews'?

- a) It involves two or more participants at a time
- b) It follows an interview guide
- c) It is suitable for a highly sensitive topic
- d) It obtains rich contextualized information

Answer: a)

26) Which of the following is an advantage of conducting 'in-depth interviews'?

ASSIGNMENT - 9

- a) It expresses the 'Emic' perspective
- b) It is generalizable
- c) It is a quick process
- d) It uses a systematic sampling approach

Answer: a)

27) State whether true or false. In a focus group discussion, it is easy to obtain personal behaviors on a sensitive issue

- a) True
- b) False

Answer: b)

28) Which of the following is TRUE regarding 'participant observation' method?

- a) It is easy to analyze the data
- b) The researcher himself becomes a part of the study group
- c) Data obtained is very concise
- d) The researcher interviews each participant in detail

Answer: b)

29) State whether true or false. Data obtained from Focus Group Discussion may be sensitive to biased analysis.

- a) True
- b) False

Answer: a)

30) The analytical approach where the researcher proceeds to develop a theory based on learnings obtained from the data is called

- a) Grounded theory analysis
- b) Content analysis
- c) Schema analysis
- d) Factor analysis

Answer: a)

31) Which of the following characteristics is NOT related to qualitative research data?

- a) Subjective validity
- b) Data is in text form
- c) Hypothesis testing is a goal
- d) It involves interpretation of responses

Answer: c)

32) Which of the following cannot be done using qualitative research?

- a) Viewing a social phenomenon holistically
- b) Estimating the burden of a disease
- c) Seeking in-depth understanding of a phenomenon
- d) Unfamiliar subject matter

Answer: b)

ASSIGNMENT - 9

33) A researcher wants to estimate the prevalence of exclusive breast feeding in a remote tribal population. She also wants to understand the myths and taboos associated with breast feeding. Which of the following approaches can be employed in this scenario?

- a) Qualitative study
- b) Clinical trial
- c) Mixed-methods study
- d) Cross-sectional study

Answer: c)

34) Which of the following is NOT a data collection method used in qualitative research?

- a) Interviews
- b) Sociogram
- c) Participant observation
- d) Focus group discussion

Answer: b)

35) Which of the following is NOT a feature of “In-depth interviews”?

- a) It involves two or more participants at a time
- b) It follows an interview guide
- c) It is suitable for a highly sensitive topic
- d) It obtains rich contextualized information

Answer: a)

36) Which of the following is an advantage of conducting “in-depth interviews”?

- a) It expresses the ‘Emic’ perspective
- b) It is generalizable
- c) It is a quick process
- d) It uses a systematic sampling approach

Answer: a)

37) State whether true or false. In a focus group discussion, it is easy to obtain personal behaviours on a sensitive issue

- a) True
- b) False

Answer: b)

38) Which of the following is TRUE regarding “participant observation” method?

- a) It is easy to analyze the data
- b) The researcher himself becomes a part of the study group
- c) Data obtained is very concise
- d) The researcher interviews each participant in detail

Answer: b)

39) State whether true or false. Data obtained from Focus Group Discussion may be sensitive to biased analysis.

- a) True

ASSIGNMENT - 9

b) False

Answer: a)

40) The analytical approach where the researcher proceeds to develop a theory based on learnings obtained from the data is called-

- a) Grounded theory analysis
- b) Content analysis
- c) Schema analysis
- d) Factor analysis

Answer: a)

41) Choose the correct option. The point of view captured in qualitative research is _____

- a) Participant's
- b) Investigator's
- c) Investigator's reflections on participants point of view
- d) Participant's reflections on investigators point of view

Answer: a)

42) Which of the following is an action verb commonly used while framing a qualitative objective?

- a) To estimate
- b) To determine
- c) To explore
- d) To predict

Answer: c)

43) Which of the following qualitative techniques requires homogenous participants?

- a) Focus-group discussion
- b) In-depth interview
- c) Participant observation
- d) Key informant interview

Answer: a)

44) A researcher decided to conduct a study on domestic abuse among homemakers in a village during the COVID 19 pandemic. Which of the following is an appropriate method to use for data collection?

- a) Participant Observation
- b) In-depth interview
- c) Focus group discussion
- d) Key informant interview

Answer: b)

45) A researcher conducted a study to know the local terminologies and forms of tobacco used in a particular community of tobacco users. Which of the following is an appropriate method for data collection?

- a) Key informant interview
- b) Grounded theory

ASSIGNMENT - 9

c) In-depth interview

Answer: d)

46) A researcher planned a study to know the reason for non-compliance to follow up in drug addiction rehabilitation centres among adolescent intra-venous drug users. What is the appropriate method to use for data collection?

- a) Key informant interview
- b) Participant Observation
- c) In-depth interview
- d) Focus group discussion

Answer: c)

47) What is the logic of inquiry in qualitative research?

- a) Deductive
- b) Objective
- c) Inductive
- d) Statistical

Answer: c)

48) Which of the following is a method of analysing qualitative data?

- a) Regression analysis
- b) Content analysis
- c) Univariate analysis
- d) Multivariable analysis

Answer: b)

49) Which of the following is NOT a pre-requisite for conducting focus group discussion?

- a) Homogenous participants
- b) Group interaction
- c) Personal topics
- d) Flexible interview guide

Answer: c)

50) A researcher wanted to conduct a prospective study on the dietary practices of toddlers admitted to a nutritional rehabilitation centre. Which of the following is an appropriate method for data collection?

- a) Focus group discussion
- b) Document analysis
- c) Participant observation
- d) Ethnography

Answer: a)

ASSIGNMENT - 10

1) In a study on hypertension, patients are categorized based on their systolic blood pressure as normal, pre-hypertension, stage 1 hypertension and stage 2 hypertension. What type of variable is this?

- a) Qualitative
- b) Descriptive
- c) Nominal
- d) Ordinal

Answer: d)

2) Most commonly used measure of central tendency is

- a) Mode
- b) Median
- c) Mean
- d) Range

Answer: c)

3) First quartile (Q1) is equivalent to _____ percentile

- a) 25th
- b) 50th
- c) 75th
- d) 1st

Answer: a)

4) Find the median in the following sample of observations: 12, 26, 10, 29, 48

- a) 29
- b) 48
- c) 26
- d) 25

Answer: c)

SOLUTION → Arrange the values in ascending order – 10,12,26,29,48
Consider middle value, hence ans is 26.

5) The following measure is not influenced by extreme values in a data set

- a) Arithmetic Mean
- b) Inter-quartile range
- c) Range
- d) 'b' and 'c'

Answer: b)

6) Which of the following statistic does not belong with the others?

- a) Range
- b) Variance
- c) Mode
- d) Standard deviation

Answer: c)

ASSIGNMENT - 10

7) 'Number of children per household' is an example of a continuous variable

- a) True
- b) False

Answer: b)

8) In a study, researchers are interested in measuring the cholesterol levels of participants.

Cholesterol level is a _____ variable

- a) Ordinal
- b) Nominal
- c) Continuous
- d) Discrete

Answer: c)

9) In the following set of data, what is the mean? 4,1,9,7,3,8,2,6

- a) 5
- b) 4.5
- c) 9
- d) 8

Answer: a)

$$\text{SOLUTION} \rightarrow \text{Mean} = \frac{\text{Sum of all observations}}{\text{Total no of observations}} = \frac{4+1+9+7+3+8+2+6}{8} = \frac{40}{8} = 5$$

10) Difference between the minimum value and the maximum value of the observations

- a) Variance
- b) Inter-quartile range
- c) Range
- d) Standard Deviation

Answer: c)

11) All the following are measures of dispersion except

- a) Mean
- b) Variance
- c) Standard deviation
- d) Range

Answer: a)

12) Which percentile is equivalent to the median?

- a) 25
- b) 50
- c) 75
- d) 100

Answer: b)

ASSIGNMENT - 10

13) All the following are true for standard deviation (SD) EXCEPT

- a) It is the square root of the average of the squared deviations of the observations from the arithmetic mean
- b) It is the most important measure of dispersion
- c) It is expressed in the same units of measurement as the observation
- d) The square of the standard deviation is called mean deviation

Answer: d)

14) A researcher measures fasting blood level of glucose of 100 participants. The mean blood sugar level was measured as 110 mg/dl. The standard deviation was 11 mg/dl. Calculate the coefficient of variance.

- a) 20%
- b) 14%
- c) 10%
- d) 25%

Answer: c)

SOLUTION → Coefficient of variance = $\frac{\text{SD(Standard deviation)}}{\text{AM(Arithmetic mean)}} \times 100 = \frac{11}{110} \times 100 = 10\%$
--

15) A researcher measures the height of 100 school going children for his study. What type of variable is 'height'?

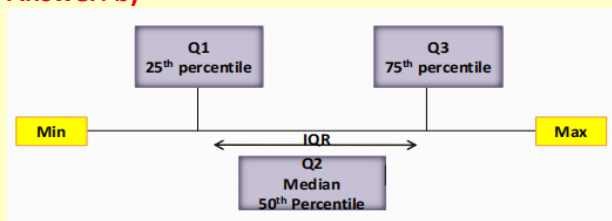
- a) Nominal
- b) Ordinal
- c) Continuous
- d) Discrete

Answer: c)

16) A chest physician observed the distribution of forced expiratory volume (FEV) in 100 Chronic Obstructive Pulmonary disease (COPD) patients and calculated a median value of 2.0 litres. The value of first and third quartile of the distribution was 1.5 litres and 3.0 litres respectively. Based on this data how many patients in the sample are expected to have a FEV between 1.5 and 3.0 litres?

- a) 100
- b) 50
- c) 25
- d) 75

Answer: b)



SOLUTION → Given, First quartile(Q1) = 1.5 Median value/second quartile(Q2) = 2.0 Third quartile(Q3) = 3.0

ASSIGNMENT - 10

No of patients FEV whose value between Q1 and Q3 = ?

As shown in the above figure the no of patients whose value between 1.5 and 3.0 = 50(Median value)

17) The average of the absolute deviations of the observations from the arithmetic mean is known as

- a) Variance
- b) Inter-quartile range
- c) Mean deviation
- d) Standard deviation

Answer: c)

18) In a study, a researcher was interested in measuring the hemoglobin levels of 10 participants. The values are 10.0, 8.5, 12.0, 14.0, 11.5, 13.5, 9.0, 12.0, 11.3, 7.5. What is the mode of this distribution?

- a) 7.5
- b) 12.0
- c) 10.9
- d) 14.0

Answer: b) Max repeated value is the ans.

19) All the following are examples of a nominal variable EXCEPT

- a) Gender
- b) Age
- c) Place of residence
- d) Colour of eyes

Answer: b)

20) Which of the following is true about interquartile range?

- a) It describes the middle value of the distribution
- b) It divides the distribution into two halves
- c) It covers the middle 50% of observations
- d) It is affected by the extreme values in the distribution

Answer: c)

21) When the data set contains too many extreme values, the most representative average value is a) Mean

- b) Mode
- c) Median
- d) Variance

Answer: c)

22) The age of ten pregnant women who visited an ANC clinic is given. What is the mean age of this group? (26, 31, 25, 26, 30, 27, 25, 32, 25 and 33 years).

- a) 45
- b) 28
- c) 25

ASSIGNMENT - 10

d) 32

Answer: b)

$$\text{SOLUTION} \rightarrow \text{Mean} = \frac{\text{Sum of all observations}}{\text{Total no of observations}} = \frac{26+31+25+26+30+27+25+32+25+33}{10} = \frac{280}{10} = 28$$

23) Which of the following is a relative measure of dispersion when comparing variables which are measured in different units?

- a) Inter-quartile range
- b) Coefficient of variation
- c) Range
- d) Standard deviation

Answer: b)

24) The following scores were obtained by ten medical students in a quiz: (5, 3, 6, 8, 7, 8, 3, 11, 6, 3) What is the median score of this group?

- a) 3
- b) 6
- c) 8
- d) 11

Answer: b)

SOLUTION → Arrange the values in ascending order – 3,3,3,5,6,6,7,8,8,11
Consider middle value, $5^{\text{th}} + 6^{\text{th}}$ value $\div 2 =$ hence ans is 6.
(If total no's are even then take average of middle values $\frac{[n+(n+1)]}{2}$,
if no's are odd then middle value is the answer)

25) 'Height of the students in a particular class measured in centimeter' is an example of a continuous variable

- a) True
- b) False

Answer: a)

26) What is the appropriate measure of dispersion to report when median is reported as the measure of central tendency for a given set of data?

- a) Standard deviation
- b) Inter-quartile range
- c) Variance
- d) Coefficient of variance

Answer: b)

27) In the NCD clinic of a primary health Centre, fasting blood sugar (in g/dL) of 11 patients was measured. The following values were obtained - (85, 93, 104, 108, 105, 120, 129, 202, 160, 400, 410). What is the most appropriate measure of central tendency for this data?

- a) Mean = 120
- b) Median = 120
- c) Mean = 174.1

ASSIGNMENT - 10

d) Median = 174.1

Answer: b)

SOLUTION → In the given set of no's since there are 2 extreme values like 85 and 410, hence 'MEDIAN' is the best measure when extreme values are given.

Arrange in ascending order → 85,93,104,105,108,120,129,160,202,400,410

Since the total no's are odd middle value becomes median i.e., 6th value - 120

28) Which of the following about 'Range' is TRUE?

- a) It indicates the way in which values cluster about a particular point
- b) It gives the number of observations bearing the same value
- c) It is the difference between the minimum and maximum value
- d) It shows the degree to which the mean value differs from its expected value.

Answer: c)

29) In a survey, socio-economic status (SES) was collected in the following manner – 'Lower, Lower Middle, Upper Middle and Upper'. What type of variable is SES?

- a) Ordinal
- b) Nominal
- c) Continuous
- d) Discrete

Answer: a)

30) Body weights of 11 children who attended a pediatric OPD was measured. For this group, the first quartile, median, mean and third quartile were 8.5, 12, 11.9 and 16, respectively. Calculate the Interquartile Range.

- a) 3.5
- b) 7.5
- c) 0.1
- d) 24.5

Answer:)

SOLUTION → Given, Q1 = 8.5, Q3 = 16

Interquartile range(IQR) = Q3-Q1 = 16 - 8.5 = 7.5

31) When the dataset contains too many extreme values, the most representative average value is..

- a) Mean
- b) Mode
- c) Median
- d) Variance

Answer: c)

32) Ages of ten pregnant women who visited an ANC clinic are given below. What is the mean age of this group? (26, 31, 25, 26, 30, 27, 25, 32, 25 and 33 years).

- a) 45
- b) 28

ASSIGNMENT - 10

c) 25

d) 32

Answer: b)

$$\text{SOLUTION} \rightarrow \text{Mean} = \frac{\text{Sum of all observations}}{\text{Total no of observations}} = \frac{26+31+25+26+30+27+25+32+25+33}{10} = \frac{280}{10} = 28$$

33) Which of the following is a relative measure of dispersion when comparing variables which are measured in different units?

a) Inter-quartile range

b) Coefficient of variation

c) Range

d) Standard deviation

Answer: b)

34) (5, 3, 6, 8, 7, 8, 3, 11, 6, 3) What is the median score of this group?

a) 3

b) 6

c) 8

d) 11

Answer: b)

SOLUTION → Arrange the values in ascending order – 3,3,3,5,6,6,7,8,8,11

Consider middle value, $5^{\text{th}} + 6^{\text{th}}$ value $\div 2 =$ hence answer is 6.

35) "Height of the students in a particular class" is an example of a continuous variable

a) True

b) False

Answer: a)

36) What is the appropriate measure of dispersion to report when median is reported as the measure of central tendency for a given set of data?

a) Standard deviation

b) Inter-quartile range

c) Variance

d) Coefficient of variance

Answer: b)

37) In the NCD clinic of a primary health centre, haemoglobin (in g/dL) of 10 patients was measured. The following values were obtained 5,4,9,8,4,8,3,7,7,8. What is the mean haemoglobin of this group?

a) 5.0

b) 6.3

c) 7

d) 8

Answer: b)

ASSIGNMENT - 10

$$\text{SOLUTION} \rightarrow \text{Mean} = \frac{\text{Sum of all observations}}{\text{Total no of observations}} = \frac{5+4+9+8+4+8+3+7+7+8}{10} = \frac{63}{10} = 6.3$$

38) Which of the following about “Range” is TRUE?

- a) It indicates the way in which values cluster about a particular point
- b) It gives the number of observations bearing the same value
- c) It is the difference between the minimum and maximum value
- d) It shows the degree to which the mean value differs from its expected value

Answer: c)

39) In a survey, socio-economic status (SES) was collected in the following manner – “Lower, Lower Middle, Upper Middle and Upper”. What type of variable is SES?

- a) Ordinal
- b) Nominal
- c) Continuous
- d) Discrete

Answer: a)

40) Calculate the interquartile range of the following body weight (in Kg) of children who attended a paediatric OPD.

(7, 12, 11, 13.5, 8.5, 16, 7, 11, 12)

- a) 7, 16
- b) 8.5, 12
- c) 11, 12
- d) 12, 13.5

Answer: b)

SOLUTION → Arrange the values in ascending order

Q1 Q3
(Min) 7, 7, 8.5, 11, 11, 12, 13.5, 16 (Max)
IQR = Q3 – Q1 = 12 – 8.5 = 3.5

41) Square root of the average of the squared deviations of the observations from the arithmetic mean is known as _____.

- a) Variance
- b) Inter-quartile range
- c) Mean deviation
- d) Standard deviation

Answer: d)

42) The age of twelve pregnant women who visited an ANC clinic is given.

26, 31, 25, 26, 30, 27, 25, 32, 25, 33, 34, 21

What is the mean age of this group?

- a) 28 years
- b) 27.9 years
- c) 25 years

ASSIGNMENT - 10

d) 30 years

Answer: b)

$$\text{SOLUTION} \rightarrow \text{Mean} = \frac{\text{Sum of all observations}}{\text{Total no of observations}} = \frac{26+31+25+26+30+27+25+32+25+33+34+21}{12} = \frac{335}{12} = 27.9$$

43) Variance is always preferred to calculate deviations from_____.

- a) Mode
- b) Variance
- c) Median
- d) Mean

Answer: d)

44) The following scores were obtained by nine medical students in a quiz:

7, 3, 6, 9, 4, 8, 10, 12, 11 .What is the median score of this group?

- a) 3
- b) 8
- c) 8.5
- d) 11

Answer: b)

SOLUTION → Arrange the values in ascending order – 3,4,6,7,8,9,10,11,12
Consider middle value, hence ans is 8.

45) State whether true or false. ‘Height of a student in a particular class is 60 inches’ is an example of a continuous variable.

- a) True
- b) False

Answer: a)

46) Which one of the following measurements does not divide a set of observations into equal parts?

- a) Quartiles
- b) Standard deviation
- c) Percentiles
- d) Median

Answer: b)

47) In the NCD clinic of a primary health centre, haemoglobin (in g/dL) of 15 patients was measured. The following values were obtained:5,4,9,8,4,8,8,7,7,8, 10, 12, 6, 5, 4. What is the mean hemoglobin of this group?

- a) 5 g/dL
- b) 6g/dL
- c) 7 g/dL
- d) 8g/dL

Answer: c)

ASSIGNMENT - 10

$$\text{SOLUTION} \rightarrow \text{Mean} = \frac{\text{Sum of all observations}}{\text{Total no of observations}} = \frac{4+4+4+5+5+6+7+7+8+8+8+8+9+10+12}{15} = \frac{105}{15} = 7$$

48) Which of the following about 'Range' is true?

- a) It indicates the way in which values cluster about a particular point
- b) It gives the number of observations bearing the same value
- c) It is the difference between the minimum and maximum value
- d) It shows the degree to which the mean value differs from its expected value.

