1. The data collected about a body mass index of physically active population looks positively skewed. Which measures of centeral tendency is advisable to be used for such types of data?

A. Median B. Mean C. Variance D. Range

2. Sampling is the procedure some members of the given population are selected as representative part of the entire population. The information collected from the sample will be generalized to;

A. study population B. Target population C. Sampling frame D. study unit

3. A health officer wanted to conduct a research to determine the prevalence of ANC utilization of mathers in a certain district with infinite population. The prevalence of ANC utilization frome a previous study was found to be 45.7%.what is the final sample size to address his objective?

A. 250 B. 382 C. 402 D. 459

4. In a study on percentage saturation of bile, information was collected on the age of patients to see whether a difference existed between the two measures. Which method of data presentation is most appropriate for this data?

A. Box and whisker plots **B**. Histogram C. Multiple bar graph D. scatter plot

5. Which of the following statement is true regarding hypothesis testing ?

A. If the P- value is less than α, the null hypothesis is accepted

B. If the P-value is less than α, the null hypothesis is rejected

C. Null hypothesis; there is a difference between the hypothesized true values

D. Rejecting the null hypothesis when it is true is type II error

6. Prevalence (new + old case) and incidence rate(new case) are widely used as measures of morbidity, which of the following statements is true about these two measures of morbidity?

A. both equally measure the risk of acquiring a specific disease

B. follow up of a group of people is necessary to estimate incidence rate

C. follow up of a group of people is necessary to estimate point prevalence rate

D. prevalence rate tells more of the risk of acquiring a specific disease

7. An estimated 90 people out of 100 cases of Ebola died in the recent outbreak. What does this proportion represent?

A. case fatality rate B. cause specific mortality rate C. Crude death rate D. Proportionate mortality ratio

8. Suppose psychosis is a rare health problem in a spesfic country. Research ers wanted to study design is most appropriate to assess this association?

A.case control study B. cohort study C. Cross sectional study D. Experimental study

9. A study was conducted to investigate the effect of IIIV infection on mortality among people with TB in Ethiopia. Individuals with TB were recruited from hospitals and their HIV status determined. The were then followed –up over ten years to compare mortality rates in the HIV positive group. Which study design is employed?

A. case- control study B. Cohort study C. Ecological study D. Randomized Controlled

10. A researcher was interested to test a certain hypothesis at 95% confidence interval. After

performing all the required steps, he found a P-value of 0.05. What should be his conclusion?

based on this information?

A. Reject the null hypothesis

B. Accept the alternative hypothesis

C. The difference between the sample value and the population is merely by chance

D. None of the above

11. Assume that the following data represent age of 10 mothers who gave birth at Hawassa

Referral Hospital on a particular day: 22, 20, 21, 45, 24, 21, 25, 22, 26 and 24. Which

measure of central tendencies will you recommend to summarize age of these mothers?

A. Arithmetic mean

B. Median

C. Modal

D. All of the above

12. A Biostatistics instructor in your college wanted to calculate the second quartile of the above

10 mothers, what would be it?

A. 12.5 B. 13.5 C. 14 D. 16 **E**.24

13. A nurse working in Labor Ward of a particular health center assessed degree of pain that

laboring mothers experience using a five scale items (tolerable, intense, very intense, horrible

& unimaginable). Which scale of measurement was used by the nurse?

A. Nominal

B. Ratio

C. Ordinal

D. Interval scale

14. The HIV positive rate in a randomly selected sample of 200 people is 11.0%. Which ONE of

the following is the correct 95% confidence interval for the population parameter (normal

approximation method)?

A. 8.83% to 13.17%

B. 8.83% to 15.34%

C. 6.66% to 13.17%

D. 6.66% to 15.34%

15. A second year health officer student tries to investigate a public health problem using 2000

residents of Hawassa area epidemic eruption with a sample of 500 representative groups. If he

uses systematic sampling method, the nth selection interval will be

A. 10 B. 11 C. 8 D. 4

16. A physical therapist wished to estimate, with 99 percent confidence, the mean maximum strength

of a particular muscle in a certain group of individuals. He is willing to assume that strength

scores are approximately normally distributed with a variance of 144. A ample of 15 subjects who

participated in the experiment yielded a mean of 84.3. What is the most likely confidence

interval? ($Z\alpha/2=2.56$)

A. (70, 80) B. (76.3, 92.3) C. 97, 107 D. (60.6, 69)

17. Suppose that one Epidemiology instructor delivered a lecture for classes section “A” and “B”.

When exam time came both classes had scored the same average marks of 70%. However, the

mark for section A’s had a standard deviation of 25% whereas the Standard deviation for section

B’s was 5%. Which of the following sentence is true?

A. For approximately equal average values, the one with a higher standard deviation is

more scattered.

B. For approximately equal standard deviation values, the one with a higher average is

more scattered.

C. For approximately equal standard deviation values, the one with a lower average is

normally distributed.

D. Though standard deviations differ much between the two sections, we can conclude

that the two sections are normally distributed.

18. Assume that Pharma College Graduating Health Sciences students want to conduct a survey to

assess the prevalence of malnutrition among under-five year children in Hawassa city. Which of

the probabilistic sampling methods is more appropriate for the study?

A. Systematic random sampling C. Stratified random sampling

B. Simple random sampling D. Multi-stage sampling

19. The Confidence Interval for the mean, calculated for a series of values, has the interpretation:

A. The true mean is almost certain inside the confidence interval

B. The true variance is almost certain inside the confidence interval

C. The true median is almost certain inside the confidence interval

D. It is an interval that contains almost all the values of the series

20. An investigator wants to summarize his findings from the study by using one of the central

tendency measures, median. Which of the following sentence is true about the median?

A. A value for which half of the values are higher and half of the values are lower.

B. The value located exactly midway between the minimum and maximum of the series.

C. The most commonly encountered values among the series.

D. A measure of the eccentricity of the series

21. A survey is conducted to determine the percentage of students at Pharma College who change

their department at least once. In a SRS of 100 students 78% indicated that they graduated with a

major different from the one with which they entered college. Determine a 95% confidence

interval for the percentage of students who change their major.

A. 68.2% to 87.8% C. 70.0% to 86.0%

B. 68.5% to 87.5% D. 71.2% to 84.8%

22. A group of 200 patients were followed for about a year for the possibility of developing the

outcome of disease was investigated. Therefore, which of the following decision making rule is

true about the result of a statistical test, denoted p?

A. The null hypothesis H0 is rejected if p <0.05

B. The null hypothesis H0 is rejected if p> 0.05

C. The alternate hypothesis H1 is rejected if p> 0.05

D. The null hypothesis H0 is accepted if p <0.05

23. An investigator wants to study the magnitude of substance abuse among adult female students of

Pharma College. Thus, he uses a technique of building up a list or a sample of a special

population by using an initial set of members as informants. For the above scenario which

sampling technique is appropriate?

A. Quota sampling C. Convenience Sampling

B. Snow ball sampling D. Purposive sampling

24. In a sample of 1000 students in Harambee University, 850, or 85%, are health sciences students. Based on the above information, the University annual academic report revealed that “85%” of all the

University students are health sciences students. This report is an example of_____?

A. A sample

C. Statistical inference

B. Descriptive statics

D. A population

25. To survey the opinions of its customers, a supermarket grouped its customers by the days when

they did most of their shopping. The supermarket randomly selected two such groups, and asked

all customers in those two groups to complete a survey. This method of sampling is?

A. Stratified random sampling. C. Random digit dialing.

B. Cluster sampling. D. Systematic sampling.

26. A randomly selected sample of 400 students at a Pharma college with 16-week semesters was

asked whether or not they think the semester should be shortened to 14 weeks. Thus, sixty six

percent (66%) of sampled students responded "Yes." Which one of the following statements about

the number 66% is correct?