Answer: c)

49) If the mean is 25 and the standard deviation is 5 then coefficient of variation is _____

- a) 100%
- b) 25%
- c) 20%
- d) None of these

Answer: c)

$$\text{SOLUTION} \rightarrow \text{Coefficient of variance} = \frac{\text{SD(Standard deviation)}}{\text{AM(Arithmetic mean)}} \times 100 = \frac{5}{25} \times 100 = 20\%$$

50) All the following are examples of a nominal variable EXCEPT

- a) Gender
- b) Age
- c) Place of residence
- d) Colour of eyes

Answer: b)

ASSIGNMENT - 11

1) The process by which some members of a population are selected as representative of the entire population is known as

- a) Census
- b) Sampling
- c) Survey
- d) Randomization

Answer: b)

2) Sampling based upon equal chance of selection is called

- a) Stratified random sampling
- b) Simple random sampling
- c) Systematic sampling
- d) Subjective sampling

Answer: b)

3) A researcher wishing to draw a sample from sequentially numbered houses uses a random starting point and then selects every 6th houses, s/he has thus drawn a _____ sample

- a) Sequential
- b) Systematic
- c) Simple random
- d) Stratified

Answer: b)

4) The following statement is correct regarding sampling error

- a) Sampling error is difficult to measure in simple random sampling
- b) Sampling error is easy to measure in stratified sampling
- c) The magnitude of error can be measured in non-probability samples
- d) The magnitude of error can be measured in probability samples

Answer: d)

5) The only sampling method allows to draw valid conclusions about the population is

- a) Non-probability sampling
- b) Convenience sampling
- c) Probability sampling
- d) Subjective sampling

Answer: c)

6) All the following are true regarding cluster sampling EXCEPT

- a) It needs a complete list of units
- b) The sampling unit is group of subjects
- c) Sampling error is difficult to measure
- d) Resources required are less

Answer: a)

7) Methods used in probability samples are

- a) Stratified sampling

ASSIGNMENT - 11

- b) Multi-stage sampling
- c) Cluster sampling
- d) All of the above

Answer: d)

8) All the following statements are true regarding simple random sampling EXCEPT

- a) Sampling error is easily measurable
- b) It needs a complete list of all units
- c) It ensures equal chance of selection for each unit
- d) It always achieves best representativeness

Answer: d)

9) People who volunteer or who can be easily recruited are used in a sampling method called

- a) Cluster sampling
- b) Multi-stage sampling
- c) Convenience sampling
- d) Systematic sampling

Answer: c)

10) Based on the number of cigarettes per day, a researcher divides the population into three risk groups for lung cancer (low, moderate, high risk). If the researcher then draws a random sample from each of these risk groups independently, s/he has created a _____ sample

- a) Systematic
- b) Simple random
- c) Stratified
- d) Group data

Answer: c)

11) All the following are non-probability sampling methods EXCEPT

- a) Convenience sampling
- b) Snowball sampling
- c) Quota sampling
- d) Systematic sampling

Answer: d)

12) In a study to measure the prevalence of fluorosis in a district, towns are sampled first. This is followed by a sample of wards within the selected towns, and finally a sample of households within the selected wards. What is the type of the sampling used here?

- a) Multistage sampling
- b) Systematic random sampling
- c) Simple random sampling
- d) Convenience sampling

Answer: a)

13) The magnitude of sampling error can be measured in probability sampling.

- a) True

ASSIGNMENT - 11

b) False

Answer: a)

14) All the following statements are true regarding stratified sampling EXCEPT

- a) It classifies population into homogeneous subgroups
- b) The probability of a participant being selected is unknown
- c) The sampling error is difficult to measure
- d) It allows inclusion of representative participants from all subgroups

Answer: b)

15) Which of the following is true about nonprobability sampling?

- a) It removes the possibility of bias in selection of participants
- b) Sampling error can be measured
- c) Quota sampling is a type of nonprobability sampling
- d) Inferences drawn from non-probability sampling can be generalized

Answer: c)

16) Random sampling in probability samples reduces the possibility of selection bias

- a) True
- b) False

Answer: a)

17) Which of the following statement is true regarding systematic random sampling?

- a) Sampling error cannot be measured
- b) The chance of selection for each sampling unit is unknown
- c) The selected sampling units are likely to be more representative than simple random sampling
- d) It is a type of non-probability sampling

Answer: c)

18) A researcher planned a cross-sectional study to assess the level of satisfaction of patients attending a clinic. For this, the researcher selected the first 100 patients who visited the clinic starting from a fixed date. What is the type of the sampling mentioned in this case?

- a) Snowball sampling
- b) Purposive sampling
- c) Simple random sampling
- d) Stratified random sampling

Answer: b)

19) The list of all individuals in the study population from whom study participants in a research are to be selected is known as

- a) Sampling frame
- b) Study population
- c) Sampling unit
- d) Study sample

Answer: a)

ASSIGNMENT - 11

20) Which of the following is an advantage of multistage sampling?

- a) Sampling error is easy to measure
- b) It does not require a complete list of the total population
- c) It requires only one sampling list
- d) It always achieves the best representative sample

Answer: b)

21) Which of the following sampling method ensures that valid conclusions can be drawn about different subgroups in a population?

- a) Simple random sample
- b) Systematic random sample
- c) Stratified random sample
- d) Cluster random sample

Answer: c)

22) Which of the following about simple random sampling method is FALSE?

- a) It needs a complete list of the units in the target
- b) Purposive sampling is a type of simple random sample
- c) It draws units from the target population randomly
- d) It gives equal chance of selection to every unit in the target population

Answer: b)

23) Sampling achieves

- a) Efficient utilization of resources
- b) Elimination of random error
- c) Low non-response rate
- d) Complete enumeration of population

Answer: a)

24) In simple random sampling, the probability of selection of each individual is

- a) Unequal
- b) Equal
- c) Unknown
- d) One

Answer: b)

25) Which one of the following biases is prevented by an appropriate sampling technique?

- a) Volunteer bias
- b) Interviewer's bias
- c) Social desirability bias
- d) Recall bias

Answer: a)

26) In a neighbourhood with 5000 houses, a researcher wants to obtain a systematic random sample of 50 houses. What will be the sampling interval in this case?

- a) 1000

ASSIGNMENT - 11

- b) 100
- c) 0.1
- d) 0.01

Answer: b)

$$\text{FORMULA} \rightarrow i = N/n = 5000/50 = 100$$

27) Which one of the following statement about cluster sampling is FALSE?

- a) Units within a cluster are heterogeneous
- b) Sampling frame of the entire study area is not required
- c) Variability between clusters is assumed to be high
- d) Sampling error is difficult to measure

Answer: c)

28) Which one of the following statements about multistage sampling is TRUE?

- a) It saves resources as compared to simple random sampling
- b) It requires a complete listing of the entire population
- c) It's sampling error can be easily measured
- d) It is not suitable for sampling from a large population

Answer: a)

29) Which one of the following about stratified random sampling is FALSE?

- a) Units within a strata are homogenous
- b) Sample is taken from every strata
- c) Precision improves with low numbers sampled in each stratum
- d) Stratum specific estimates are weighted to obtain the overall estimate

Answer: c)

30) State whether True or False: Commonly used statistical inferences have the assumption of a probability sample.

- a) True
- b) False

Answer: a)

31) Which of the following sampling method ensures that valid conclusions can be drawn about different subgroups in a population?

- a) Simple random sample
- b) Systematic random sample
- c) Stratified random sample
- d) Cluster random sample

Answer: c)

32) What of the following about simple random sampling method is FALSE?

- a) It needs a complete list of the units in the target population
- b) Purposive sampling is a type of simple random sample
- c) It draws units from the target population randomly
- d) It gives equal chance of selection to every unit in the target population

ASSIGNMENT - 11

Answer: b)

33) Sampling achieves

- a) Efficient utilization of resources
- b) Elimination of random error
- c) Accurate results
- d) Complete enumeration of population

Answer: a)

34) In simple random sampling, the probability of selection of each individual is

- a) Unequal
- b) Equal
- c) Unknown
- d) One

Answer: b)

35) Which one of the following biases is prevented by an appropriate sampling technique?

- a) Volunteer bias
- b) Interviewer's bias
- c) Social desirability bias
- d) Recall bias

Answer: a)

36) In a neighbourhood with 5000 houses, a researcher wants to obtain a systematic random sample of 50 houses. What will be the sampling interval in this case?

- a) 1000
- b) 100
- c) 0.1
- d) 0.01

Answer: b)

$$\text{FORMULA} \rightarrow i = N/n = 5000/50 = 100$$

37) Which one of the following statement about cluster sampling is FALSE?

- a) Units within a cluster are heterogenous
- b) Sampling frame of the entire study area is not required
- c) Variability between clusters is assumed to be high
- d) Sampling error is difficult to measure

Answer: c)

38) Which one of the following statements about multistage sampling is TRUE?

- a) It saves resources as compared to simple random sampling
- b) It requires a complete listing of the entire population
- c) It's sampling error can be easily measured
- d) It is not suitable for sampling from a large population

Answer: a)

ASSIGNMENT - 11

39) Which one of the following about stratified random sampling is FALSE?

- a) Units within a strata are homogenous
- b) Sample is taken from every strata
- c) Precision improves with low numbers sampled in each stratum
- d) Stratum specific estimates are weighted to obtain the overall estimate

Answer: c)

40) State whether True or False: Commonly used statistical inferences have the assumption of a probability sample.

- a) True
- b) False

Answer: a)

41) What is the term used to denote 'the procedure by which only some members of the population are chosen for a study due to feasibility?

- a) Randomization
- b) Allocation
- c) Sampling
- d) Complete enumeration

Answer: c)

42) A researcher conducted a study and wants to extrapolate the findings of the study to which of the population?

- a) Target population
- b) Accessible population
- c) Sample
- d) Universe

Answer: a)

43) A sample is taken for which of the following reasons?

- a) To obtain information from small populations
- b) To ensure the efficiency of a study
- c) To study all units in the population
- d) To ensure internal validity

Answer: b)

44) Which of the following is a type of probability sampling?

- a) Simple random sampling
- b) Consecutive sampling
- c) Convenience sampling
- d) Purposive sampling

Answer: a)

45) Which of the following is a type of non-probability sampling?

- a) Systematic sampling
- b) Stratified sampling

ASSIGNMENT - 11

- c) Cluster sampling
- d) Respondent driven sampling

Answer: d)

46) A researcher wanted to study the hand hygiene practices among health care workers in a hospital. A list of all 100 workers was readily available. The researcher wanted to ensure that each individual had an equal chance of being chosen. Which of the following sampling methods would the researcher use?

- a) Simple random sampling
- b) Systematic sampling
- c) Cluster sampling
- d) Snow-ball sampling

Answer: a)

47) What is the sampling technique used when researchers draw conclusions from different sub-groups within the population?

- a) Systematic sampling
- b) Cluster sampling
- c) Subjective sampling
- d) Stratified sampling

Answer: d)

48) The sampling unit is a group of individuals rather than a single individual in which of the following sampling types?

- a) Stratified sampling
- b) Cluster sampling
- c) Simple random sampling
- d) Systematic sampling

Answer: b)

49) Which of the following sampling methods are used in qualitative research?

- a) Stratified sampling
- b) Cluster sampling
- c) Simple random sampling
- d) Purposive sampling

Answer: d)

50) Which of the following statements is TRUE about multi-stage sampling?

- a) Commonly done for small populations
- b) Sampling error can be measured
- c) Complete enumeration of the population is needed
- d) Is often done when it is expensive to cover the entire population

Answer: d)

ASSIGNMENT - 12

1) Statistical power is defined as the probability of

- a) Accepting a null hypothesis when it is false
- b) Rejecting a null hypothesis when it is true
- c) Rejecting a null hypothesis when it is false
- d) Failing to reject a null hypothesis when it is false

Answer: c)

2) Steps in the estimation of sample size included all of the following EXCEPT

- a) Identify major study variable
- b) Decide on the desired precision of the estimate
- c) Adjust for population size
- d) Adjust for selection bias

Answer: d)

3) A type-II error occurs when

- a) The null hypothesis is rejected when it is false
- b) The null hypothesis is not rejected when it is false
- c) The null hypothesis is not rejected when it is true
- d) The null hypothesis is rejected when it is true

Answer: b)

4) Exact calculation of design effect for a study parameter can take place you after study completion

- a) True
- b) False

Answer: a)

5) Population variance can be estimated from

- a) A pilot study
- b) Reports of previous studies
- c) Guessing
- d) 'a' and 'b'

Answer: d)

6) The recommended minimum level of power for an analytical study

- a) 5%
- b) 95%
- c) 80%
- d) 0.05%

Answer: c)

7) In general, sample size formula takes into account the crude association between exposure and outcome as well as the confounders

ASSIGNMENT - 12

- a) True
- b) False

Answer: b)

8) Design effect of 'more than 1' needs to be considered in studies involving

- a) Cluster sampling
- b) Simple random sampling
- c) Stratified random sampling
- d) Non-probability sampling

Answer: a)

9) Which of the following is necessary in sample size determination?

- a) Desired confidence level
- b) Desired precision
- c) Magnitude of the population variance
- d) All of the above

Answer: d)

10) Which one of the following statements is false?

- a) Design effect is a relative change in the variance due to use of clusters
- b) As the magnitude of the expected effect increases, the required sample size increases
- c) The population variance is unknown in general and has to be estimated
- d) Larger the sample size, smaller the sampling error

Answer: b)

11) A type-I error occurs when

- a) The null hypothesis is rejected when it is false
- b) The null hypothesis is not rejected when it is false
- c) The null hypothesis is not rejected when it is true
- d) The null hypothesis is rejected when it is true

Answer: d)

12) Which of the following is true about β error?

- a) It is the probability of correctly rejecting the null hypothesis when it is false
- b) It is the probability of accepting the null hypothesis when it is false
- c) It is the probability of rejecting the null hypothesis when it is true
- d) It is the probability of making a Type I error

Answer: b)

13) All the following are essential statistical considerations for sample size calculation EXCEPT

- a) Desired precision
- b) Anticipated proportion of factor of interest
- c) Sampling method
- d) Allocated budget

Answer: d)

ASSIGNMENT - 12

14) For each confounder/variable added in the study empirically 10% increase in the sample size should be made.

- a) True
- b) False

Answer: a)

15) The design effect should be calculated after completion of the study and it, need not be counted at the design stage.

- a) True
- b) False

Answer: b)

16) When estimating sample size for a cross-sectional study, we need to account for

- a) Expected proportion of characteristic of interest
- b) Estimated design effect, in case of cluster sampling
- c) Population size
- d) All the above

Answer: d)

17) The power of a study

- a) Does not influence the sample size
- b) Represented as ' α '
- c) Can be defined as the probability of correctly rejecting null hypothesis when it is false
- d) Represented as the probability of making a Type I error

Answer: c)

18) The following are needed to calculate sample size for analytical studies using simple random sampling method EXCEPT

- a) Desired value for the probability of α
- b) Magnitude of the expected effect based on previous studies
- c) Desired value for the probability of β
- d) Estimated design effect

Answer: d)

19) A researcher wants to estimate the prevalence of surgical site infection following cesarean section at a tertiary care hospital. What would be the minimum number of sample size to estimate the magnitude of surgical site infection following cesarean section if it is estimated that the proportion of surgical site infection will be 10% in the hospital considering 5% absolute precision and 95% confidence level ($Z_{\alpha/2} = 1.96$).

- a) 100
- b) 138
- c) 148
- d) 158

Answer: b)

ASSIGNMENT - 12

SOLUTION →

$$n = \frac{Z^2 pq}{d^2}$$

Given, $Z = 1.96$

p = proportion of surgical site infection = 10%

$q = 100 - p = 100 - 10 = 90$

$d = 5$

On substitution,
$$n = \frac{(1.96)^2 \times 10 \times 90}{5^2} = 138$$

20) Precision is described as a measure of how close an estimate is to the true value of a population parameter.

- a) True
- b) False

Answer: b)

21) In a cross-sectional study, a group of researchers wanted to estimate the prevalence of cephalosporin-resistant E.coli among adult males with urinary tract infections. From previous literature, the prevalence was found to be 6.5%. If the researchers want to estimate the prevalence with a 20% relative precision and 95% significance level, what is the minimum sample size required?

- a) 1042
- b) 1381
- c) 6
- d) 600

Answer: b)

SOLUTION →

$$n = \frac{Z^2 pq}{d^2}$$

Given, $Z = 1.96$ (Standard table value at 95% confidence interval)

p = prevalence of cephalosporin-resistant E.coli = 6.5 %

$q = 100 - p = 100 - 6.5 = 93.5$

$d = 20\%$ relative precision = since its relative precision,

we have to take 20% of prevalence value, therefore its $6.5 \times \frac{20}{100} = 1.3$

On substitution,
$$n = \frac{(1.96)^2 \times 6.5 \times 93.5}{1.3^2} = 1381$$

22) Which of the following factors is NOT essential for calculating sample size for a single mean estimation?

- a) Need for statistical significance
- b) Assumptions about population standard deviation
- c) Precision
- d) Significance level

Answer: a)

23) Adjustments to a calculated sample size need NOT be done for which of the following reasons?

- a) Non-response rate

ASSIGNMENT - 12

- b) Finite population size
- c) Cluster design
- d) Hospital-based study

Answer: d)

24) State whether true or false. A pilot study can be conducted to get an estimate of the expected prevalence of the disease being studied to calculate the minimum required sample size.

- a) True
- b) False

Answer: a)

25) A cross-sectional study aims to estimate the prevalence of Hydatid liver disease among patients undergoing Ultrasonography in a tertiary care hospital. Which of the following is NOT required for calculating the minimum required sample size for this objective?

- a) Significance level
- b) Assumed prevalence
- c) Precision
- d) Population variance

Answer: d)

26) What is Type I error?

- a) The probability of accepting the null hypothesis when it is false
- b) The probability of rejecting the null hypothesis when it is true
- c) The probability of rejecting the null hypothesis when it is false
- d) The probability of accepting the null hypothesis when it is true

Answer: b)

27) Ability of a study to detect correctly the presence of an association is known as

- a) Precision
- b) Power
- c) Confidence
- d) Significance

Answer: b)

28) Standard deviation of a sampling distribution is called systematic error

- a) True
- b) False

Answer: b)

29) Design effect is considered for which of the following sampling strategy?

- a) Cluster sampling
- b) Simple random sampling
- c) Stratified random sampling
- d) Non-probability sampling

Answer: a)

ASSIGNMENT - 12

30) In a hospital based cross-sectional study, it is planned to estimate the mean D-dimer level among COVID-19 patients. From previous literature, the standard deviation was found to be 200 ng/ml. If the researchers want to estimate the mean with a 50 ng/mL precision and 95% significance level, what is the minimum sample size required?

- a) 62
- b) 16
- c) 31
- d) 248

Answer: a)

SOLUTION →

$$n = \frac{Z^2 \sigma^2}{d^2}$$

Given, $Z = 1.96$ (Standard table value at 95% confidence interval)

$\sigma = 200$ (standard deviation)

$d = 50$ (precision)

On substitution,

$$n = \frac{(1.96)^2 \times 200^2}{50^2} = 61.46 = 62$$

31) In a cross-sectional study, a group of researchers wanted to estimate the prevalence of cephalosporin-resistant E.coli among adult males with urinary tract infections. From previous literature, the prevalence was found to be 6.5%. If the researchers want to estimate the prevalence with a 20% relative precision and 95% significance level, what is the minimum sample size required?

- a) 1042
- b) 1381
- c) 6
- d) 600

Answer: b)

SOLUTION →

$$n = \frac{Z^2 pq}{d^2}$$

Given, $Z = 1.96$ (Standard table value at 95% confidence interval)

p = prevalence of cephalosporin-resistant E.coli = 6.5 %

$q = 100 - p = 100 - 6.5 = 93.5$

$d = 20\%$ relative precision = since its relative precision,

we have to take 20% of prevalence value, therefore its $6.5 \times \frac{20}{100} = 1.3$

On substitution,

$$n = \frac{(1.96)^2 \times 6.5 \times 93.5}{1.3^2} = 1381$$

32) Which of the following factors is NOT essential for calculating sample size for a single mean estimation?