A. It is a sample statistic. C. It is a margin of error

B. It is a population parameter. D. It is a standard error.

27. Both non-pharmacological and pharmacological therapies are known to lower blood pressure

levels. In a double-blind study non-pharmacological therapies outperformed the pharmacological

one. The 95% confidence interval estimate of the difference in mean blood pressure lowering

level was (18, 41). Which one of the following propositions is most essential to the final

conclusion?

A. Pharmacological therapies lowers blood pressure an average of 18 points, while nonpharmacological lowers an average of 41 points.

B. There is a 0.95 probability that non- pharmacological will outperform the

pharmacological in lowering the blood pressure level of any given individual.

C. There is a 0.95 probability that non-pharmacological therapies will outperform

pharmacological therapies by at least 23 points in lowering the blood pressure level of

any given individual.

D. We should be 95% confident that non-pharmacological therapies will outperform the

pharmacological therapies as blood pressure lowering drug.

28. A hypothesis test is done in which the alternative hypothesis is that more than 10% of a

population is left-handed. The p-value for the test is calculated to be 0.25. Which statement is

correct?

A. We can conclude that less than or equal to 10% of the population is left-handed.

B. We can conclude that more than 25% of the population is left-handed.

C. We can conclude that exactly 25% of the population is left-handed.

D. We can conclude that greater than or equal to 10% of the population is left-handed.

29. You have measured the systolic blood pressure of a random sample of 30 patients. A 95%

confidence interval for the mean systolic blood pressure for the patients is computed to be Which of the following statements gives a valid interpretation of this interval?

A. 95% of the sample of employees has a systolic blood pressure between 122 and

B. 95 % of the employees in the company have a systolic blood pressure between 122

and 138.

C. If the sampling procedure were repeated 100 times, then approximately 95 of the

sample means would be between 122 and 138.

D. If the sampling procedure were repeated 100 times, then approximately 95 of the

population means would be between 122 and 138.

30. Mr. Kebede is lecturer and researcher in Samara University at department of Midwifery. He wanted to conduct study on prevalence and factors associated with condom utilization during sexual intercourse before marriage among University students and he wanted to select 100 students from both male and female gender

who has previous exposure for sex before marriage, which sampling technique will he must use to select study participants?

A. Stratified random sampling C. Purposive sampling B. Snow ball sampling D. Convenience sampling

31. If the mean serum Cholesterol levels for all normal women aged 20 to 48 years in Ethiopia is 200mg/100ml with variance $\sigma 2 = 64$mg/100ml. Suppose, you are biostatistician and asked to calculate the probability at which sample serum Cholesterol level is larger than 210mg/100ml after taking a sample of 9 individuals serum Cholesterol levels, which of the following probability will be true?

A. Sample serum Cholesterol level to be larger than 210mg/100ml at probability of 3.75

B. Sample serum Cholesterol level to be larger than 210mg/100ml at probability of 0.0001

C. Sample serum Cholesterol level to be larger than 210mg/100ml at probability of 0.1

D. Sample serum Cholesterol level to be larger than 210mg/100ml at probability of 0.9881

32. The research team in Arbaminch University medicine and health Sciences College wanted to determine prevalence and associated factors of abortion among women of reproductive age at the University. They reviewed different literatures and found that abortion prevalence among women of reproductive age at Wolaita Sodo University is 17%. The research team assumed 95% CI, 5% level of significance, 5% margin of error and 10% as non-response rate from estimated sample size. Hence, how many students will be required to conduct this study and satisfy the above requirement?

A. 117 students C. 139 students B. 217 students D. 239 students

33. The Hospital administrator in Black Lion Hospital Ethiopia wished to know where the 95% of diabetic patient's bloods glucose level will found; for this purpose, he selected randomly 20 diabetic patients and measured the mean sample blood glucose level 130 mg/dl with SD of 9. So, which of the following confidence interval will hold the 95% of a patient's blood glucose level?