- a) Need for statistical significance
- b) Assumptions about population standard deviation
- c) Precision
- d) Significance level

Answer: a)

ASSIGNMENT - 12

33) Adjustments to a calculated sample size need NOT be done for which of the following reasons?

- a) Non-response rate
- b) Finite population size
- c) Cluster design
- d) Hospital-based study

Answer: d)

34) State whether true or false. A pilot study can be conducted to get an estimate of the expected prevalence of the disease being studied to calculate the minimum required sample size.

- a) True
- b) False

Answer: b)

35) A cross-sectional study aims to estimate the prevalence of Hydatid liver disease among patients undergoing Ultrasonography in a tertiary care hospital. Which of the following is NOT required for calculating the minimum required sample size for this objective?

- a) Significance level
- b) Assumed prevalence
- c) Precision
- d) Population variance

Answer: d)

36) What is Type I error?

- a) The probability of accepting the null hypothesis when it is false
- b) The probability of rejecting the null hypothesis when it is true
- c) The probability of rejecting the null hypothesis when it is false
- d) The probability of accepting the null hypothesis when it is true

Answer: b)

37) Ability of a study to detect correctly the presence of an association is known as

- a) Precision
- b) Power
- c) Confidence
- d) Significance

Answer: b)

38) Standard deviation of a sampling distribution is called systematic error

- a) True
- b) False

Answer: b)

39) Design effect is considered for which of the following sampling strategy?

- a) Cluster sampling
- b) Simple random sampling
- c) Stratified random sampling
- d) Non-probability sampling

ASSIGNMENT - 12

Answer: a)

40) In a hospital based cross-sectional study, it is planned to estimate the mean D-dimer level among COVID-19 patients. From previous literature, the standard deviation was found to be 200 ng/ml. If the researchers want to estimate the mean with a 50 ng/mL precision and 95% significance level, what is the minimum sample size required?

- a) 62
- b) 16
- c) 31
- d) 248

Answer: a)

SOLUTION →

$$n = \frac{Z^2 \sigma^2}{d^2}$$

Given, $Z = 1.96$ (Standard table value at 95% confidence interval)

$\sigma = 200$ (standard deviation)

$d = 50$ (precision)

On substitution,

$$n = \frac{(1.96)^2 \times 200^2}{50^2} = 61.46 = 62$$

41) The sample size required for a study will depend on the following EXCEPT:

- a) Type of estimate used to measure the outcome
- b) Desired precision of the estimate
- c) Study design
- d) Blinding of participants

Answer: d)

42) State whether true or false. The probability of rejecting the null hypothesis when it is true is known as Type II error.

- a) True
- b) False

Answer: b)

43) Power of a study refers to _____.

- a) The probability of rejecting a null hypothesis when it is false
- b) The probability of failing to reject a null hypothesis when it is false
- c) The probability of rejecting null hypothesis when it is true
- d) The probability of failing to reject a null hypothesis when it is true

Answer: a)

44) Which of the following statements is INCORRECT about sample size estimation for a study?

- a) Precision is a measure of how close an estimate is to the true value of a population parameter
- b) A smaller value of absolute precision yields a lower sample size
- c) Alpha error is usually fixed at 5% for biomedical research
- d) Beta error needs to be specified in comparative studies

Answer: b)

ASSIGNMENT - 12

45) An investigator is interested to study the prevalence of Hepatitis –B among patients attending Sexually Transmitted Diseases Clinic. For calculation of the sample size for the study, the knowledge about the expected proportion can come from all of the following EXCEPT:

- a) Estimates from a preliminary/pilot study
- b) Estimates from previous studies
- c) Assuming 'p'=0.5 to yield maximum value of sample size
- d) Assuming highest possible value for 'p'

Answer: d)

46) Following are assumptions for calculating the sample size for a study EXCEPT

- a) The sample is obtained by means of probability sampling technique
- b) The population is sufficiently large to ignore finite population correction
- c) The expected proportion 'p' is normally distributed
- d) The sampling is done with replacement

Answer: d)

47) An investigator is intending to estimate the prevalence of Anaemia in a selected district. The expected prevalence is 28%. The required sample size to estimate the prevalence with a relative precision of 10% and alpha error of 5% would be

- a) 514
- b) 806
- c) 1029
- d) 1526

Answer: c)

SOLUTION →

$$n = \frac{Z^2 pq}{d^2}$$

Given, $Z = 1.96 \approx 2$ (Standard table value at 95% confidence interval)

p = expected prevalence of anemia = 28 %

q = 100 - p = 100 - 28 = 72

d = 10% relative precision = since its relative precision,

we have to take 10% of prevalence value, therefore its $28 \times \frac{10}{100} = 2.8$

On substitution, $n = \frac{(2)^2 \times 28 \times 72}{(2.8)^2} = 1029$

48) The sample size estimation for a cohort study requires the following EXCEPT

- a) Proportion of outcome in the exposed group
- b) Proportion of outcome in the non-exposed group
- c) Desired level of alpha and beta error
- d) Desired precision of the outcome

Answer: d)

49) In a study to estimate the mean haemoglobin levels (g/dL) among under-five children, the expected standard deviation was found to be 2.5 g/dL. If the researcher wants to estimate the mean with a precision of 0.5 g/dL and 95% significance level, what is the minimum sample size required?

- a) 100

ASSIGNMENT - 12

- b) 200
- c) 300
- d) 400

Answer: a)

SOLUTION →

$$n = \frac{Z^2 \sigma^2}{d^2}$$

Given, $Z = 1.96 \simeq 2$ (Standard table value at 95% confidence interval)

$\sigma = 2.5$ (standard deviation)

$d = 0.5$ (precision)

On substitution, $n = \frac{(2)^2 \times 2.5^2}{(0.5)^2} = 100$

50) Which of the following requires inflation of the sample size using design effect?

- a) Stratified random sampling
- b) Cluster sampling
- c) Block randomization in RCT
- d) Adjustments for multiple confounders

Answer: b)

ASSIGNMENT - 13

1) Selection of study participants depends on

- a) Representativeness
- b) Acceptable cost
- c) Adequate size
- d) All of the above

Answer: d)

2) Target population is determined by

- a) Demographic characteristics
- b) Temporal characteristics
- c) Clinical characteristics
- d) 'a' and 'c'

Answer: d)

3) Study sample is a subset of accessible population

- a) True
- b) False

Answer: a)

4) Representativeness of a study sample refers to

- a) The extent to which the characteristics of the sample accurately reflect the characteristics of the population
- b) The size of the sample which is large enough
- c) Volunteering nature of the subjects from the population
- d) The extent to which the characteristics of exposed population accurately reflect the characteristics of unexposed sample

Answer: a)

5) Non-response in a study can be minimized by

- a) Repeat contact of the study participants
- b) Providing compensation for participants time
- c) Less invasive and less sensitive questionnaires
- d) All of the above

Answer: d)

6) External validity means

- a) The degree to which the inferences drawn from a study can be generalized to a broader population beyond the study population
- b) The degree to which the observed findings lead to correct inferences about phenomena taking place in the study sample
- c) The degree to which a test actually measures what it is designed to measure
- d) The degree to which the findings are reliable

Answer: a)

7) Participants may be excluded from the study because of

- a) Interference with the success of study follow-up

ASSIGNMENT - 13

- b) Ethical concerns
- c) Interference with the quality of data collection or non-acceptance to participate in the study
- d) All of the above

Answer: d)

8) While choosing the accessible population and the sampling approach for selection of study population, an important factor that we need to consider is

- a) Simplicity
- b) Technology
- c) Feasibility
- d) Reliability

Answer: c)

9) If your research question is related to diagnosis, treatment or prognosis of a severe medical condition, then it is an easy and cost-effective way to recruit the study population from the community

- a) True
- b) False

Answer: b)

10) Reasons for interference with the success of follow-up in a study may include

- a) Migration of some study participants from the study area
- b) Marriage of some of the female study participants because of which they might move out of the study area
- c) Refusals for follow-up
- d) All of the above

Answer: d)

11) The population defined by clinical and demographic characteristics is called

- a) Target population
- b) Accessible population
- c) Subset
- d) Study sample

Answer: a)

12) The population defined by geographical and temporal characteristics is called as

- a) Target population
- b) Accessible population
- c) Subset
- d) Sample size

Answer: b)

13) Random errors can be effectively handled by

- a) Randomisation

ASSIGNMENT - 13

- b) Representativeness
- c) Adequate sample size
- d) All of the above

Answer: c)

14) A researcher found an inference about a particular disease of interest. If he/she wants to generalize the results, it is important to have

- a) Internal validity
- b) External validity
- c) Feasibility
- d) Accuracy

Answer: b)

15) Reasons for interference with the success of follow-up in a study may include

- a) Out-migration of some study participants from the study area
- b) Marriage of some of the female study participants because of which they might move out of the study area
- c) Refusals for follow-up
- d) All of the above

Answer: d)

16) Less invasive and less sensitive questionnaires will

- a) Increase the power
- b) Decrease the power
- c) Improve the significance
- d) Reduce the non-response

Answer: d)

17) The external validity in a research study means

- a) The degree to which the observed findings lead to correct inferences about phenomena taking place in the study sample
- b) The degree to which a test actually measures what it is designed to measure
- c) The degree to which the inferences drawn from a study can be generalized to a broader population beyond the study population
- d) The degree to which the findings are reliable

Answer: c)

18) The degree to which the observed findings lead to correct inferences about phenomena of interest in the study sample is

- a) Reliability
- b) Feasibility
- c) Internal validity
- d) External validity

Answer: c)

ASSIGNMENT - 13

19) Which factor is important to consider while choosing the accessible population and the sampling approach?

- a) Feasibility
- b) Sensitivity
- c) Specificity
- d) Reliability

Answer: a)

20) The participants may be excluded from the study because of

- a) Interference with the success of study follow-up
- b) Ethical concerns
- c) Interference with the quality of data collection
- d) All of the above

Answer: d)

21) Which of the following helps to minimize the random error in a research study?

- a) Limited study duration
- b) Adequate sample size
- c) Adequate budget
- d) More than six investigators

Answer: b)

22) Representativeness of the study participants similar to the population of interest can help in which of the following aspects of a research study?

- a) Generalizability of the findings
- b) Internal validity
- c) Reduce information bias
- d) Minimize recall bias

Answer: a)

23) An investigator intends to estimate the prevalence of Urinary Tract Infection (UTI) among circumcised children (<5 years old) in Jaipur city. However, the researcher selects the study participants from one government hospital. Which of the following is the target population in this study?

- a) All children aged <5 years in the city
- b) All circumcised children aged <5 years in the city
- c) All circumcised children aged <5 years attending the government hospital
- d) All children having UTI in the city

Answer: b)

24) Which of the following is the accessible population in the above study?

- a) All children aged <5 years in the city
- b) All circumcised children aged <5 years in the city
- c) All circumcised children aged <5 years attending the government hospital
- d) All children having UTI in the city

Answer: c)

ASSIGNMENT - 13

25) State whether true or false. High non-response rate in a study may affect the internal validity.

- a) True
- b) False

Answer: a)

26) Which of the following is TRUE about study validity?

- a) An internally valid study result is always generalizable to the target population
- b) An internally valid study result may or may not be generalizable to the target population
- c) An externally valid study result is not generalizable to the target population
- d) A study without internal validity can be generalized to the target population

Answer: b)

27) Which of the following statements on study populations is TRUE?

- a) Study sample is a subset of the accessible population
- b) Target population is a subset of the accessible population
- c) Accessible population is a subset of the study sample
- d) Target population is a subset of the study sample

Answer: a)

28) State whether true or false. Biases can affect both internal and external validity.

- a) True
- b) False

Answer: a)

29) In a community based vaccine trial, which aims to compare the 1 year incidence of intussusception in children receiving/not receiving rotavirus vaccine, which of the following can be a likely exclusion criterion?

- a) Children who may leave the study area within a month
- b) Children aged 0 to 24 months
- c) Children without pre-existing intestinal anomalies
- d) Children who have not received rotavirus vaccine previously

Answer: a)

30) In a cohort study planned to estimate the incidence of birth defects among Zika virus infected pregnant women in Chennai city, which of the following CANNOT be an inclusion criterion?

- a) First trimester pregnant women with lab-confirmed Zika virus infection
- b) Pregnant women who are permanent residents of Chennai city
- c) Pregnant women aged above 18 years
- d) Pregnant women taking drugs known to cause birth defects

Answer: d)

31) Which of the following helps to minimize the random error in a research study?

- a) Limited study duration

ASSIGNMENT - 13

- b) Adequate sample size
- c) Adequate budget
- d) More than six investigators

Answer: b)

32) Representativeness of the study participants similar to the population of interest can help in which of the following aspects of a research study?

- a) Generalizability of the findings
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- d) Minimize recall bias

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- a) All children aged <5 years in the city
- b) All circumcised children aged <5 years in the city
- c) All circumcised children aged <5 years attending the government hospital
- d) All children having UTI in the city

Answer: b)

34) Which of the following is the accessible population in the above study?

- a) All children aged <5 years in the city
- b) All circumcised children aged <5 years in the city
- c) All circumcised children aged <5 years attending the government hospital
- d) All children having UTI in the city

Answer: c)

35) State whether true or false. High non-response rate in a study may affect the internal validity.

- a) True
- b) False

Answer: a)

36) Which of the following is TRUE about study validity?

- a) An internally valid study result is always generalizable to the target population
- b) An internally valid study result may or may not be generalizable to the target population
- c) An externally valid study result is not generalizable to the target population
- d) A study without internal validity can be generalized to the target population

Answer: b)

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- a) Study sample is a subset of the accessible population
- b) Target population is a subset of the accessible population
- c) Accessible population is a subset of the study sample

ASSIGNMENT - 13

d) Target population is a subset of the study sample

Answer: a)

38) State whether true or false. Biases can affect both internal and external validity.

a) True

b) False

Answer: a)

39) In a community based vaccine trial, which aims to compare the 1 year incidence of intussusception in children receiving/not receiving rotavirus vaccine, which of the following can be a likely exclusion criterion?

a) Children who may leave the study area within a month

b) Children aged 0 month to 24 months

c) Children without pre-existing intestinal anomalies

d) Children who have not received rotavirus vaccine previously

Answer: a)

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a) First trimester pregnant women with lab- confirmed Zika virus infection

b) Pregnant women who are permanent residents of Chennai city

c) Pregnant women aged above 18 years

d) Pregnant women taking drugs known to cause birth defects

Answer: d)

41) All of the following are attributes of exclusion criteria for selecting study population EXCEPT

a) Loss to follow up

b) Quality of data

c) Specifying population relevant to research

d) Being at high risk of adverse effects

Answer: c)

42) An investigator intends to estimate the incidence of long COVID among adult patients who recovered from COVID-19 in Bengaluru. However, the researcher selects the participants from a tertiary care hospital XYZ in the city. The accessible population in this case would be_____.

a) Adult individuals in the city

b) Adult COVID-19 patients in the city

c) Adult patients who were managed and recovered from COVID-19 in the tertiary care hospital XYZ in the city

d) Adult COVID-19 patients managed in the tertiary care hospital XYZ in the city who developed long COVID

Answer: c)

ASSIGNMENT - 13

43) Which among the following is INCORRECT about non-response while collecting data for a research study?

- a) It is generally higher in observational studies
- b) It compromises the generalizability of the study
- c) Can be minimized by study method that avoids discomfort to participants
- d) It tends to change the objective of the study

Answer: d)

44) All of the following participants can be considered as inclusion criteria for a trial evaluating the efficacy of drug treatments for Polycystic Ovarian disease (PCOD) EXCEPT

- a) Females in the reproductive age group
- b) Females with mild PCOD
- c) Female with severe PCOD
- d) Females with PCOD and under treatment

Answer: d)

45) An investigator wants to study the coverage of COVID-19 vaccination program in a selected district. A representative sample can be obtained by all of the following steps EXCEPT:

- a) Choosing the population and sampling methods wisely
- b) Guarding against errors in applying the inclusion criteria
- c) Monitoring adherence to the criteria as the study progresses
- d) Number of vaccine vials supplied to that district

Answer: d)

46) State whether true or false. External validity of a study refers to the extent to which the results of the study can be generalised to the target population.

- a) True
- b) False

Answer: a)

47) All of the following are guiding principles for selecting suitable study population EXCEPT

- a) The selected study population should be representative of the target population
- b) It is better to select the entire target population wherever feasible
- c) The cost and time involved in selection should be reasonable
- d) The number of participants selected should be sufficient to account for random error

Answer: b)

48) Which of the following is true about study population?

- a) Study sample is a subset of the accessible population
- b) Target population is a subset of the accessible population
- c) Accessible population is a subset of the study sample
- d) Target population is a subset of the study sample

Answer: a)

49) All of the following are important factors to be considered while choosing study sample and sampling approach EXCEPT:

ASSIGNMENT - 13

- a) Feasibility
- b) Representativeness of the target population
- c) Sufficient numbers to test proposed hypothesis
- d) Identification details of individuals of the target population

Answer: d)

50) Which among the following is INCORRECT about selection of sample for conducting a research study?

- a) Demographic and clinical criteria are applied to identify the target population
- b) Exclusion criteria are applied to eliminate subset of accessible population who may not be appropriate to be included
- c) Random sampling is not possible for hospital-based selection of study participants
- d) Non-responses in a study affects the generalizability of the study

Answer: c)

ASSIGNMENT - 14

1) Which of the following statements regarding study objectives is correct?

- a) Objectives should be defined at the planning stage of study
- b) Objectives can be defined at any time of the study
- c) Objectives can be changed even at the end of the study
- d) Objectives should be defined before identifying the research question

Answer: a)

2) Which of the following is (are) required to determine the key indicators for planned research study?

- a) Frame study objectives
- b) Identify parameters needed for the key indicators
- c) Choose the right study design
- d) All of the above

Answer: d)

3) Which of the following can improve efficiency of a research study?

- a) Time management
- b) Planning and scheduling activities
- c) Budgeting
- d) All of the above

Answer: d)

4) Which of the following represents the correct sequence in a life cycle of a study?

- a) Identifying data needs, formulating study objectives, planning analysis, spelling out research question
- b) Formulating study objectives, planning analysis, spelling out research question, identifying data needs
- c) Identifying data needs, spelling out research question, formulating study objectives, planning analysis
- d) Formulating study objects, spelling out research question, identifying data needs, planning analysis

Answer: c)

5) It should be ensured that products/deliverables of health research projects are delivered within the

- a) Defined timeframe
- b) Defined budget
- c) Expected quality standards
- d) All of the above

Answer: d)

6) Which of the following statements best describes the study objectives?

- a) They should be minimum, achievable and clear
- b) They can be primary and / or secondary
- c) Adding objectives during study implementation is a good practice

ASSIGNMENT - 14

d) 'a' and 'b'

Answer: d)

7) Principles to be followed while collecting the information elements are

- a) Use the variables that will best reflect the information element
- b) Adopt standardize case definitions and laboratory criteria/normal ranges
- c) Choose the most accurate ways of collecting information on various elements
- d) All of the above

Answer: d)

8) Study conducted following an ad hoc approach may lead to the following consequences

- a) Generation of useful data in programs or for policy making
- b) Efficient utilization of resources
- c) Serious difficulties in analysis and interpretation
- d) All of the above

Answer: c)

9) Common reasons for research study failures

- a) Poorly defined research question
- b) Vague timelines
- c) Lack of supervision
- d) All of the above

Answer: d)

10) Sample size for a cross-sectional study is decided based on the following

- a) Assumed/reported prevalence
- b) Confidence interval
- c) Acceptable precision
- d) All of the above

Answer: d)

11) Which of the following is a criterion for a good research question?

- a) Long and self-explanatory question using complex terms
- b) A question based on ill-defined hypothesis
- c) A question based on strong hunch on part of the investigator
- d) A question based on established theory and some research evidence

Answer: d)

12) Which of the following can be considered true in case of ad hoc approach to conduct a research study?

- a) Its advantages are the low development effort and possibility of getting results in a short time span
- b) Its advantage is that the accuracy of the results is usually high
- c) Both 'a' and 'b'
- d) None of the above

ASSIGNMENT - 14

Answer: a)

13) A cross sectional study is carried out to examine whether naval medical personnel of a higher rank have more positive copying skills than those of a lower rank. Which of the following statement is true of this study?

- a) Neither variable is dependent as the researcher cannot manipulate them
- b) The independent variable is rank and the dependent variable is copying skills
- c) The independent variable is copying skills and the dependent variable is rank
- d) None of the above

Answer: b)

14) Indicators are considered positive when they have a direct relationship (association, correlation) with the state of health. Which of the following are the examples of positive indicators?

- i) The proportion of cured tuberculosis cases
- ii) Incidence of AIDS
- iii) Life expectancy at birth
- iv) IMR

- a) i and iii
- b) ii and iv
- c) i, ii, iii and iv
- d) ii and iii

Answer: d)

15) Which of the following techniques is preferentially used when the population is finite?

- a) Purposive sampling technique
- b) Area sampling technique
- c) Systematic sampling technique
- d) None of the above

Answer: c)

16) A study began in 1980 with enrollment of a group of 7000 adults in Pondicherry who were asked about their alcohol consumption, smoking, diet, environmental risk factors etc. All the participants were periodically examined and evaluated for evidence of various types of cancers between 1990-1995. Which of the following study designs was used by the investigators?

- a) Case-control study
- b) Prospective cohort study
- c) Ecological study
- d) Retrospective cohort study

Answer: b)

17) An increased number of postoperative wound infections were recorded in patients who underwent incision appendectomy compared with those who had a laparoscopic procedure. Which of the following statement/s is/are true in such a scenario?

- a) This association may simply be owing to the presence of a confounding factor
- b) Association between the two can be better studied in randomized controlled clinical trials

ASSIGNMENT - 14

- c) Both 'a' and 'b'
- d) None

Answer: c)

18) In a study to evaluate the effectiveness of a new medication, which of the following will generate a stronger evidence?

- a) Comparing outcomes among those receiving medication with those not receiving the same.
- b) Comparing outcomes among those receiving higher doses of medication with those receiving lower doses
- c) Comparing adverse events and drug reactions among those receiving medication and those not receiving medication
- d) All of the above

Answer: d)

19) Smart objectives are goals that are designed to be specific, measurable, achievable, relevant and time-bound. Which of the following is an illustration of non-measurable objective?

- a) Incidence of colorectal cancers in Indian adult men
- b) Experiences shared by victims of domestic violence
- c) To determine if regular skin emollients applied from 2 weeks of age reduced development of atopic dermatitis by age 12 months in the general infant population
- d) None of the above

Answer: b)

20) Validity of a research can be improved by:

- a) Taking the true representative sample of the population
- b) Eliminating extraneous factors and collecting detailed information on confounding factors
- c) 'a' and 'b'
- d) None of these

Answer: c)

21) Which of the following is ideally the first step in developing a study?

- a) Fixing the title
- b) Formulating the research question
- c) Writing the background
- d) Planning for analysis

Answer: b)

22) Which of the following is a reason for the failure of a study?

- a) Poorly stated research question
- b) Unrealistic timeline
- c) Inadequate supervision
- d) All the above

Answer: d)

23) Which of the following represents the correct sequence in the life cycle of a study?

- i. Developing research question

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ii. Planning the data analysis

iii. Data collection

iv. Data analysis

- a) i, iii, iv, ii
- b) i, ii, iii, iv
- c) i, iii, ii, iv
- d) ii, iii, iv, i

Answer: b)

24) Which of the following factor is NOT essential for effective planning and management of a study?

- a) Time management
- b) Financial management
- c) Reduction of sample size
- d) Team work

Answer: c)

25) Which of the following is to be followed while collecting the information elements?

- a) Use of variables that best reflect the information element
- b) Standardized case definitions
- c) Use of validated and standardized methods
- d) All the above

Answer: d)

26) State whether true or false. Framing several study objectives improves the study planning and management

- a) True
- b) False

Answer: b)

27) State whether true or false. Selection of study design should be related to the objectives.

- a) True
- b) False

Answer: a)

28) A postgraduate wants to do a community based thesis. Which of the following is a part of the planning and program management of the study?

- a) Calculating sample size
- b) Arranging transport to community
- c) Writing thesis
- d) All the above

Answer: d)

29) Which of the following can be used to represent the duration, timeline and sequence of activities and milestones of a research project?

- a) Bar chart

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- b) Histogram
- c) Gantt chart
- d) Pie chart

Answer: c)

30) Who is primarily responsible for resource allocation and time management in a study?

- a) Institute where the research is conducted
- b) Principal investigator
- c) Funding agency
- d) Scientific committee

Answer: b)

31) Which of the following is ideally the first step in developing a study?

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- iv. Data analysis

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- b) i, ii, iii, iv
- c) i, iii, ii, iv
- d) ii, iii, iv, i

Answer: b)

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ASSIGNMENT - 14

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- d) Pie chart

Answer: c)

40) Who is primarily responsible for resource allocation and time management in a study?

- a) Institute where the research is conducted
- b) Principal investigator
- c) Funding agency
- d) Scientific committee

Answer: b)

41) State whether True or False: The amount of funding is the factor which decides the study design to conduct a health research.

- a) True
- b) False

Answer: b)

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42) Which of the following stage is most appropriate to define the responsibilities to conduct a health project?

- a) During the planning
- b) During initiation
- c) During conducting
- d) Any time of the study

Answer: a)

43) Inadequate supervision of field activity will result in which of the following?

- a) Forceful revision of study objectives
- b) Generation of low-quality data
- c) Saving in allocated fund
- d) Both 'a' and 'b'

Answer: b)

44) All of the following are advantages of having an analysis plan EXCEPT.

- a) Analyzable information is collected
- b) Early dissemination of study results
- c) Helps to avoid comparison not related to the objectives
- d) Good quality data can be obtained

Answer: d)

45) Gantt chart is useful in the following aspect (s) with respect to the study plan and project management.

- a) Develop the initial project schedule
- b) Report study progress
- c) Demonstrate milestone
- d) All of these

Answer: d)

46) State whether True or False: 'Ad hoc' method is a best method in project implementation and management.

- a) True
- b) False

Answer: b)

47) Which of the following is NOT TRUE about project implementation?

- a) Having a standard operating procedures is not a prerequisite for multi-centric studies
- b) Collecting analyzable information should be a prerequisite
- c) Validated methods should be used for data collection
- d) Conducting regular project review meetings improves project implementation

Answer: a)

48) Which of the following is NOT a part of project management?

- a) Time management
- b) Resource allocation

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- c) Monitoring and supervision
- d) Protocol development

Answer: d)

49) Which of the following is FALSE regarding the project management?

- a) The timeline for the project should not be too long or too short
- b) Having high budget will always result in successful project completion
- c) Lack of training to field investigators is one of the reasons for study failure
- d) Having vague objectives will result in project failure

Answer: b)

50) In the 'Research cycle', which of the following step lies between formulating the study objectives and preparing data collection instruments?

- a) Data collection
- b) Data cleaning
- c) Data analysis plan
- d) Data analysis

Answer: c)

ASSIGNMENT - 15

1) Which component of the data collection instrument is constituted by open, closed and semi-open items?

- a) Introduction
- b) Identifier
- c) Questions
- d) Concluding statement

Answer: c)

2) Self-administered questionnaire can be

- a) Paper-based or computer-assisted
- b) Used in face-to-face interviews
- c) Used in telephonic interviews
- d) All of the above

Answer: a)

3) While formulating the questions, all the following need to be followed, EXCEPT

- a) Short and clear questions
- b) Avoid ambiguities
- c) Avoid words of every-day language
- d) Avoid negatives and double negatives

Answer: c)

4) Structured observation guide

- a) Is useful to document certain processes
- b) Use checklist of items
- c) Can be used for in-depth interviews
- d) 'a' and 'b'

Answer: d)

5) The interviewer does not provide options for responses in

- a) Open-ended questions
- b) Close-ended questions
- c) Semi-open questions
- d) All of the above

Answer: a)

6) What is the disadvantage of closed questions with dichotomous options in a study questionnaire?

- a) Detailed information available
- b) Oversimplifies the issues
- c) Forces an unclear position
- d) May not be useful for key well framed issue

Answer: b)

7) The information about participant's attitudes for behaviours such as wearing helmets, washing hands before eating, constitute

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- a) Facts
- b) Knowledge
- c) Judgments
- d) Texts

Answer: c)

8) The type of questions in which there is a possibility to add other answer in addition to the options suggested

- a) Open questions
- b) Semi-open questions
- c) Closed questions
- d) Close questions with multiple options

Answer: b)

9) The type of questions in a questionnaire which allow creation of continuous variables as responses

- a) Closed questions with quantitative answers
- b) Open questions with quantitative answers
- c) Both of the above
- d) None of the above

Answer: a)

10. All are true regarding the order of questions in a data collection tool EXCEPT

- a) From intimate to casual
- b) From general to specific
- c) From simple to complicate
- d) In chronological order, if questions related to sequence of events

Answer: a)

11) A question was framed by an ophthalmologist as a part of data collection tool for her research- "Which of the following symptoms you had in the last one week?" The options were 1. Eye pain 2. Redness of eye 3. Watering of eye 4. Low vision. Given that a study participant may have multiple complaints, which of the following best describes the type of question?

- a) Open question
- b) Closed questions with dichotomous options
- c) Closed question with multiple options
- d) Closed question with quantitative answers

Answer: c)

12) A researcher has framed a question in the research tool as- "What is the monthly income of the family?" This information constitutes

- a. Facts
- b. Knowledge
- c. Judgments

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d. Healthy Life styles

Answer: a)

13) Which of the following is correct in relation to an open question?

- a) Answers are suggested
- b) Stimulate memory
- c) Easy to code and analysis
- d) Freedom to respond is compromised

Answer: b)

14) Glasgow coma Scale (GCS) is a scoring system to understand the consciousness level of a person. The score varies between 3 and 15. A researcher has included a question in research tool- "What is the GCS score during admission?" This question is an example of:

- a) Open question
- b) Closed question with dichotomous option
- c) Closed question with multiple option
- d) Closed question with quantitative answers

Answer: d)

15) An investigator wanted to study the clinical profile of patients presented with foreign body in nose, attended in the emergency department in the last 2 years in a hospital. Which of the following is the most suitable way to collect data?

- a) Review of records
- b) Cohort study
- c) Randomized trial
- d) Focus group discussion

Answer: a)

16) Order of a question should be all, except

- a) From simple to complicated
- b) From general to specific
- c) From intimate to casual
- d) In chronological order

Answer: c)

17) Structured observation guide

- a) Is useful to document certain process
- b) Uses checklist of items
- c) Both 'a' and 'b'
- d) None of the above

Answer: c)

18) Which of the following factors related to data collection may lead to study failures?

- a) Poorly defined research question
- b) Vague timelines

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- c) Lack of supervision
- d) All of the above

Answer: d)

19. In which of the following type of question the interviewer does not provide options for responses?

- a) Open-ended questions
- b) Close-ended questions
- c) Semi-open questions
- d) Closed question with multiple options

Answer: a)

20) 'Age in years' is commonly a continuous variable. However, a resident doctor decided to ask age as a closed question with dichotomous options (If age > 65 years or < 65 years). What is the disadvantage of such type of ques in a study questionnaire?

- a) Detailed information available
- b) Oversimplifies the issues
- c) Forces an unclear position
- d) It is easy to convert a dichotomous variable to a continuous variable

Answer: b)

21) Which one of the following is NOT a component of a data collection tool?

- a) Informed consent
- b) Concluding statements
- c) Identifiers
- d) Tabulated results

Answer: d)

22) Which of the following is TRUE about a data abstraction form?

- a) It is used to collect data by going through records
- b) It is more valid than a questionnaire
- c) It can be self-administered by the participants
- d) It is also called an observational checklist

Answer: a)

23) Which of the following is FALSE about a questionnaire?

- a) It can contain instructions or prompts for data collectors
- b) It should contain unique participant identifiers
- c) It should avoid skip patterns
- d) It can contain a mix of open and closed questions

Answer: c)

24) Identify the type of the question given below. "How do you spend your leisure time?"

- a) Open ended
- b) Closed
- c) Semi-open

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d) Open question with closed answers

Answer: a)

25) Which of the following is TRUE about 'Open question with closed answers'?

- a) Its answers are not suggested to the participants
- b) It can be used in a self-administered questionnaire
- c) It is analyzed like an open ended question
- d) It is expressed as a closed question to the participants

Answer: a)

26) What is the type of the question given below? From where do you usually get health-related information?

i. Television

ii. Radio

iii. Newspaper

iv. Magazine

v. Others (specify) _____

- a) Open ended
- b) Closed
- c) Semi-open
- d) Open question with closed answers

Answer: c)

27) Which of the following is FALSE about formulating questions in a study tool?

- a) They must be concise and precise
- b) They must use scientific terms
- c) They must use a neutral tone
- d) They must avoid double negatives

Answer: b)

28) Which rule is NOT followed in the framing of the question given below? "When and where did you get tested for COVID-19 infection?"

- a) Using a neutral tone
- b) Avoiding use of double negatives
- c) Asking a single question at a time
- d) Using simple words of everyday language

Answer: c)

29) State whether true or false. Before using a data collection tool in the study, it will be useful to get it reviewed by a statistician.

- a) True
- b) False

Answer: a)

30) What is FALSE about pilot testing of a study questionnaire?

- a) It checks the tool for clarity and acceptability

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- b) It is conducted among persons who will be included in the study
- c) It provides an estimate of the duration of interview
- d) Changes are made to the questionnaire based on its findings.

Answer: b)

31) Which one of the following is NOT a component of a data collection tool?

- a) Informed consent
- b) Concluding statements
- c) Identifiers
- d) Tabulated results

Answer: d)

32) Which of the following is TRUE about a data abstraction form?

- a) It is used to collect data by going through records
- b) It is more valid than a questionnaire
- c) It can be self-administered by the participants
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- i. Television
- ii. Radio
- iii. Newspaper
- iv. Magazine

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v. Others (specify) _____

- a) Open ended
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- c) Semi-open
- d) Open question with closed answers

Answer: c)

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- a) Using a neutral tone
- b) Avoiding use of double negatives
- c) Asking a single question at a time
- d) Using simple words of everyday language

Answer: c)

39) State whether true or false. Before using a data collection tool in the study, it will be useful to get it reviewed by a statistician.

- a) True
- b) False

Answer: a)

40) What is FALSE about pilot testing of a study questionnaire?

- a) It checks the tool for clarity and acceptability
- b) It is conducted among persons who will be included in the study
- c) It provides an estimate of the duration of interview
- d) Changes are made to the questionnaire based on its findings.

Answer: b)

41) A researcher decided to use an abstract form for collection of data by review of records for a proposed study. Which of the following can be a source of information?

- a) Clinical registers
- b) Checklist of items
- c) Face to face interviews
- d) Computer-assisted interviews

Answer: a)

42) A questionnaire can be of the following types, EXCEPT?

- a) Interviewer-administered
- b) Self-administered

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- c) Checklist
- d) Computer-assisted

Answer: c)

43) Which of the following items are placed in the body of the study instrument?

- a) Identifiers
- b) Open questions
- c) Instructions with prompts
- d) Informed consent

Answer: b)

44) Identify the type of question.

'What disease can you acquire if you consume alcohol? _____'

- a) Closed question
- b) Open question with closed ended answers
- c) Open question
- d) Semi-open question

Answer: c)

45) Identify the type of question. 'Did you have any of the symptoms following COVID disease?

- i. None
- ii. Breathlessness
- iii. Fatigue
- iv. Chest pain
- v. Cough
- vi. Other, specify: _____'

- a) Closed question
- b) Open question with closed-ended answers
- c) Open question
- d) Semi-open question

Answer: d)

46) Identify the type of question. 'How would you describe your pain on a scale of 1-10 where, 1 would be the minimum and 10 would be the maximum?

- a) Closed question
- b) Open question with closed ended answers
- c) Open question
- d) Semi-open question

Answer: a)

47) Identify the type of question.

'What are the practices that may increase your risk of getting COVID infection (Instruction for data collector- Do not propose any options for an answer and simply note the response as given by the participant)

- 1. Wearing a mask (Yes/ No/ Not sure)
- 2. Following social distancing (Yes/ No/ Not sure)

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3. Coming in contact with a COVID positive patient (Yes/ No/ Not sure)

4. Socialising indoors (Yes/ No/ Not sure)

- a) Closed question
- b) Open question with closed-ended answers
- c) Open question
- d) Semi-open question

Answer: b)

48) Which of the following characteristics is TRUE about formulating a question in a questionnaire?

- a) Scientific language
- b) Double negatives
- c) Precise question
- d) General question.

Answer: c)

49) Which of the following is the CORRECT order of questions in a study tool?

- a) Simple to complicated
- b) Specific to general
- c) Intimate to casual
- d) Different topics within a single group

Answer: a)

50) The data collection tool can be finalised by all the following methods 'EXCEPT'?

- a) Checking instrument against objectives and analysis plan
- b) Reviewing of the instrument by experts
- c) Formulation in English for non-English speaking population
- d) Pilot testing

Answer: c)

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1) Reliability denotes

- a) Precision
- b) Repeatability
- c) Reproducibility
- d) All of the above

Answer: d)

2) This should not be done in data collection

- a) Training of staff members
- b) Review of collected data for quality and completeness
- c) Manipulation of data
- d) Validation

Answer: c)

3) Supportive supervision is essential for a good data collection process

- a) True
- b) False

Answer: a)

4) The collected data should be

- a) Complete
- b) Readable
- c) Consistent
- d) All of the above

Answer: d)

5) Which of the following is (are) true about the training of data collection staff?

- a) Conduct on-site training
- b) Conduct mock training sessions
- c) Training is always optional
- d) 'a' and 'b'

Answer: d)

6) Which one of the following is the proper way of validating the data?

- a) Repetition of full data collection in the same population
- b) Data collection in new population
- c) Repetition of data collection in a randomly selected subset in the same population
- d) Repeat data collection is not required

Answer: c)

7) Appropriate means to troubleshoot the difficulties in data collection process

- a) Regular review meetings
- b) Facilitate the discussion to identify issues during the review
- c) Clarify the issues experienced by staff during data collection
- d) All of the above

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Answer: d)

8) There is no need to present the study and its objectives to the field investigators

- a) True
- b) False

Answer: b)

9) Which of the following statement is (are) true regarding data collection for an epidemiological study?

- a) Reliability refers to consistency of information
- b) Accuracy is the ability of a measurement to be correct on an average
- c) Feasibility is the ability of investigator to understand the data
- d) 'a' and 'b'

Answer: d)

10) Time pressure during data collection may result in dilution of data quality

- a) True
- b) False

Answer: a)

11) A data collection tool should be _____

- a) Valid
- b) Reliable
- c) Both 'a' and 'b'
- d) None

Answer: c)

12) A neurosurgeon is planning for a hospital-based study on the patients coming to the emergency department with head injury. The collected data should be

- a) Complete
- b) Readable
- c) Consistent
- d) All of the above

Answer: d)

13) Which of the following should not be done in relation to data collection?

- a) Training of staff members
- b) Review of collected data for quality and completeness
- c) Validation
- d) None of the above

Answer: d)

14) State whether true or false: Piloting a data collection tool should be done under supervision

- a) True
- b) False

Answer: a)

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15) All of the following are true about a 'question by question guide', except

- a) It is a document for the data collectors
- b) It helps in maintaining uniformity of the data collection
- c) It helps participants on how to respond
- d) It clarifies doubts on data collection

Answer: c)

16) Time pressure during data collection may result in dilution of the data quality

- a) True
- b) False

Answer: a)

17) Which one of the following is the proper way of validating the data?