A. (100.68, 111.31) C. (104.12, 115.88) B. (96.36, 104.64) D. (125.79, 134.21)

34. Mr. Yilma is instructor and researcher in Arbaminch University, CMHS. He is interested to investigate the effect of prolonged exposure to sun light on the retina damage in premature infants and selected 56 premature infants by lottery method. Sixteen among 21 infants exposed to bright light developed retinopathy, while 20 of

35 infants exposed to reduced light developed retinopathy. According to this scenario, what is the probability of developing retinopathy among premature infants?

A. 76.2% B. 64.3% C. 57.1% D. 35.7%

35. If you are health information technologist or health officer in certain health facility and asked to present your monthly service delivery report of family planning methods utilized by using graph, which of the following chart will be preferable used to present the data?

A. Histogram B. Bar chart C. Frequency polygon D. Line graph

36. Let say in your class, with a total of 40 students; the mean mark of biostatistics exam is 38 and the median mark is 50. Which of the following is truly interpreting the performance of students?

A. Many students have scored below the average

B. Many students have scored above the average

C. Half of students have scored above 38

D. Half of students have scored below 38

37. Among MPH students in Gondar University Medicine and Health Science College Institute of Public Health, 3 students scored 20, 4 students scored 25, 4 students scored 29 and 1 student scored 30 in Epidemiology exam. If the head of institute asked to tell the average mark of Epidemiology exam, which of the following alternatives can be the mean mark of the class?

A. 28.9 B. 24.8 C. 25.5 D. 24.6

38. Mr. Habtom was born in Tigray Region; when his age reached 7, he started primary School. Once up on his life, he sustained severe car accident. His Blood type is A+, CD4+ count of Habtom is 1200/mm3 . 38 (1). On the given scenario, how many variables have nominal scale of measurement?

A. 5 B. 4 **C**. 2 D. 6

38(2). Similarly; from the given scenario, how many variables have ratio scale of measurement?

A. 5 B. 4 **C**. 1 D. 2

38(3). From the above case scenario, how many variables showed ordinal scale of measurement?

A. 5 B. 2 **C**. 3 D. 1

39. The owner of travel agency would like to determine whether or not the mean age of the agency's customers is over 18. If so, he plans to alter the destination of their special voyages and tours. If he concludes the mean age is not over 18 when it is, he makes a _____error. If he concludes the mean age is over 18 when it is not, he makes_____ error respectively.

A. Type I and Type I C. Type II and Type I B. Type I and Type II D. He did the correct decision

40. Saron receives a beautiful five-sided die for her tenth birth day. After playing with it for one hour, she starts to suspect that her die is more likely to rolling “2” than to any other numbers. If you are asked to generate the null hypothesis for this scenario, it is that:

(A) The die rolls “2” with probability more than 0.2.

(B) The die rolls “2” with probability less than 0.2.

(C) The die rolls “2” with probability not equal to 0.2.

(D) The die rolls “2” with probability equal to 0.2.

41. A researcher was going to conduct a research on condom utilization among Nech sar campus students. The researcher developed a structured questionnaire but was not able to decide the data collection method. Which one of the following data collection method is best for this research?

A. Interview B. Observation C. Self-administered questionnaire D. Focus group discussion

42. The researcher was conducting research on knowledge about ITN utilization. Most of the respondents’ age was from 20-30 years. There were few participants with age above 50 years, so that the data was skewed. Which numerical summary measure is best to summarize the monthly income of the mothers?