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- a) Reliability refers to consistency of information
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- c) Both 'a' and 'b'
- d) None of the above

Answer: c)

19) Who is mainly responsible to check the accuracy of data collection instruments before leaving the location?

- a) Field investigator
- b) Field supervisor
- c) Principle investigator
- d) Study participant

Answer: b)

20) All the following statements are true about training of the data collectors, except

- a) Essential to ensure good quality data
- b) The investigators should choose the right people
- c) Communication skill is important for the data collectors
- d) Onsite training is not essential for data collectors

Answer: d)

21) The ability of an instrument to produce similar results on repeated measurement is called

- a) Validity
- b) Reliability
- c) Accuracy

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d) Sensitivity

Answer: b)

22) The mean value of fasting blood sugar among 50 healthy volunteers in a community was found to be 90 g/dL with a standard deviation of 5 mg/dL using a new diagnostic test. In the same volunteers, the gold standard test found a mean of 88 g/dL with standard deviation of 4.7 g/dL.

What can be said about the new diagnostic test?

- a) The new diagnostic test is valid
- b) The new diagnostic test is reliable
- c) The new diagnostic test is valid and reliable
- d) The new diagnostic test is invalid and unreliable

Answer: a)

23) Which of the following is NOT used as a criterion to judge the quality of data collected in a study?

- a) Accuracy
- b) Repeatability
- c) Precision
- d) External validity

Answer: d)

24) Which of the following should NOT be done during data collection in a study?

- a) Referring to the data collection guide
- b) Checking the quality of data
- c) Modifying the study objectives
- d) Validating the data collection process

Answer: c)

25) State whether true or false. Accuracy of an instrument is the ability to measure what it intends to measure.

- a) True
- b) False

Answer: a)

26) Which of the following is the correct sequence of steps of data collection?

- i. Preparation of data collection guide
- ii. Checking the collected data for completeness
- iii. Training of the data collector
- iv. Validating the collected data

- a) i, iv, iii, ii
- b) ii, iii, iv, i
- c) i, iii, ii, iv
- d) iii, i, iv, iii

Answer: c)

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27) State whether true or false. A data collection guidebook can be revised time to time as issues in the data collection process are identified.

- a) True
- b) False

Answer: a)

28) Which of the following should NOT be done during training of data collectors?

- a) Simulating the data collection procedure
- b) Discussing the study objectives with them
- c) Using an early version of the questionnaire for training
- d) Revising the question guide according to queries

Answer: c)

29) Which of the following does NOT apply in checking the quality of filled forms during data collection?

- a) Completeness
- b) Consistency
- c) Readability
- d) Statistical significance

Answer: d)

30) During data collection in a study, a data collector is faced with a situation where the participant refuses to answer a particular question in the middle of the interview. What is the appropriate action in this situation?

- a) End the interview and report to the investigator
- b) Continue the interview with the remaining questions
- c) Seek the answer to that question from family members
- d) Try to persuade the participant to answer the question somehow

Answer: b)

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- a) Validity
- b) Reliability
- c) Accuracy
- d) Sensitivity

Answer: b)

32) The mean value of fasting blood sugar among 50 healthy volunteers in a community was found to be 90 g/dL with a standard deviation of 5 mg/dL using a new diagnostic test. In the same volunteers, the gold standard test found a mean of 88 g/dL with standard deviation of 4.7 g/dL.

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- i. Preparation of data collection guide
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- iii. Training of the data collector
- iv. Validating the collected data

- a) i, iv, iii, ii
- b) ii, iii, iv, i
- c) i, iii, ii, iv
- d) iii, i, iv, iii

Answer: c)

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- a) True
- b) False

Answer: a)

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- a) End the interview and report to the investigator
- b) Continue the interview with the remaining questions
- c) Seek the answer to that question from family members
- d) Try to persuade the participant to answer the question somehow

Answer: b)

41) Consistency of information in health research is otherwise known as -----.

- a) Accuracy
- b) Validity
- c) Reproducibility
- d) Sensitivity

Answer: c)

42) State True or False: Ability of a measurement to give the same result with repeated measurements of the same thing is known as accuracy.

- a) True
- b) False

Answer: b)

43) Which of the following is an ideal situation in a health research with respect to the study results?

- a) Not reliable, accurate
- b) Not accurate, reliable
- c) Not accurate, not reliable
- d) Accurate, reliable

Answer: d)

44) Which of the following is considered as a roadmap for good data collection?

- a) Training
- b) Monitoring
- c) Question by question guide
- d) Validation

Answer: c)

45) When a researcher planning to conduct a field based study which is the foremost important criteria to be satisfied with the field investigator?

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- a) Familiarity with the local language
- b) Well qualified
- c) Should know clinical terms
- d) All of the above

Answer: a)

46) Conducting a -----will be helpful for the field investigator to understand the complete process and of data collection activity.

- a) Training
- b) Discussion
- c) Pilot study
- d) Review meeting

Answer: c)

47) Which is the ideal time to check the completeness of data during the data collection activity?

- a) At the end of data collection
- b) Before the respondent leaves
- c) During data cleaning
- d) Both 'b' and 'c'

Answer: b)

48) All the following checks to be conducted in the data collection forms EXCEPT?

- a) Consistency
- b) Readability
- c) Completeness
- d) Significance

Answer: d)

49) Which of the following statement is TRUE about validation of data collection process?

- a) All the study participant should be interviewed
- b) A subset of study participants can be interviewed on convenience
- c) Randomly selected subset of study participants can be interviewed
- d) Interview a different population with the same tool

Answer: c)

50) State True or False: Question by question guide can be revised as and when the issues arise during the data collection process.

- a) True
- b) False

Answer: a)

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1) Steps in data management include

- a) Defining a variable, creating a study database and dictionary
- b) Enter data, correct errors and create data set for analysis
- c) Backup and archive data set
- d) All of the above

Answer: d)

2) When we are creating variable name, it should be

- a) Clearly understandable and should refer to the questionnaire
- b) Long and can have spaces
- c) Consistent and without duplicates
- d) 'a' and 'c'

Answer: d)

3) In a data management system, each row represents a

- a) Variable
- b) Record
- c) Heading
- d) Appendix

Answer: b)

4) What is (are) the specifications that we need to check before doing data entry?

- a) Minimum and maximum values, legal codes, skip patterns
- b) Record name and description of record
- c) Automatic coding, coping data from preceding record and calculations
- d) 'a' and 'c'

Answer: d)

5) Identifier in the database is (are)

- a) Unique
- b) Maintained by a computerized index
- c) Secured by quality assurance procedures
- d) All of the above

Answer: d)

6) Key elements of data management

- a) Data structure and data entry
- b) Individual and aggregated databases
- c) Mother and daughter databases
- d) All of the above

Answer: d)

7) The design of data collection instrument

- a) Data entry friendly
- b) Outline of major data collection topics/item

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- c) Auto coding function
- d) All of the above

Answer: d)

8) When we are coding for data entry, we should

- a) Prefer numerical coding
- b) Use highly complex codes
- c) Decide on the codes for 'missing values' and 'not applicable' items
- d) 'a' and 'c'

Answer: d)

9) When information is available at various levels (e.g. at Village, Household, Individual and Illness episode), we can store information at each level in separate databases and link when necessary

- a) True
- b) False

Answer: a)

10) Which of the following is (are) not true about normalized database?

- a) Normalized database facilitates further aggregation
- b) It has only one count by record
- c) Normalized database does not facilitate further data aggregation
- d) 'a' and 'b'

Answer: c)

11) A post-graduate researcher has completed the data collection for her thesis. During data management, she should do all the following, except

- a) Applying for the ethics committee clearance
- b) Create study database
- c) Create dataset for analysis
- d) Back-up dataset

Answer: a)

12) Data documentation includes information about the following items

- a) Structure (Name, number of records etc) alone
- b) Storage information (Media, location, backup information)
- c) Structure (Name, number of records etc), Variables (Name, values, coding), History (Creation, modification), and Storage information (Media, location, backup information)
- d) Structure (Name, number of records etc), Storage information (Media, location, backup information), and Variables (Name, values, coding)

Answer: c)

13) A variable name should be

- a) Clearly understandable and should refer to the questionnaire
- b) Short, no space
- c) Consistent and without duplicates

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d) All of the above

Answer: d)

14) Design of data entry can be broadly outlined as

- a) Identifier, Demographics, Outcome, and Exposure
- b) Informed consent, Identifier, and Demographics
- c) Identifier, Demographics, Outcome and data analysis plan
- d) Informed consent, Identifier, Demographics, Outcome and data analysis plan

Answer: a)

15) All of the following are true about 'Coding' a new variable, except

- a) Prefer numerical coding
- b) Decide on missing values while coding
- c) Avoid cumbersome codes
- d) Coding with '0' and '1' should be avoided for dichotomous variables

Answer: d)

16) Data entry can be considered as an opportunity to partially clean the data

- a) True
- b) False

Answer: a)

17) A researcher in diabetes expected that the fasting blood sugar levels may take any value between 50 and 150 gm/dL. In this research any coding of missing value as 99 may lead to an erroneous result.

- a) True
- b) False

Answer: a)

18) While documenting the storage information of the database, we need to document

- a) Investigators information
- b) Time, place, person information
- c) Media, location and backup information
- d) Hardware configuration

Answer: c)

19) Which of the following is incorrect in relation to the data catalogue?

- a) It describes all the variable for any future reference
- b) It is useful if we share the data with others
- c) It is useful to know how a variable has been coded
- d) It is advisable to exclude the missing values from data catalogue

Answer: d)

20) Which of the following is incorrect about normalized database?

- a) Normalized database facilitates further aggregation
- b) It has only one count by record

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- c) Normalized database does not facilitate further data aggregation
- d) Both 'b' and 'c'

Answer: c)

21) Which of the following is FALSE about Unique Identifier (ID)?

- a) It can be same for more than one participant in a study
- b) It can be alphanumeric
- c) It can be a composite number
- d) It can be used to maintain the anonymity of participants

Answer: a)

22) Which of the following is NOT a quality assurance measure in designing a data entry form?

- a) Using legal values
- b) Using minimum and maximum
- c) Avoiding skip patterns
- d) Use of automatic coding

Answer: c)

23) In a data management system each column represents a(n)-

- a) Variable
- b) Record
- c) Heading
- d) Appendix

Answer: a)

24) Which of the following is FALSE about Mother-Daughter databases?

- a) Information is collected at various levels
- b) Information of each level is stored in a different database
- c) They can be linked by a common index identifier
- d) Each database cannot have its own unique identifier system

Answer: d)

25) State whether true or false. Coding with '0' and '1' should be avoided for dichotomous variables.

- a) True
- b) False

Answer: b)

26) Which of the following is FALSE about data dictionary?

- a) It is created after the data entry is started
- b) It contains the values assigned to the variables
- c) It gives a brief description of the variables
- d) It links the variables in the database to the questionnaire

Answer: a)

27) Identify the type of variable in this question.

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“Have you ever smoked cigarettes?”

i. Yes

ii. No

- a) Categorical
- b) Ordinal
- c) Continuous
- d) Discrete

Answer: a)

28) In a study on cancer, the ‘stage of cancer’ was recorded as Stage I, Stage II, Stage III and Stage IV. Which of the following variable types best describes the ‘stage of cancer’?

- a) Nominal
- b) Ordinal
- c) Categorical
- d) Continuous

Answer: b)

29) In a study with 100 participants, age was recorded as a continuous variable. During data entry, it was seen that age was missing in the forms for 13 people. Which of the following is “TRUE” in this situation?

- a) Missing values can be coded as ‘999’
- b) Age variable should be removed from the study
- c) An arbitrary value can be assigned by the data entry operator
- d) Participants with missing age should be removed from the study

Answer: a)

30) State whether true or false. While entering the systolic blood pressure (expected value 60 to 200) value in a database, coding the missing value as 99 may lead to an erroneous result.

- a) True
- b) False

Answer: a)

31) Which of the following is FALSE about Unique Identifier (ID)?

- a) It can be same for more than one participant in a study
- b) It can be alphanumeric
- c) It can be a composite number
- d) It can be used to maintain the anonymity of participants

Answer: a)

32) Which of the following is NOT a quality assurance measure in designing a data entry form?

- a) Using legal values
- b) Using minimum and maximum
- c) Avoiding skip patterns
- d) Use of automatic coding

Answer: c)

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33) In a data management system each column represents a(n)-

- a) Variable
- b) Record
- c) Heading
- d) Appendix

Answer: a)

34) Which of the following is FALSE about Mother-Daughter databases?

- a) Information is collected at various levels
- b) Information of each level is stored in a different database
- c) They can be linked by a common index identifier
- d) Each database cannot have its own unique identifier system

Answer: d)

35) State whether true or false. Coding with '0' and '1' should be avoided for dichotomous variables.

- a) True
- b) False

Answer: b)

36) Which of the following is FALSE about data dictionary?

- a) It is created after the data entry is started
- b) It contains the values assigned to the variables
- c) It gives a brief description of the variables
- d) It links the variables in the database to the questionnaire

Answer: a)

37) Identify the type of variable in this question.

"Have you ever smoked cigarettes?"

i. Yes

ii. No

- a) Categorical
- b) Ordinal
- c) Continuous
- d) Discrete

Answer: a)

38) In a study on cancer, the 'stage of cancer' was recorded as Stage I, Stage II, Stage III and Stage IV. Which of the following variable types best describes the 'stage of cancer'?

- a) Nominal
- b) Ordinal
- c) Categorical
- d) Continuous

Answer: b)

39) In a study with 100 participants, age was recorded as a continuous variable. During

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data entry, it was seen that age was missing in the forms for 13 people. Which of the following is "TRUE" in this situation?

- a) Missing values can be coded as '999'
- b) Age variable should be removed from the study
- c) An arbitrary value can be assigned by the data entry operator
- d) Participants with missing age should be removed from the study

Answer: a)

40) State whether true or false. While entering the systolic blood pressure (expected value 60 to 200) value in a database, coding the missing value as 99 may lead to an erroneous result.

- a) True
- b) False

Answer: a)

41) State whether true or false. Data entry can be viewed as a mechanism to clean up the data to some extent.

- a) True
- b) False

Answer: a)

42) In a database management system, the dictionary contains information about the following EXCEPT

- a) Questionnaire item
- b) Variable name
- c) Variable type
- d) Number of records

Answer: d)

43) A post graduate researcher is designing a data entry module for his thesis project. All the following are essential for maintaining quality of data EXCEPT

- a) Use of legal value and range checks
- b) Pilot test of the data entry module before data collection
- c) Use of sample size calculation software
- d) Use of experienced data entry operators

Answer: c)

44) State whether true or false. While entering the systolic blood pressure (expected value 60 to 200) value in a database, coding the missing value as 99 may lead to an erroneous result.

- a) True
- b) False

Answer: a)

45) Which of the following is a disadvantage of the statistical software 'EpiInfo'?(O)

- a) Enables questionnaire design
- b) It is built for WINDOWS OS only
- c) Useful for data entry and validation

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d) Displays location data on map

Answer: b)

46) While documenting the storage information of the database, we need to document which of the following?

- a) Investigators information
- b) Time, place, person information
- c) Media, location and backup information
- d) Hardware configuration

Answer: c)

47) Which of the following is FALSE about data dictionary?

- a) It is created after the data entry is started
- b) It contains the values assigned to the variables
- c) It gives a brief description of the variables
- d) It links the variables in the database to the questionnaire

Answer: a)

48) Identify the type of variable in this question.

“Have you ever smoked cigarettes?”

1. Yes

2. No

- a) Categorical
- b) Ordinal
- c) Continuous
- d) Discrete

Answer: a)

49) In a study on cancer, the ‘stage of cancer’ was recorded as Stage I, Stage II, Stage III and Stage IV. Which of the following variable types best describes the ‘stage of cancer’?

- a) Nominal
- b) Ordinal
- c) Categorical
- d) Continuous

Answer: b)

50) In a study with 100 participants, age was recorded as a continuous variable. During data entry, it was seen that age was missing in the forms for 13 people. Which of the following is true in this situation?

- a) Missing values can be coded as ‘999’
- b) Age variable should be removed from the study
- c) An arbitrary value can be assigned by the data entry operator
- d) Participants with missing age should be removed from the study

Answer: a)

ASSIGNMENT - 18

1) The three stages of data analysis are in the following order

- a) Descriptive stage, analytical stage and recoding stage
- b) Recoding stage, descriptive stage and analytical stage
- c) Analytical stage, descriptive stage and recoding stage
- d) Descriptive stage, coding stage, recoding stage

Answer: b)

2) We need to avoid the following while performing data analysis

- a) Post hoc analysis
- b) Data drenching
- c) Stratified data analysis
- d) 'a' and 'b'

Answer: d)

3) In the descriptive stage of analysis, we use logistic regression models

- a) True
- b) False

Answer: b)

4) "Epi-Info" is a software used for data entry and data analysis

- a) True
- b) False

Answer: a)

5) In analytical stage of data analysis, we perform the following in order

- a) Stratified analysis, univariate analysis and multivariate analysis
- b) Univariate analysis, stratified analysis and multivariate analysis
- c) Multivariate analysis, univariate analysis and stratified analysis
- d) Frequency analysis and univariate analysis

Answer: b)

6) Among the seven steps of data analysis strategy, the sequence of data analysis is as follows

A. Conduct advanced analysis

B. Identify main variables

C. Become familiar with the data

D. Identify study type

E. Examine outcome/exposure association

F. Characterize study population

G. Create additional two-way tables

- a) A, B, C, D, E, F, G
- b) G, E, F, D, A, B, C
- c) D, B, C, F, E, G, A
- d) E, F, G, C, A, B, D

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Answer: c)

7) In case of descriptive studies, which of the following is wrong?

- a) We describe the study outcome for 1 group
- b) We compare the study outcome for 2 groups
- c) We calculate the incidence for cohort or surveillance data
- d) We calculate prevalence for cross sectional survey

Answer: b)

8) If we are doing an analytical study and the study outcome is of acute nature and rare condition what is the appropriate (i) study design and (ii) measure of association?

- a) Cohort study - Relative risk
- b) Case-control study - Odds ratio
- c) Cross-sectional study - Prevalence ratio
- d) Surveillance - Incidence

Answer: b)

9) Analysis plan depends on

- a) Objectives of the study
- b) Budget
- c) Study type (Descriptive or analytical)
- d) 'a' and 'c'

Answer: d)

10) Use of spreadsheets, such as Excel, should be avoided for data management and analysis

- a) True
- b) False

Answer: a)

11) Multivariate regression models are used during the descriptive stage of analysis

- a) True
- b) False

Answer: b)

12) "Epi-Info" is a software that can be used to create data collection instrument format

- a) True
- b) False

Answer: a)

13) In a research study the analysis plan depends on

- a) Objectives and study type
- b) Allocated budget
- c) Availability of the statistician
- d) Existing time for analysis

Answer: a)

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14) At the time of data cleaning, which of the following is not done?

- a) Checking and removing duplicates
- b) Dealing with missing observations
- c) Calculating strength of association
- d) Checking range and legal values

Answer: c)

15) To describe the study population characteristics we need to

- a) Calculate the frequency distribution
- b) Calculate measures of association
- c) Look for correlation between variables
- d) perform multivariable regression

Answer: a)

16) While examining the association between exposure and outcome based on a priori hypothesis, we compare frequency of exposures between cases and controls using appropriate measure of association

- a) True
- b) False

Answer: a)

17) If we are doing an analytical study and the study outcome is of acute nature and a frequent condition what is the appropriate (i) study design and (ii) measure of association?

- a) Cohort study - relative risk
- b) Case-control study – odds ratio
- c) Cross sectional study - Prevalence
- d) Surveillance - Incidence

Answer: a)

18) Which of the following statements are CORRECT

- a) Plan for data analysis is made at the end of the study
- b) Recoding can be done for key variables
- c) Multivariate analysis is done before doing a univariate analysis
- d) Data dredging is acceptable

Answer: b)

19) Which of the following is the correct sequence for data analysis

- i. Multivariate analysis
- ii. Recoding
- iii. Measures of association
- iv. Frequency distribution

- a) ii, iii, iv, i
- b) i, iii, iv, ii
- c) ii, iv, iii, i
- d) iii, iv, i, ii

Answer: c)

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20) Spreadsheets are ideal tools for data entry and analysis

- a) True
- b) False

Answer: b)

21) All the following are done to characterize the study population EXCEPT

- a) Provide frequency distribution of age
- b) Provide percentages of gender
- c) Compare baseline characteristics of study groups
- d) Conduct logistic regression analysis

Answer: d)

22) Which of the following is the appropriate measure of association in a case-control study?

- a) Odds ratio
- b) Prevalence ratio
- c) Relative risk
- d) Incidence

Answer: a)

23) State whether true or false. Prevalence ratio is one of the measures of association calculated in an analytical cross-sectional study.

- a) True
- b) False

Answer: a)

24) State whether true or false. Hypothesis testing is conducted in an analytical epidemiological study.

- a) True
- b) False

Answer: a)

25) Identify the correct sequence in the steps of data analysis.

- i. Identify exposure, outcome and other variables
- ii. Check data for consistency, duplicates and missing values
- iii. Examine association between outcome and exposure
- iv. Examine baseline characteristics of the study population

- a) i, ii, iii, iv
- b) i, ii, iv, iii
- c) ii, iv, i, iii
- d) iii, i, ii, iv

Answer: b)

26) Which of the following is NOT done during the analytic stage of data analysis?

- a) Calculating frequency of the outcome in one group

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- b) Calculating frequency of the outcome by age and gender
- c) Calculating odds ratio between exposure and outcome
- d) Applying logistic regression

Answer: a)

27) Relative risk is calculated in which of the following study designs?

- a) Cross-sectional study
- b) Cohort study
- c) Case study
- d) Case control study

Answer: b)

28) State whether true or false. Risk ratio can be calculated in a descriptive cross-sectional study.

- a) True
- b) False

Answer: b)

29) In a case-control study to examine the association between mobile phone use and acoustic neuroma, 24 cases of acoustic neuroma and 72 hospital controls were recruited from the ENT department of a medical college in Gilgit. History of mobile phone use (>6 hours/day) was ascertained using a standard questionnaire. Exposure was present among 16 cases and 18 controls. Calculate the measure of association.

- a) Odds ratio 1.5
- b) Relative risk 1.5
- c) Odds ratio 6
- d) Relative risk 6

Answer: c)

Since it's a case control study odds ratio(OR) is calculated

SOLUTION → no of cases = 24
no of controls = 72

odds ratio = ad/bc
= $16 \times 54 / 18 \times 8$

OR = 6

	CASES	CONTROLS
EXPOSED	16a)	18(b)
UNEXPOSED	8(c)	54(d)

30) In a case control conducted taking 100 autism children and 200 normal children in Bhopal city, it was found that 90 autism children and 60 normal children had a history of instrumental delivery. Calculate the measure of association between instrumental delivery and autism.

- a) 12
- b) 21
- c) 6
- d) 9

Answer: b)

Since it's a case control study odds ratio is calculated

ASSIGNMENT - 18

SOLUTION → no of cases = 100
no of controls = 200
h/o instrumental delivery in cases = 90
h/o instrumental delivery in controls = 60
odds ratio = ad/bc
 $= 90 \times 140 / 60 \times 10$
OR = 21

	CASES	CONTROLS
EXPOSED	90(a)	60(b)
UNEXPOSED	10(c)	140(d)

31) All the following are done to characterize the study population EXCEPT

- a) Provide frequency distribution of age
- b) Provide percentages of gender
- c) Compare baseline characteristics of study groups
- d) Conduct logistic regression analysis

Answer: d)

32) Which of the following is the appropriate measure of association in a case-control study?

- a) Odds ratio
- b) Prevalence ratio
- c) Relative risk
- d) Incidence

Answer: a)

33) State whether true or false. Prevalence ratio is one of the measures of association calculated in an analytical cross-sectional study.

- a) True
- b) False

Answer: a)

34) State whether true or false. Hypothesis testing is conducted in an analytical epidemiological study.

- a) True
- b) False

Answer: a)

35) Identify the correct sequence in the steps of data analysis.

- i. Identify exposure, outcome and other variables
- ii. Check data for consistency, duplicates and missing values
- iii. Examine association between outcome and exposure
- iv. Examine baseline characteristics of the study population

- a) i, ii, iii, iv
- b) i, ii, iv, iii
- c) ii, iv, i, iii
- d) iii, i, ii, iv

Answer: b)

36) Which of the following is NOT done during the analytic stage of data analysis?

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- a) Calculating frequency of the outcome in one group
- b) Calculating frequency of the outcome by age and gender
- c) Calculating odds ratio between exposure and outcome
- d) Applying logistic regression

Answer: a)

37) Relative risk is calculated in which of the following study designs?

- a) Cross-sectional study
- b) Cohort study
- c) Case study
- d) Case control study

Answer: b)

38) State whether true or false. Risk ratio can be calculated in a descriptive cross-sectional study.

- a) True
- b) False

Answer: b)

39) In a case-control study to examine the association between mobile phone use and acoustic neuroma, 24 cases of acoustic neuroma and 72 hospital controls were recruited from the ENT department of a medical college in Gilgit. History of mobile phone use (>6 hours/day) was ascertained using a standard questionnaire. Exposure was present among 16 cases and 18 controls. Calculate the measure of association.

- a) Odds ratio 1.5
- b) Relative risk 1.5
- c) Odds ratio 6
- d) Relative risk 6

Answer: c)

Since it's a case control study odds ratio is calculated

**SOLUTION → no of cases = 24(a+c)
no of controls = 72(b+d)**

**odds ratio = $\frac{ad}{bc}$
= $\frac{16 \times 54}{18 \times 8}$**

OR = 6

	CASES	CONTROLS
EXPOSED	16a)	18(b)
UNEXPOSED	8(c)	54(d)

40) In a case control conducted taking 100 autism children and 200 normal children in Bhopal city, it was found that 90 autism children and 60 normal children had a history of instrumental delivery. Calculate the measure of association between instrumental delivery and autism.

- a) 12
- b) 21
- c) 6
- d) 9

Answer: b)

Since it's a case control study odds ratio is calculated

ASSIGNMENT - 18

SOLUTION → no of cases = 100
no of controls = 200
h/o instrumental delivery in cases = 90
h/o instrumental delivery in controls = 60
odds ratio = ad/bc
 $= 90 \times 140 / 60 \times 10$
OR = 21

	CASES	CONTROLS
EXPOSED	90(a)	60(b)
UNEXPOSED	10(c)	140(d)

41) The plan for data analysis depends on _____.

- a) Objective of the study
- b) Study design
- c) Type of outcome variable
- d) All of these

Answer: d)

42) Association between cervical cancer and use of Intra uterine contraceptive device is analysed separately among persons with multiple sexual partners and persons with single sexual partner.

This analysis is an example of _____.

- a) Multivariable adjusted analysis
- b) Stratified analysis
- c) Regression analysis
- d) Dose-response analysis

Answer: b)

43) The first important step to be done before data analysis is to _____.

- a) Identify main variables
- b) Become familiar with the data
- c) Identify the study design
- d) Examine the outcome/exposure analysis

Answer: c)

44) Analytical study is used for _____.

- a) Testing of hypothesis
- b) Estimation of a parameter
- c) Hypothesis formulation
- d) Describing a population

Answer: a)

45) Prevalence ratio is the preferred measure of association in _____.

- a) Analytical cross-sectional study
- b) Cohort study
- c) Case-control study
- d) Descriptive cross-sectional study

Answer: a)

46) What is the correct sequence of data analysis strategy?

- i. Characterizing the study population

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- ii. Conducting stratified analysis
- iii. Identifying study variables
- iv. Creating additional two-way tables
- v. Identifying study design

- a) i, v, iii, iv, ii
- b) v, iii, i, iv, ii
- c) v, i, iii, ii, iv
- d) iii, v, i, ii, iv

Answer: b)

47) The following are true about data analysis EXCEPT

- a) Data analysis plan should be prepared in advance
- b) Post hoc analysis which was not part of the original plan should be avoided
- c) Recoding of data is done following descriptive and analytical data analysis
- d) Multivariable analysis is done to adjust for potential confounders

Answer: c)

48) The preferred measure of association for a case-control study is _____.

- a) Risk ratio
- b) Odds ratio
- c) Prevalence ratio
- d) Prevalence odds ratio

Answer: b)

49) State whether true or false. Spreadsheets are preferred tools for data management and analysis of large quantity of data.

- a) True
- b) False

Answer: b)

50) In a cohort study to examine the association between use of Oral contraceptive pills (OCP) and development of breast cancer, 35 out of 8,000 women who used OCP and 33 out of the 22,000 women who did not use OCP had developed breast cancer over 10 years of follow-up. Calculate the measure of association.

- a) 1.3
- b) 1.5
- c) 1.8
- d) 2.0

Answer: None of the above***

Since it's a cohort study relative risk is calculated

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SOLUTION → No of participants who used OCP(exposed) = 8000

No of participants who did not use OCP (unexposed) = 22000

No of participants who developed Breast CA among OCP users = 35

No of participants who developed Breast CA among non-OCP users = 33

$$\text{Relative risk(RR)} = \frac{\text{Incidence of disease exposed}}{\text{Incidence of disease unexposed}} = \frac{a/a+b}{c/c+d}$$

$$\text{On substituting values} = \frac{35/35+7965}{33/33+21967} = 2.9^{***}$$

	Breast CA(+)	Breast CA (-)
OCP(+)	35(a)	7965(b)
OCP (-)	33(c)	21967(d)

***The options given are incorrect hence this question was not considered for final assignment score

ASSIGNMENT - 19

1) In which of the following guidelines, discussion on rationale and justification of risk benefit analysis of research and voluntary consent in research was initiated?

- a) Belmont report
- b) Helsinki declaration
- c) Nuremberg code
- d) CIOMS guidelines

Answer: c)

2) In which type of the following study/studies is (are) informed consent not necessary?

- a) Investigation of an outbreak
- b) Analysis of mortality data of 2001-2010
- c) Using verbal autopsy to determine the cause of death
- d) All of the above

Answer: b)

3) In which of the following type of research, ethical review is (are) mandatory?

- a) Prevalence of HIV infection using blood investigation
- b) Awareness about diabetes using questionnaire only
- c) Calculate out of pocket expenditure using secondary data
- d) All of the above

Answer: d)

4) Which of the following is not important in the context of an informed consent document?

- a) Detailed description of study procedures
- b) Budget of the study
- c) Details regarding compensation and post-trial access to care
- d) Contact details of the Principal Investigator

Answer: b)

5) In the middle of a clinical trial, one participant decides to withdraw from the trial. But, the investigator pressurizes the participant to continue in the study till it completes. Which of the following ethical principles does the investigator violate?

- a) Justice
- b) Autonomy
- c) Beneficence
- d) Non-Maleficence

Answer: b)

6) Which of the following are not ethical practices in health research?

- a) Taking informed consent from participants prior to study participation
- b) Giving lot of money to increase study participation
- c) Lack of adherence to study protocol
- d) 'b' and 'c'

Answer: d)

7) "Do no harm" concept was emphasized in which of the following ethical principles?

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- a) Justice
- b) Autonomy
- c) Beneficence
- d) Non-Maleficence

Answer: d)

8) Genetic research that involves human participants and conducted by a private research institute should follow

- a) ICMR Guidelines
- b) Genome Policy and Genetic Research [2000]
- c) Both 'a' and 'b'
- d) Neither 'a' nor 'b'

Answer: c)

9. While conducting research among tribal populations, which of the following is recommended?

- a) Consent from the tribal head (Group consent) is desirable
- b) Group consent can replace individual consent
- c) Women can be excluded from informed consent process
- d) Confidentiality not required

Answer: a)

10) In a clinical research, the researcher knowingly excludes recruitment of female participants without any compelling indications. Which of the following ethical principle does the investigator violate?

- a) Justice
- b) Autonomy
- c) Beneficence
- d) Non-Maleficence

Answer: a)

11) In which of the following situations is ethics review essential?

- a) When already available or archived data are used for research
- b) Involving some risk when some questions are asked, some samples are collected or some drugs are given
- c) 'a' and 'b'
- d) Only 'b'

Answer: c)

12) A study participant can be forced by the investigator to continue in a trial against his will. This is in conflict with which of the following ethical principles?

- a) Autonomy
- b) Justice
- c) Beneficence
- d) None of the above

Answer: a)

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13) The physician should do what is medically indicated, do good than possible harm. This principle is encompassed in the ethical dimension of:

- a) Beneficence
- b) Justice
- c) Nonmaleficence
- d) Autonomy

Answer: c)

14) Study monitors, regulators and ethics committee members have an authority to verify the consent documentation of research participants.

- a) True
- b) False

Answer: a)

15) Which of the following is not true about an Informed Consent?

- a) IC helps participants take an informed decision about participation in the research study
- b) IC has information on potential risks and benefits of the study
- c) IC process intends to protect the study participants
- d) IC taken by coercion is considered valid

Answer: d)

16) Which of the following have the guidance in the Belmont report?

- a) The procedure of 'informed consent'
- b) The basic ethics principles of autonomy, justice and beneficence
- c) Review by ethics committee
- d) All of the above
- e) None of the above

Answer: d)

17) Which of the following is typically not within the domain of ethical review of the proposed research?

- a) Novelty of research
- b) Competence of researchers
- c) Relevance of research
- d) To advocate for the study in the community

Answer: d)

18) The process of Informed consent can be repeated several times during the research study if necessary.

- a) True
- b) False

Answer: a)

19) As part of evaluation of a new vaccine which requires taking a daily oral dose of a refrigerated vaccine, the research team offers to provide a refrigerator to families of participants who don't

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have one. Which of the following ethical issues the Institutional Ethics Committee will have to deal with while reviewing the research study?

- a) Undue inducement
- b) Coercion
- c) Compromising principle of justice
- d) None of the above

Answer: a)

20) In an observational study on menstrual hygiene among school going girls aged 14 to 16 years, informed assent will be required to be taken from the adolescent girls. In addition, informed consent will be required from:

- a) Parent of adolescent girls
- b) Institutional Head
- c) Both
- d) None of the above

Answer: a)

21) State whether true or false. Review of health records for research does NOT require approval of institute ethics committee

- a) True
- b) False

Answer: b)

22) A participant wants to withdraw from a study before its completion. Which of the following principles of ethics entitles him/her to do so?

- a) Autonomy
- b) Justice
- c) Beneficence
- d) Non-maleficence

Answer: a)

23) Which of the following does NOT describe ethical principles in research?

- a) Nuremberg code
- b) Helsinki declaration
- c) Council for International Organization and Medical Sciences
- d) Bhore report

Answer: d)

24) When a research study is planned among adolescents (12-15 years), the following is NOT required?

- a) Assent from participant
- b) Consent from participant
- c) Consent from parent
- d) Consent from legally accepted representative

Answer: b)

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25) Non-Maleficence means

- a) Self-respect
- b) Do no harm
- c) Fair and correct
- d) Doing good

Answer: b)

26) State whether true or false. Once a participant has provided informed consent, it cannot be withdrawn.

- a) True
- b) False

Answer: b)

27) Which of these is NOT a part of informed consent process?

- a) Confidentiality
- b) Disclosure of risks and benefits
- c) Compensation for lost wages
- d) Encouraging the person to consent

Answer: d)

28) Which of the following statement is NOT correct?

- a) Compensation for participants is offered for trial related injury
- b) Research participants can be paid for travel expenses
- c) Payment can be offered to encourage participation
- d) Wage loss of the participants can be compensated

Answer: c)

29) Which of the following is NOT a responsibility of the Institutional Ethics Committee?

- a) Evaluate the potential benefit from the study to the community
- b) Protect the rights of the study participants
- c) Sanction funding for the study
- d) Re-evaluate the study if and when modified

Answer: c)

30) When a particular ethnic group is excluded from a research study without any valid, scientific reason(s), this is breach of -

- a) Autonomy
- b) Justice
- c) Beneficence
- d) Non maleficence

Answer: b)

31) Review of health records for research does not require approval of institute ethics committee

- a) True

ASSIGNMENT - 19

b) False

Answer: b)

32) A participant enrolled in a study wants to withdraw from the study half way through the study. Which of the following principles of ethics entitles him/her to do so?

- a) Autonomy
- b) Justice
- c) Beneficence
- d) Non-maleficence

Answer: a)

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- a) Nuremberg code
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- c) Council for International Organization and Medical Sciences
- d) Bhore report

Answer: d)

34) When a research study is planned among adolescents (12-18 years), the following is NOT taken?

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- b) Consent from participant
- c) Consent from parent
- d) Consent from legally accepted representative

Answer: b)

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- a) Self-respect
- b) Do no harm
- c) Fair and correct
- d) Doing good

Answer: b)

36) State whether true or false. Once a participant has provided informed consent, it cannot be changed.

- a) True
- b) False

Answer: b)

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- a) Confidentiality
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ASSIGNMENT - 19

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- c) Sanction funding for the study
- d) Re-evaluate the study if and when modified

Answer: c)

40) When a particular ethnic group is excluded from a research study without any valid, scientific reason(s), this is breach of -

- a) Autonomy
- b) Justice
- c) Beneficence
- d) Non maleficence

Answer: b)

41) State whether True or False: An interview-based research is exempted from ethics committee review.

- a) True
- b) False

Answer: b)

42) Which of the following study primarily lead to the establishment of Belmont report?

- a) Nuremberg trial
- b) Tuskegee syphilis study
- c) Doctors trial
- d) Scopes monkey trial

Answer: b)

43) Which of the following context will fall under the breach of 'Justice', one of the basic ethical principles?

- a) Disclosing personal identity of the study participants
- b) Conveying insufficient information about the study
- c) Excluding a particular gender from participation in a study without any valid reason
- d) Failing to provide the required 'safety measures' of the participant

Answer: c)

44) 'Do no harm' implies to which of the following ethical principle?

- a) Beneficence

ASSIGNMENT - 19

- b) Non maleficence
- c) Autonomy
- d) Justice

Answer: b)

45) Which of the following ethical principle insists the voluntary decision of an individual to participate in a research?

- a) Beneficence
- b) Non maleficence
- c) Autonomy
- d) Justice

Answer: c)

46) Which of the following ethical principles suggests that the research plan should be fair and correct to everyone irrespective of any socio, demographic, and cultural factors?

- a) Justice
- b) Autonomy
- c) Beneficence
- d) Non maleficence

Answer: a)

47) Informed consent primarily deals with which of the following ethical principle?

- a) Autonomy
- b) Justice
- c) Beneficence
- d) Non maleficence

Answer: a)

48) State whether True or False: It is not advisable to repeat the informed consent process during the study.

- a) True
- b) False

Answer: b)

49) Which of the following statement is INCORRECT about informed consent?

- a) Informed consent process can be repeated if required during the conduct of the study
- b) Individual consent is not required in presence of a group consent is obtained from a study group
- c) Informed consent must have the complete details of the proposed research
- d) Contact information of the principal investigator is a must in the information sheet

Answer: b)

ASSIGNMENT - 19

50) Which of the following is recommended when a study participant is illiterate and cannot sign the informed consent form?