A. Arithmetic mean **B**. Median C. Standard deviation D. Mode

43. The mean hemoglobin level of mothers was found to be 12g/dl with standard deviation 1 g/dl .from this one can conclude that

A. The mean hemoglobin level is 12 g/dl varying in unit of 1

B. All the mothers hemoglobin was within the range 11 to 13 g/dl

C. The variance for this data was 11 to 13.

D. The median hemoglobin is also 12 g/dl

44. Quartiles of a data set was calculated and it was found that Q1=5 Q2=10 and Q3=20 from this one can conclude.

A. The median of the data set is 15

B. 50th percentile is 10

C. 50% of the data is in the range 20-10

D. 20 is the maximum number in the data set **E.** NONE

45. Data was collected on height of adults and weight of adults then the researcher wants to compare the weight of adults with height of adults and she get the weight of adults were more variable than the height of the adults. Which of the measures of dispersion was used by the researcher?

A. Variance **B**. Standard deviation C. Range D. Coefficient of variation

46. A research was going to be conducted on the knowledge about ITN on pregnant mothers in Arba Minch general Hospital. Then researcher needs to take a sample of pregnant mothers from the mothers coming for ANC follow-up. Which sampling method can the researcher use?

A. Simple random sampling B. Systematic sampling C. Stratified sampling D. Cluster sampling

47. A health officer working at a rural health center reported that 5 people have presented to the

outpatient department with an unusual rash. This rash has not been encountered before and the

health officer writes a paper describing the clinical features found in these patients for a medical

journal. Which type of research had the clinician used?

A. Case report B. Case definition C. Case control D. Case series

48. A new treatment for cervical cancer is introduced, so patients live on average twice as

long after diagnosis. Which of the following is likely to be true once the treatment is widely

available?

A. The incidence of cervical cancer will decrease.

B. The prevalence of cervical cancer will decrease.

C. Both the incidence and the prevalence of cervical cancer will decrease.

D. The incidence of cervical cancer will increase.

E. The prevalence of cervical cancer will increase.

49. Assume that an epidemic has occurred in “X” town. Which of the following is NOT a

measure to manage the epidemic?

A. Action to prevent transmission of disease by ingestion

B. Active immunization

C. Supervision

D. Action to reduce transmission by respiratory infection

E. Chemoprophylaxis

50. In a study conducted about current practice of abortion among students in Arba Minch

University, a zero prevalence was documented. What type of bias would you think possibly

introduced in this study?

A. Recall bias

B. Lead time bias

C. Loss to follow up bias

D. Social desirability bias

51. Hypertension is diagnosed when the diastolic blood pressure of an individual is more than

90mmhg; if new diagnosis based on the diastolic decrease the cut of point of diagnosis of

hypertension to 85mmhg, select the correct one based on this situation?

A. Specificity of the new test increased

B. sensitivity of the test increased

C. Predictive value negative decreased

D. Predictive value positive increased

52. From the following the following time directionality of study design, which one is correctly

matched? A B C

A. In retrospective cohort study investigator at time A select study group according to

exposure status and follows them to time C

B. In case control study investigator select study group at time B according to diseases

status and ask participants about exposure at time A

C. In case control study investigator select study group at time c according to exposure

status and ask participants about exposure at time A

D. In prospective cohort study the investigator at time C select study group with exposure

at time A

42. Random samples of middle-aged sedentary adults were selected from four census tracts, and

each person was examined for coronary artery disease (CAD). All persons without disease

were randomly assigned to either a two-year program of aerobic exercise or a two-year

arthritis-prevention non-aerobic exercise program. Both groups were observed semiannually

for incidence of CAD. What type of study was this?