- a) Informed consent process can be skipped
- b) Need to have an impartial witness
- c) Exclude the individual from participation
- d) Field investigator can sign the form

Answer: b)

ASSIGNMENT - 20

1) A study design that randomly assigns participants into an experimental group or a control group is call as

- a) Cohort study
- b) Case-control study
- c) Randomized controlled trials
- d) Cross-sectional study

Answer: c)

2) Which of the following statements is (are) true in case of adverse events in a clinical trial?

- a) An unexpected clinical/familial/social problem that occurs during treatment with a drug or other therapy is termed as adverse event
- b) Adverse events do not have to be caused by the drug or therapy under trial
- c) Temporal relationship between study product administration and adverse events is critically important
- d) All of the above

Answer: d)

3) To ensure that safety and welfare of the research participants is adequately protected, it is important that the clinical trial protocol is critically reviewed for the following

- a) Scientific content
- b) Ethical issues
- c) Regulatory norms
- d) All of the above

Answer: b)

4) Informed consent is provided after explanation of

- a) All study procedures
- b) Risks
- c) Benefits
- d) All of the above

Answer: d)

5) Bodies like Drug Controller General of India (DCGI) and Health Ministry Screening Committee (HMSC) are concerned with the following

- a) Regulatory review
- b) Scientific review
- c) Ethics review
- d) All of the above

Answer: a)

6) Which of the following is (are) monitored in a clinical trial?

- a) Adherence to Good Clinical Practice (GCP)
- b) Documentation of informed consent, randomization and study product administration
- c) Adverse events reporting
- d) All of the above

ASSIGNMENT - 20

Answer: d)

7) The primary responsibilities of the Data Safety Monitoring Body (DSMB) are to

- a) Periodically review and evaluate the accumulated study data for participant safety, study conduct and progress of trial
- b) Periodically review and evaluate the accumulated study data for participant safety, study conduct and progress and make recommendation concerning the continuation, modification, or termination of the trial
- c) Periodically make recommendations concerning the continuation, modification, or termination of the trial
- d) Decide the randomization sequence

Answer: b)

8) Which of the following best describes the advantages of conducting a Randomized controlled trial?

- a) It is only effective design for overcoming selection bias of participants
- b) The result can be readily generalized
- c) It is a simple, uncomplicated and nonregulated study design
- d) It requires small sample size

Answer: a)

9) When is the Informed consent obtained from the subjects in a clinical trial?

- a) Prior to participation in the trial
- b) Just after the trial has started
- c) At any point during the conduct of a trial
- d) At the end of the trial

Answer: a)

10) Investigators are required to report adverse events occurring during a clinical trial to which of the following agencies?

- a) Regulatory authority
- b) Sponsor
- c) Institutional Ethics Committee
- d) All of the above

Answer: d)

11) A method of allocating treatment such that each subject has an equal chance of receiving any of the possible treatments in a clinical trial is known as:

- a) Blinding
- b) Randomization
- c) Allocation concealment
- d) None of the above.

Answer: b)

ASSIGNMENT - 20

12) Which of the following statements regarding document storage and archival after the conclusion of a trial; is correct?

- a) If the data is computerized, there is no need to archive paper based records.
- b) The investigator has a right to refuse to show the data even to regulatory authorities
- c) Archival for a period of 5 - 15 years as per the requirement of the sponsor may be necessary
- d) All of the above

Answer: c)

13) Which of the following is not true?

- a) Data Safety Monitoring Body (DSMB) is an independent entity.
- b) DSMB is appointed by the Investigators
- c) DSMB periodically reviews and evaluates the accumulated study data for participants' safety
- d) DSMB assures that the scientific integrity of the trial is maintained during the period of interim analysis

Answer: b)

14) An unexpected clinical/ familial/ social problem that occurs while on treatment with a drug or other therapy during participation in a clinical trial without any judgment about causality or relationship to the drug is known as:

- a) Serious adverse event
- b) Adverse event
- c) Reportable event
- d) None of the above

Answer: b)

15) Clinical trials require review at various levels as per the in-country guidelines. State whether true or false.

- a) True
- b) False

Answer: a)

16) The most common method of preventing potential harm to study participants is by adhering to 'trial stoppage rules' based on evidence on unacceptable toxicity or adverse effects rates seen during monitoring. State whether true or false.

- a) True
- b) False

Answer: a)

17) Which of the following is true about screening protocol of a clinical trial?

- a) Those who are interested in participating in the trial participate in an interview may have to undergo medical examination
- b) Eligibility of the potential participant is determined in screening
- c) Information on study related procedures and inclusion and exclusion criteria are provided by the study investigators to the potential participants
- d) All the above three statements are true

ASSIGNMENT - 20

- e) None of the above is true
- f) Only 'a' is true

Answer: d)

18) Reimbursements for which of the following raise no ethical questions?

- a) Compensating for the time spent in coming over and the loss of daily wages due to participation
- b) For the travel cost involved
- c) For food expenses
- d) Only 'a' and 'b'
- e) 'a', 'b' and 'c'

Answer: e)

19) Which of the following statements is wrong?

- a) Drug Controller General of India is a Regulatory Authority in India
- b) Institutional Governing Board is responsible for scientific review of projects
- c) Institutional Ethics Committee is responsible for ethics review of a proposal
- d) None of the above

Answer: b)

20) Which of the following are NOT methods for identifying and preventing potential harm to study participants?

- a) Adverse and serious adverse events reporting
- b) Periodic review of the project by Data Safety Monitoring Board
- c) Close watch on enrolment targets
- d) Regular monitoring of the trial by a pre-identified monitoring agency

Answer: c)

21) State whether true or false. The scientific advisory committee examines the safety and welfare of the research participants in a trial.

- a) True
- b) False

Answer: b)

22) If the project is getting funded internationally, which of the following committees looks at the regulatory affairs?

- a) Health ministry screening committee
- b) Genetic engineering approval committee
- c) Ethics committee
- d) All the above

Answer: a)

23) State whether true or false. In order for a clinical trial to be ethically appropriate, participants must give their informed voluntary consent.

- a) True
- b) False

ASSIGNMENT - 20

Answer: a)

24) Which of the following is FALSE with regard to data analysis in clinical trials?

- a) Baseline characteristics of participants should be compared across study arms
- b) Interim analysis can be performed if prestated in the protocol
- c) Analyses in clinical trials are only descriptive in nature
- d) People who are lost to follow up can be included in the analysis

Answer: c)

25) Which of the following is FALSE when dealing with serious adverse events in a clinical trial?

- a) Making provision for free treatment
- b) Informing the regulatory authorities
- c) Taking action only if 1% are affected by the adverse events
- d) Withdrawing the implicated intervention for the affected

Answer: c)

26) A trial can be pre-maturely stopped if

- a) A significant unanticipated risk is demonstrated
- b) The investigators lose interest
- c) The principal investigator retires
- d) Minor adverse events are reported

Answer: a)

27) Data Safety Monitoring Body (DSMB) is primarily responsible for which of the following?

- a) Periodically review and evaluate the accumulated study data for participant safety
- b) Periodically review and evaluate the study conduct and progress
- c) Make recommendations concerning the continuation, modification, or termination of a clinical trial
- d) All of the above

Answer: d)

28) Which of the following is NOT an advantage of a Randomized Controlled Trial?

- a) Controls for confounding bias effectively
- b) Provides high level of evidence
- c) Can be conducted in the community or hospital
- d) Blinding in trial eliminates selection bias

Answer: d)

29) Which of the following statement is FALSE with regards to a Randomized Controlled Trial?

- a) Adverse events should be reported to the Data Safety Monitoring Board
- b) Trial related documents must be archived after the trial is over
- c) Drug trials ideally should have a pre-defined stoppage rule
- d) Ethics committee clearance cannot be withdrawn after initial approval

Answer: d)

ASSIGNMENT - 20

30) State whether true or false. It is unethical to use a placebo for the control arm instead of the current standard of care in a clinical trial.

- a) True
- b) False

Answer: a)

31) State whether true or false. The scientific advisory committee examines the safety and welfare of the research participants in a trial.

- a) True
- b) False

Answer: b)

32) If the project is getting funded internationally, which of the following committees looks at the regulatory affairs?

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- c) Ethics committee
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ASSIGNMENT - 20

Answer: a)

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- a) Periodically review and evaluate the accumulated study data for participant safety
- b) Periodically review and evaluate the study conduct and progress
- c) Make recommendations concerning the continuation, modification, or termination of a clinical trial
- d) All of the above

Answer: d)

38) Which of the following is NOT an advantage of a Randomized Controlled Trial?

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- b) Provides high level of evidence
- c) Can be conducted in the community or hospital
- d) Blinding in trial eliminates selection bias

Answer: d)

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- b) Trial related documents must be archived after the trial is over
- c) Drug trials ideally should have a pre-defined stoppage rule
- d) Ethics committee clearance cannot be withdrawn after initial approval

Answer: d)

40) State whether true or false. It is unethical to use a placebo for the control arm instead of the current standard of care in a clinical trial.

- a) True
- b) False

Answer: a)

41) State whether true or false. A clause regarding the collection, storage and use of biological samples for research purposes should be mentioned in the participant information sheet.

- a) True
- b) False

Answer: a)

42) Which of the following is CORRECT with regard to the process of informed consent for an illiterate person?

- a) Cannot be witnessed by members of the research team
- b) Can be witnessed by illiterate family member
- c) Can be witnessed by any literate person who is not part of the study
- d) Illiterate persons cannot be included in the study

Answer: c)

ASSIGNMENT - 20

43) A study design that randomly assigns participants into an experimental group or a control group is called _____.

- a) Cohort study
- b) Randomized controlled trials
- c) Case-control study
- d) Cross-sectional study

Answer: b)

44) Investigators are required to report adverse events occurring during a clinical trial to all the following agencies EXCEPT?

- a) Regulatory authority
- b) Sponsor
- c) Institutional Ethics Committee
- d) Scientific Advisory Committee

Answer: d)

45) A randomized controlled trial can be pre-maturely stopped if:

- a) The investigators lose interest
- b) A significant unanticipated risk is demonstrated
- c) When results show no justification for exposing participants to additional potential risk
- d) Both "b" and "c" are correct

Answer: d)

46) A post graduate researcher conducted a clinical trial to compare the effect of a new drug over a standard drug given for control of 'Type-2 Diabetes Mellitus'. During the trial, the participant and the investigators were kept unaware of the group allocation. What level of blinding was adopted here?

- a) Open labelled
- b) Double blinding
- c) Single blinding
- d) Triple blinding

Answer: b)

47) The primary function of the scientific review committee is_____.

- a) Checking if the safety and welfare of the research participants is adequately protected
- b) Checking whether the research methods are appropriate
- c) Confirming if the participants are available for the study
- d) Identifying eligibility for funding

Answer: b)

48) State whether true or false. Researchers who have no institutional affiliation can use the independent ethics committees that function outside institutions.

- a) True
- b) False

Answer: a)

ASSIGNMENT - 20

49) Which of the following is INCORRECT about the study participants of randomized controlled trials?

- a) All trial participants are reimbursed irrespective of the damages
- b) Verbal consent of trial participants is sufficient for conducting the trial
- c) Compensation to the trial participants is given only if the damage has occurred
- d) One copy of informed consent is given to the trial participants

Answer: b)

50) In randomized controlled trials, matters related to reimbursement and compensation for research participants are reviewed by the_____.

- a) Scientific committee
- b) Ethics committee
- c) Study Investigator
- d) Research participants

Answer: b)

ASSIGNMENT - 2 I

1) If there are many study objectives, it may be necessary to differentiate the objectives into primary and secondary or general and specific objectives

- a) True
- b) False

Answer: a)

2) Which among the following is not a component of concept paper?

- a) Background and Justification
- b) Objectives and Methods
- c) Expected benefits, Key references and Budget
- d) Conclusion

Answer: d)

3) Which of the following is NOT true about references in the concept paper?

- a) We can cite references in Introduction and Methods section
- b) It is important to write references following standard guidelines
- c) Statements should be linked to references
- d) We can have as many references as possible

Answer: d)

4) The "Background and Justification" section in the concept paper should be written in the following sequence

- a) Known and unknown aspects of the problem, information that needs to be generated to address the problem in an effective manner and statement of objectives
- b) Known and unknown aspects of the problem, Importance of the study problem and information that needs to be generated to address the problem in an effective manner
- c) Importance of the study problem, known and unknown aspects of the problem and information that needs to be generated to address the problem in an effective manner
- d) Information that needs to be generated to address the problem in an effective manner, known and unknown aspects of the problem and statement of objectives

Answer: c)

5) Advantages of writing a concept paper include

- a) You may be able to organize your ideas
- b) It gives an opportunity to stand out and receive a positive response from reviewers
- c) You are sure to get funding
- d) 'a' and 'b'

Answer: d)

6) The elements of the methods section in the concept proposal needs to be adopted according to the study design chosen

- a) True
- b) False

Answer: a)

ASSIGNMENT - 21

7) The ethics section of the concept proposal should include information about

- a) Key measures taken to protect the study participants
- b) The ethics committee to which the study will be submitted for approval
- c) Scientific committee that will review the study
- d) 'a' and 'b'

Answer: d)

8) Which of the following needs to be spelt out in "Expected benefits" section of the concept proposal?

- a) Expected outputs that the study will generate with timeline
- b) Proposed immediate action based on research findings
- c) How this research may set agenda for further research
- d) All of the above

Answer: d)

9) Budget estimate is not mandatory in the concept proposals. However, it would be very useful to prepare the indicative budget for key items

- a) True
- b) False

Answer: a)

10) While writing the concept papers for intervention studies, the methods section must have the following details

- a) Primary and secondary outcome definitions
- b) Randomization, sequence allocation and allocation concealment
- c) Dose, frequency, nature of Intervention
- d) All of the above

Answer: d)

11) Immediately after identification of research topic and statement of objectives, it may be preferable to

- a) Write protocol
- b) Outline one-page concept paper
- c) Prepare dummy tables as per the analysis plan
- d) Seek review by an institutional ethics committee

Answer: b)

12) References need to be written following standard guidelines such as International Committee of Medical Journal Editors (ICMJE)

- a) True
- b) False

Answer: a)

13) Which of the following is the guideline that can be used for drafting protocols for a clinical trial?

ASSIGNMENT - 21

- a) SPIRIT
- b) PRISMA
- c) CARE
- d) STROBE

Answer: a)

14) Why is concept paper necessary for a research project?

- a) It helps to finish the data collection rapidly
- b) It helps to organize the ideas
- c) It helps to get instant approval of ethics committee
- d) It helps to publish the research quickly

Answer: c)

15) Which of the following components are included in the background and justification section of the concept paper

- a) Context of the study problem
- b) Operational definitions
- c) Sampling technique
- d) Study procedure

Answer: a)

16) Which of the following information is not addressed in the ethics section of the concept paper?

- a) Information about sample and data storage
- b) Key measures taken to protect the study participants
- c) The ethics committee to which the study will be submitted for approval
- d) Budget for salary of the projects staff

Answer: d)

17) Which of the following is a component of concept paper?

- a) Abstract
- b) Objectives and Methods
- c) Conclusion
- d) Discussion

Answer: b)

18) What is the basis for writing a one page concept paper?

- a) Lack of time to draft a complete protocol
- b) Overcomes inhibitions in drafting a complete protocol
- c) It is mandatory for scientific committee protocol
- d) For ethics committee approval

Answer: b)

19) The indicative budget in a concept paper includes salaries, per diem, travel, equipment and supplies

ASSIGNMENT - 21

- a) True
- b) False

Answer: a)

20) The concept paper helps agencies for

- a) Screening the proposal for funding
- b) Scientific committee approval
- c) Ethics committee approval
- d) Publishing the manuscript

Answer: a)

21) Which of the following is NOT included in the background section of a concept paper?

- a) Importance of a health problem
- b) Known fact about the health problem
- c) Prior contribution of the researcher in the topic
- d) Knowledge gap in that topic

Answer: c)

22) The methods section of the concept paper contains the following:

- a) Key operational definitions
- b) Conclusions
- c) Context of study
- d) Novelty of the study

Answer: a)

23) Which of the following best describes the 'Expected Benefits' section of a concept paper?

- a) Financial benefit to the funding agency
- b) Policy changes based on the study findings
- c) Financial benefit to the researcher
- d) Academic improvement of the researchers

Answer: b)

24) Which of the following are components of a concept paper?

- a) Study title and references
- b) Study title, abstract and references
- c) Abstract and references
- d) Study title, results and references

Answer: a)

25) Sampling strategy is discussed in which of the following section of a concept paper?

- a) Background
- b) Objectives
- c) Methodology
- d) Results

Answer: c)

ASSIGNMENT - 21

26) Which of the following statement is true about the 'Reference' section of a concept paper?

- a) References must be written following standard guidelines
- b) Unlimited references are preferred in a concept paper
- c) Reference section is usually an optional component
- d) References are usually required for the results section

Answer: a)

27) A post graduate has mentioned the estimated budget for her thesis to be 50,000 INR in the concept paper. Which of the following components of the budget may not be justified?

- a) Salary for data collectors
- b) Travel cost for data collection
- c) Equipment cost
- d) Remuneration for the thesis guide

Answer: d)

28) Identify the INCORRECT statement about protocol writing?

- a) A protocol is a must for obtaining the ethics committee approval
- b) A well-written protocol is often helpful to draft a one-page concept proposal
- c) All known facts in a protocol must be supported by appropriate reference
- d) Peer review helps in improving the quality of a protocol

Answer: b)

29) All the followings are recommended while writing a concept paper, EXCEPT

- a) Preparing a concise document
- b) Presenting mostly in bullet forms
- c) Describing the methods section in detail
- d) Restricting the number of objectives

Answer: c)

30) Which of the following is a consideration in framing the objectives of a concept paper?

- a) Choosing appropriate action verbs
- b) Calculating sample size based on the secondary objectives
- c) Stating broad objectives
- d) All the above

Answer: a)

31) Which of the following is NOT included in the background section of a concept paper?

- a) Importance of a health problem
- b) Known fact about the health problem
- c) Prior contribution of the researcher in the topic
- d) Knowledge gap in that topic

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ASSIGNMENT - 21

- a) Key operational definitions
- b) Conclusions
- c) Context of study
- d) Novelty of the study

Answer: a)

33) Which of the following best describes the 'Expected Benefits' section of a concept paper?

- a) Financial benefit to the funding agency
- b) Policy/practice changes based on the study findings
- c) Financial benefit to the researcher
- d) Academic improvement of the researchers

Answer: b)

34) Which of the following are components of a concept paper?

- a) Study title and references
- b) Study title, abstract and references
- c) Abstract and references
- d) Study title, results and references

Answer: a)

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- c) Methodology
- d) Results

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- d) References are usually required for the results section

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- a) Salary for data collectors
- b) Travel cost for data collection
- c) Equipment cost
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Answer: d)

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ASSIGNMENT - 21

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- d) Peer review helps in improving the quality of a protocol

Answer: b)

39) All the followings are recommended while writing a concept paper, EXCEPT

- a) Preparing a concise document
- b) Presenting mostly in bullet forms
- c) Describing the methods section in detail
- d) Restricting the number of objectives

Answer: c)

40) Which of the following is a consideration in framing the objectives of a concept paper?

- a) Choosing appropriate action verbs
- b) Calculating sample size based on the secondary objectives
- c) Stating broad objectives
- d) All the above

Answer: a)

41) While writing the concept paper on a research topic, researcher should include all the following in the background and justification section EXCEPT :

- a) Why the research problem is important
- b) What is known about the problem in relation to the local context
- c) What is unknown in the literature
- d) What could be the policy implications of the study

Answer: d)

42) Ethics section of the concept paper has all the following components EXCEPT

- a) Information about sample and data storage
- b) Salary of the project staff
- c) Key measures taken to protect the study participants
- d) Name of ethics committee to which the study will be submitted for approval

Answer: b)

43) 'Agenda for further research' is described in which of the following sections of the concept paper?