A. Cross-sectional study

B. Case-control study

C. Cohort study

D. Experimental study

43. In 1945, there were 1,000 women who worked in a factory painting radium dials on

watches. The incidence of bone cancer in these women up to 1975 was compared to that of

1000 women who worked as telephone operators in developed bone cancer between 1945 and

1975. What study design is this?

A. Cross-sectional study

B. Case-control study

C. Cohort study

D. Experimental study

1. The number of cancer pts & related deaths is increasing worldwide. Following this, country leaders are organizing pharmaceutical research institutes to produce effective treatment for this disease. What is the most appropriate research type for this scenario?
   A) Basic C) Exploratory
   B) Applied D) Explanatory
2. A researcher has traced published & unpublished literatures related to his research area from national and international research outputs. Finally, he has got many related literatures and uses them accordingly. What is the most likely violated literature review criterion in this sensrio?
   A) Comprehensive C) Relevance
   B) Up-to-date D) Balance
3. Investigators wanted to assess the effect of school based iron supplementation on cognitive development. They randomly assigned participants in to two groups, those who will receive and will not receive iron supplementation. The supplementation will provided on a weekly basis for one year. What is the most appropriate study design for the above scenario?
   A) Prospective Cohort C) Experimental
   B) Cross-sectional D) Case control
4. A research institution wants to identify the type of cardiovascular morbidity in a community. The institution grouped the hospitals based on their rank as primary, secondary & tertiary level. The hospitals were randomly selected from each group to conduct the study. What is the most appropriate sampling method used in this scenario?
   A) Sample random sampling C) stratified random sampling
   B) Cluster random sampling D) systematic random sampling
5. A hospital manager wishes to know what proportions of pts admitted to the orthopedic department has died. A 95% confidence interval is desired with a width intervals of 0.09 of the population proportion are estimated as 0.20 from

a previous study. What is the sample size needed for the above study?
A) 10 B) 87 C) 171 D) 174

6. An epidemiologist has planned to estimate the prevalence of sudden infant death syndrome (SIDS) among infants admitted to the ICU of a hospital. What is the most appropriate measurement tool to be used?
   A) Observational checklist C) self administered questionnaire
   B) Document review checklist D) face to face interview questionnaire

7. The Ethiopian medical journal reported a study of 13 HIV positive pts, who were treated with HAART for at least six months. The CD4 T-cell counts as baseline were as listed below. 130,168,205,313,207,227,245,173,103,181,105,301,169. What is the Inter Quartile Range (IQR) for this data set?
   A) 87 **B)** 149 C) 210 D) 245
8. Hemoglobin AIC is a serum measure often used to monitor compliance among diabetic pts. A sample of five values of Hgb AIC obtained from a single diabetic pt. are 8.5%, 9.3%, 7.9%, 9.2% and 10.3%. What is the most appropriate measure of variation for this sample?
   A) Standard deviation C) variance
   B) Inter quartile range D) range **E.** Discrete variable
9. Cardiovascular risk factors such as diastolic blood pressure (mmHg) and HDL cholesterol levels (mg/dl) were measured among children in every 3 year intervals. It was noted that the coefficient of variant (CV) was 7.1% for blood pressure and 10.4% for HDL cholesterol. What is the correct statement about the above scenario?
   A) The variability in cholesterol level measurements and BP cannot be compared
   B) There is high variability in cholesterol level measurements than blood pressure
   C) There is high variability in blood pressure measurements than cholesterol level
   D) There is consistence of measurements in cholesterol level than blood pressure.
10. A study was conducted among 18male and 11 female hypertensive pts to measure tire serum creatinine concentration level. The male pts had a mean level of 1.7 mg/dl with a standard error of the mean of 0.4, while the female pts had a mean of 3.4 mg/dl with standard error of the mean of 1.03. The critical values for the distribution are 2.052 at degree of freedom. What is the 95% confidence interval of mean difference?
    A) -1.10, 4.50 B) 0.89, 2.51 C) -1.23, 4.63 D) 0.85, 2.55
11. A group of researchers planned to conduct a study on Alzheimer's pts. The researchers are interested in comparing the rate of obesity between sexes of pts. From the total 20 pts included, 10 of them are males. What is the most appropriate statistics for this scenario?
    A) T-test B) Z-test C) x^2-test D) F-test
12. A group of researchers want to examine the association between ANC service utilization and birth outcome. They have included 250 pregnant women who have ANC follow up and do not have. 10 among ANC attendants and 200 among non-ANC attendants delivered neonates with low birth weight. What is the value of relative risk for this scenario?