- a) Methods
- b) Results
- c) Expected Benefits
- d) Context of study

Answer: c)

44) The 'methods' section of the concept paper outlines the following EXCEPT:

- a) Key operational definitions
- b) Sampling strategy
- c) Context of study

ASSIGNMENT - 21

d) Analysis plan

Answer: c)

45) Which of the following are components of a concept paper?

- a) Abstract
- b) Objectives and Methods
- c) Conclusion
- d) Discussion

Answer: b)

46) It is important to mention what is known and unknown about the problem to be addressed through the proposed research. In which section of the concept paper is this described?

- a) Background and justification
- b) Objectives
- c) Expected benefits, Key references and Budget
- d) Methods

Answer: a)

47) While writing the concept papers for intervention studies, the methods section must have the following details:

- a) Randomization
- b) Sequence allocation
- c) Allocation concealment
- d) All of the these

Answer: d)

48) State whether true or false. Reference section is usually an optional component in a concept paper.

- a) True
- b) False

Answer: b)

49) The initial outline of the research protocol is also called_____.

- a) Concept paper
- b) Abstract
- c) Poster presentation
- d) Summary

Answer: a)

50) All the followings are recommended while writing a concept paper EXCEPT :

- a) Preparing a concise document
- b) Presenting mostly in bullet forms
- c) Discussion of the study finding
- d) Restricting the number of objectives

Answer: c)

ASSIGNMENT - 22

1) Description of the intervention is essential in a research protocol for

- a) Experimental study
- b) Case-control study
- c) Cohort study
- d) Cross-sectional study

Answer: a)

2) Inclusion and exclusion criteria should be included under the following section in the protocol

- a) Sampling
- b) Study population
- c) Study design
- d) Sample size

Answer: b)

3) The details regarding data quality assurance should be written in the following section in the protocol

- a) Data collection
- b) Data analysis
- c) Project implementation
- d) Data entry

Answer: c)

4) The following annexure in the study protocol deals with toxicity management

- a) Study management forms
- b) Standard operating procedures
- c) Consent forms
- d) Adverse event management form

Answer: d)

5) Study population, sample size and sampling are included in the following section of the protocol

- a) Introduction
- b) Methods
- c) Objectives
- d) Expected Benefits

Answer: b)

6) First step for writing a successful protocol

- a) Write a one page concept paper
- b) Identify topic, research question and objectives
- c) Write a draft protocol
- d) Seek ethics approval

Answer: b)

ASSIGNMENT - 22

7) Key outcomes and exposures should be explained under

- a) Data analysis
- b) Data collection tools
- c) Sampling
- d) Operational definitions

Answer: d)

8) Human participant protection paragraph addresses all except

- a) Confidentiality
- b) Risks
- c) Compensation
- d) Sample size calculation

Answer: d)

9) Willingness of 'study participants' to participate in the study is obtained by

- a) Informed consent
- b) Oral commitment
- c) Willingness not necessary
- d) None of the above

Answer: a)

10) The section that guides how the objectives lead to indicators

- a) Introduction
- b) Study design
- c) Budget
- d) Objectives

Answer: b)

11) Which of the following statements is True regarding the first draft of the protocol

- a) The draft is the final document and has to be adhered to as it is.
- b) The concept paper can be used as an outline for drafting the first draft of the protocol.
- c) Background with justification, method of conducting the study and expected benefits are stated briefly as in the concept paper.
- d) Additional references must not be added.

Answer: b)

12) It is ideal that the first draft of the protocol

- a) Exceeds >2000 words
- b) Does not exceed >2000 words
- c) Exceeds >3000 words
- d) Does not exceed >3000 words

Answer: b)

13) Data collection paragraph in the protocol should specify all, EXCEPT

- a) The kind of data that will be collected

ASSIGNMENT - 22

- b) Information about the data collector involved in data collection
- c) The detailed manner in which the data collector is going to collect the data
- d) The details of how the collected data will be used for policy recommendations

Answer: d)

14) Mode of data entry, software for data analysis and plan for data analysis are included in the following section of the protocol

- a) Introduction
- b) Methods
- c) Objectives
- d) Expected Benefits

Answer: b)

15) Which of the following is a step for drafting a successful protocol?

- a) Writing an abstract
- b) Submitting for peer review
- c) Seeking consent from participants
- d) Data analysis

Answer: b)

16) Which of the following statements is true?

- a) It is sufficient to mention whether the study is quantitative or qualitative in study design section
- b) The concept paper can contain more than 20 references relating to the study
- c) Sample size calculation is not necessary for conducting research
- d) Human subject protection statement should be included in the methods section

Answer: d)

17) The introduction can be 40% of the content of the protocol

- a) True
- b) False

Answer: b)

18) Which of the following sections mentions about the detailed plan for conducting the study

- a) Introduction
- b) Results
- c) Methods
- d) Discussion

Answer: c)

19) Which of the following is a part of introduction section of the protocol?

- a) Inclusion and Exclusion criteria
- b) Detailed budget
- c) Participant safety and protection

ASSIGNMENT - 22

d) Background with justification

Answer: d)

20) Informed consent, procedures for minimizing participant risk and compensations are included in which of the following sections

a) Introduction

b) Abstract

c) Human subject protection

d) Study procedure

Answer: c)

21) Which of the following is NOT an appropriate step of protocol development?

a) Development of research question

b) Preparation of the analysis plan

c) Development of study tool

d) Initiation of data collection

Answer: d)

22) In which of the following section of a protocol, is the analysis plan written?

a) Objective

b) Results

c) Budget

d) Methods

Answer: d)

23) State whether true or false. Study population and the study sample are same.

a) True

b) False

Answer: b)

24) Which of the following is CORRECT about operational definitions in a study protocol?

a) It is part of the background section

b) It spells out the key research gaps

c) It should be broad and non-specific

d) It may be supported by appropriate references

Answer: d)

25) Which of the following component is LEAST appropriate for a project implementation plan?

a) Calculating sample size

b) Coordinating project activities

c) Assigning job responsibilities

d) Preparing project timeline

Answer: a)

ASSIGNMENT - 22

26) Human subjects are protected by all the following mechanisms, EXCEPT

- a) Obtaining informed consent from the participants
- b) Reviewing proposal by the ethics committee
- c) Incentivizing target population for participation
- d) Compensating participants for loss of wages

Answer: c)

27) Which section of a protocol describes the need to maintain anonymity of study participants while sharing data to others?

- a) Human subject protection
- b) Data collection methods
- c) Data analysis plan
- d) Expected benefits

Answer: a)

28) In the methods section of a protocol, a researcher can include all the following, EXCEPT

- a) Analysis plan
- b) Supportive reference
- c) Expected benefits
- d) Quality assurance

Answer: c)

29) The number of study participants required for a research study can be decided by

- a) Pilot study
- b) Sample size calculation
- c) Sampling procedure
- d) All the above

Answer: d)

30) State whether true or false. Researchers can amend a research protocol after re-obtaining the ethics committee clearance for the amendments made.

- a) True
- b) False

Answer: a)

31) Which of the following is NOT an appropriate step of protocol development?

- a) Development of research question
- b) Preparation of the analysis plan
- c) Development of study tool
- d) Initiation of data collection

Answer: d)

32) In which of the following section of a protocol, is the analysis plan written?

- a) Objective
- b) Results

ASSIGNMENT - 22

- c) Budget
- d) Methods

Answer: d)

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- a) True
- b) False

Answer: b)

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- a) True
- b) False

Answer: a)

41) Written plan for a research is known as -----

- a) Manuscript
- b) Protocol
- c) Commentary
- d) Critical appraisal

Answer: b)

42) Which of the following section is NOT a section in a study protocol?

- a) Introduction
- b) Objectives
- c) Expected benefits
- d) Discussion

Answer: d)

43) A researcher developed a protocol based on an experimental study. Which section of the protocol will have the description of interventions?

- a) Introduction
- b) Objectives
- c) Analysis plan
- d) Methods

Answer: d)

44) State whether True or False: Study population and the study sample are not same.

- a) True
- b) False

Answer: a)

45) Randomization process of a proposed clinical trial is explained in which of the following section and subsection of a study protocol?

- a) Introduction-rationale
- b) Methods – Sampling procedure
- c) Methods –Sample size

ASSIGNMENT - 22

d) Methods- Inclusion criteria

Answer: b)

46) Which of the following factors decide the sample size of a study?

- a) Study objective and sampling method
- b) Study population and study design
- c) Data analysis plan and expected outcome
- d) Inclusion and exclusion criteria

Answer: a)

47) State whether True or False: Detailed analysis plan is not required in a study protocol.

- a) True
- b) False

Answer: b)

48) Which of the following subsection of 'Methods' will have the information on possible risk minimizing measures in a research?

- a) Methods-Informed consent
- b) Methods- Human participant protection
- c) Methods-Expected benefit
- d) Methods-Data collection procedure

Answer: b)

49) In a study protocol on an interventional study, adverse event management plan should be documented in detail in which section of the study protocol?

- a) Methods
- b) Introduction
- c) Objective
- d) Results

Answer: a)

50) Match the following:

- (i) CONSORT – (A) Meta-analysis
- (ii) STROBE – (B) Randomised trials
- (iii) PRISMA – (C) Observational study

- a) (i)-B, (ii)-C, (iii)-A
- b) (i)-A, (ii)-B, (iii)-C
- c) (i)-C, (ii)-A, (iii)-B
- d) (i)-A, (ii)-C, (iii)-B

Answer: a)

ASSIGNMENT – 23

1) All of the following statements regarding research publications are correct, EXCEPT

- a) Publishing paper is important for getting promotion in academic institutions
- b) Publishing research findings help to identify the research gaps
- c) Negative findings in a research should not be published
- d) Publishing research findings improves the credibility of a researcher

Answer: c)

2) A senior resident of Psychiatry department of a medical college wrote a manuscript based on his thesis work. He has put his wife's name as a co-author who is working in the Physiology department of the same college. Which of the following statements supports the act of the senior resident in providing authorship to his wife?

- a) He can give authorship to anyone since it is his research work
- b) The guide should decide on who should be the authors
- c) His wife has contributed in designing the residents' thesis work
- d) It is not a good practice to include researcher from different department as authors

Answer: c)

3) Which of the following is incorrect about authorship?

- a) Authorship confers credit, implies responsibility and accountability of the published work
- b) International Committee of Medical Journal Editors recommends criteria on authorship
- c) It is mandatory to declare the contribution of each author
- d) It is not mandatory that all authors should approve the final version of the manuscript

Answer: d)

4) Which of the following is false about plagiarism?

- a) It can be copying and pasting of contents from a published manuscript
- b) It can be copying someone's idea
- c) It is not considered as a serious publication misconduct
- d) 'Urkund' is one of the software used to check plagiarism

Answer: c)

5) Which of the following is (are) the consequence(s) of plagiarism of manuscript?

- a) The journal can retract the manuscript
- b) Institute can take action on the author/researcher
- c) The researcher loses professional reputation
- d) All of the above

Answer: d)

6) You have finished writing a manuscript and plan to publish it. Which of the following is the best practice?

- a) Submit to multiple journals at the same time
- b) Submit to a journal and wait for the journal's response
- c) Submit to many journals; once it gets published in one journal, withdraw it from the other journals
- d) Submit the same manuscript in different languages to different journals

Answer: b)

ASSIGNMENT – 23

7) A researcher conducted a study to identify risk factors for exacerbation of bronchial asthma. The researcher was due for job promotion. However, the researcher was enough publications to ensure promotion. Hence, in order to have maximum number of publications from the work, the researcher decided to produce three different manuscripts instead of one manuscript comprehensively covering all aspects of the study. What is this act called?

- a) Plagiarism
- b) Falsification
- c) Salami slicing
- d) Fabrication

Answer: c)

8) Which of the following organizations directly deals with publication ethics?

- a) Indian Medical Association (IMA)
- b) Committee on Publication Ethics (COPE)
- c) World Health Organization (WHO)
- d) Joint National Committee (JNC)

Answer: b)

9) A group of researchers submitted a manuscript for publication based on a drug trial. Because they did not register under the clinical trial registry of India (CTRI), one reputed journal rejected the paper. The researcher resubmitted the paper in a different journal and this journal published it without asking any queries. Which of the following is the correct statement?

- a) It is necessary to register all drug trials under CTRI
- b) The journal which published the paper is likely to be a predatory journal
- c) Both 'a' and 'b' are correct
- d) None of the above

Answer: c)

10) Among the following which is the best practice for determining the authorship?

- a) Authorship can be based on the criteria given by ICMJE
- b) Authorship should be decided after submission to a journal
- c) It is necessary to include head of the department/institution as a co-author
- d) Authorship can be gifted to friends even if they have not contributed to that study

Answer: a)

11) Which of the following is incorrect about publishing a research work?

- a) Publishing paper is important for getting promotion in academic institutions
- b) Publishing research findings helps to identify the research gaps
- c) Common people should not read such research findings
- d) None of the above

Answer: c)

12) All clinical trials in India should be registered with Clinical Trial Registry of India.

- a) True
- b) False

ASSIGNMENT – 23

Answer: a)

13) A neonatologist planned to conduct a clinical trial to explore the effect of intervention X on hypothermia of the newborn children (Age <7 days) over intervention A (The current practice). All the following are true about the trial, except

- a) Ethics Committee approval is a must to conduct the trial
- b) The trial should be registered under the Clinical Trial Registry of India
- c) Informed consent should be taken from either of the parents
- d) Age appropriate assent is a must in this trial

Answer: d)

14) Manipulating data is known as fabrication

- a) True
- b) False

Answer: b)

15) Which of the following is correct about determining the authorship?

- a) The investigators can follow ICMJE guideline to determine authorship
- b) The sequence should always be based on alphabetical orders
- c) The investigators should include the head of the institution's name irrespective of his/ her contribution
- d) None of the above

Answer: a)

16) A group of researchers submitted a manuscript in a reputed journal. Even after 5 months of submission, they did not receive the peer review comments from the journal. The authors decided to submit the manuscript to a different journal without informing the editor of the previous journal. Which of the following term describes the situation best?

- a) Duplicate publication
- b) Simultaneous submission
- c) Self-citation
- d) Breach of confidentiality

Answer: b)

17) Dr. D has copied the idea of Dr. A for his thesis. Copying an idea shouldn't be considered as plagiarism.

- a) True
- b) False

Answer: b)

18) Dr. A is in the process of writing review of literature for her thesis. Her guide has instructed her to avoid plagiarism. Dr. A should take all the following measures to avoid plagiarism, except

- a) Avoid copying and pasting
- b) Acknowledge original sources
- c) Take help of anti-plagiarism software

ASSIGNMENT – 23

d) Copy from her own previous work

Answer: d)

19) Which of the following is correct in relation to the conflict of interest?

- a) Conflict of interest is always financial
- b) Conflict of interest necessarily changes the outcome of interest
- c) It is recommended to hide the COI during submission of a manuscript
- d) Readers can determine the influence of COI on conclusion of the paper

Answer: d)

20) An editor of a reputed journal found that most of the finding of a manuscript matches with a previously published paper by different authors. The editor considered it as a case of plagiarism. Which of the following about plagiarism is true?

- a) The journal can retract the article, if already published
- b) The editor can inform the authors' institute about it
- c) The researchers may lose their reputation
- d) All of the above

Answer: d)

21) Which of the following is TRUE regarding a clinical trial?

- a) It is mandatory to register the trial under 'Clinical Trials Registry of India' after completing it.
- b) Ethical issues are considerably low in clinical trials when compared with descriptive studies.
- c) Informed consent is a must for recruiting a study participant in a clinical trial
- d) Both 'a' and 'c'

Answer: c)

22) Altering the original data to obtain a statistically significant result by the researcher is known as

- a) Fabrication
- b) Falsification
- c) Fascination
- d) Fasciation

Answer: b)

23) All the following help in reducing ethical issues associated with research publication, EXCEPT

- a) Obtaining the institutional ethics committee permission
- b) Including a guest author to improve the acceptance of the manuscript
- c) Obtaining permission from the copyright holder to reproduce a figure
- d) Declaring familial relationship between an author and the CEO of the funding agency

Answer: b)

24) Which of the following is INCORRECT about publishing research finding?

- a) Publication often helps in career progression and academic promotion
- b) It is a way to communicate research findings with the peer groups
- c) Conflicts of interest can be suppressed as it has implication in study findings

ASSIGNMENT – 23

d) It identifies research gaps

Answer: c)

25) State whether true or false. The first author is mostly responsible for addressing the comments received from the reviewers of the journal.

a) True

b) False

Answer: b)

26) Submitting a manuscript to more than one journal at the same time is known as

a) Duplicate publication

b) Self-citation

c) Simultaneous publication

d) Peer review

Answer: c)

27) Which of the following is NOT an essential criterion for authorship?

a) Conceptualizing the study

b) Drafting the manuscript

c) Approval of the final manuscript

d) Being departmental head

Answer: d)

28) A Postgraduate in a medical college submitted a proposal to the ethics committee of the institute. The committee found that the proposal is a near copy of an earlier proposal from the same department. This act of the PG can be best termed as

a) Fabrication

b) Falsification

c) Plagiarism

d) Breach of confidentiality

Answer: c)

29) State whether true or false. Unpublished work must be acknowledged in a manuscript

a) True

b) False

Answer: a)

30) Direct or indirect influence of which of the following aspect is considered 'conflict of interest'?

a) Financial

b) Personal

c) Social

d) All the above

Answer: d)

ASSIGNMENT – 23

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ASSIGNMENT – 23

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- b) Personal
- c) Social
- d) All the above

Answer: d)

41) During which of the following stage(s) the researcher can publish their scientific work?

- a) Protocol
- b) Methodology description
- c) All of these
- d) Conclusions and recommendations

Answer: c)

42) Why publishing a research finding is considered as an important activity for a researcher?

- a) Promotion of business, Fame
- b) Marketing of drugs, Create awareness to public
- c) Academic promotion, Change in practice
- d) Promotion of business, Academic promotion

Answer: c)

43) Which of the following is NOT an example of publication misconduct?

- a) Plagiarism
- b) Ghost authorship
- c) Data fabrication
- d) Conflict of interest

Answer: d)

ASSIGNMENT – 23

44) State whether True or False: During review of a research proposal the Ethics Committee does not review the publication with the research plan.

- a) True
- b) False

Answer: b)

45) A postgraduate student has conducted a research study and collected the data. But he/she found difficulty in data analysis. Which of the following practice is NOT advised at this stage?

- a) Seeking help from friends
- b) Requesting guidance from the mentor
- c) Sharing data with friends belong to a different institution for data analysis
- d) Learning by themselves and attempting to complete

Answer: c)

46) According to the National Ethical guidelines for Biomedical and Health research involving human participants, 2017, how long a researcher should preserve the case report forms for an observational study?

- a) 1 year
- b) 3 years
- c) 5 years
- d) 10 years

Answer: b)

47) Which of the following is NOT a criterion for authorship as per International Committee of Medical Journal Editors guidelines?

- a) Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work
- b) Drafting the work or revising it critically for important intellectual content
- c) Final approval of the version to be published
- d) Only by providing financial support to conduct the research

Answer: d)

48) State whether True or False: To be eligible for authorship in a research publication, drafting manuscript is a sufficient criterion.

- a) True
- b) False

Answer: b)

49) Which of the following is recommended to avoid plagiarism in a research publication?

- a) Give compensation to the original author
- b) Cite the reference
- c) Do not acknowledge an unpublished work
- d) Rephrase the content without reference

Answer: b)

ASSIGNMENT – 23

50) When you read a research publication why it is important to check the conflict of interest section?

- a) To know the list of authors
- b) To have an idea about the methodology used
- c) To determine the researcher-level factors that may influence the conclusion
- d) To check the software used for data analysis

Answer: c)

NOT FOR PUBLICATION

RESEARCH IS TO SEE WHAT
EVERYBODY ELSE HAS SEEN,
AND TO THINK WHAT NOBODY
ELSE HAS THOUGHT.

ALBERT SZENT GYORGYI