A) 0.06 B) 1.10 C) 10.00 D) 0.25

13. A national wise case control study was conducted to assess the association of life skill training and academic dismissal among fresh female university students. Odds ratio of 0.4 was reported for students who took life skill training compared to students who did not take the training. What is the most appropriate interpretation of this finding?
    A) The odds of dismissal is 0.4 times less likely in those who took life skill training than those who did not
    B) The odds of dismissal is 0.6 times less likely in those who took life skill training than those who did not
    C) The odds of dismissal is 40% more likely in those who took life skill training than those who did not
    D) The odds of dismissal is 60% more likely in those who took life skill training than those who did not

14. A study was conducted in one of the government hospital to determine whether chronic alcoholism was associated with coronary heart disease. Of 156 study participants with coronary heart disease (CHD), 23 were determined to be alcoholic at the time of their hospital admission. Of the 3120 participants without coronary heart disease (CHD), 304 were found to be alcoholic during their incidence. 1. What type of epidemiological study design is this?

    A. Cohort C.Crosssectional
    B. Case control D. Ecological

1. What is its appropriate measure of association?

    A. Relative risk C. Attributable risk
    B. Odds ratio D. Population attributable risk

2. Calculate its measure of association

    A. 0.6 C. 2.6
    B. 1.6 D. 3.6

3. Which of the following study designs is the most persuasive in establishing causality?

    A. Ecological study
    B. Cohort study
    C. Case control study
    D. Randomized controlled trial

4. Which of the following is generally considered to be the strongest or most important guideline in causality?

A. Specificity
B. Temporality
C. Consistency
D. Coherence

E. Plausibility

5. Interpret the meaning of one study's reported relative risk of 0.5 (95% CI 0.2, 0.9) for the association between high level of Vitamin D consumption and breast cancer incidence.
    A. There is no association between high Vitamin D consumption and breast cancer rates.
    B. High Vitamin D consumption is associated with an increased breast cancer rate.
    C. Those who consume a high level of Vitamin D are statistically significantly less likely than those who consume low or no Vitamin D, to have a high rate of breast cancer incidence.
    D. Those who consume a high level of Vitamin D are less likely than those who consume little or Vitamin D, to have a high rate of breast cancer incidence, but it is not statistically significant
6. Which of the following conclusions is not true to explain the hypothetical statement that "Air pollution is higher in Addis Ababa City than in Hawassa Town, but mortality from lung disease is lower in Addis Ababa City than in Hawassa Town." would be an example of ecologic fallacy?
    A. Addis Ababa City may provide better treatment for lung disease than Hawassa Town
    B. People in Addis Ababa City may have better health insurance than people in Hawassa Town.
    C. Air pollution protects against lung disease deaths
    D. Persons dying of lung disease in Hawassa Town may have moved from high air pollution cities
7. A disease can be considered as epidemic if
    A. It covers wide geographical area
    B. It stays a long period of time

C. Excess occurrence of cases than expected

D. All

8. One of the disease is not under the list of surveillance priority diseases in Ethiopia

A. Tuberculosis B. Leprosy C. Meningitis D. Breast ca

9. One of the following statements is incorrect about disease surveillance challenges in Ethiopia.

A. Late reporting of notifiable diseases

B. Low turnover of technical staff.

C. Inadequate data analysis

D. Lack of resource

10. What type of data is formed by the figures the health professional has generated regarding the number of cigarettes her patients smoke?

A. Nominal
B. Ordinal
C. Interval
D. Ratio
E. Discrete variable

11. Hypothesis testing can be made using the following methods, except:

A. Comparing the calculated and tabulated value of the test statistics
B. Using confidence interval
C. Using p-value
D. Summary statistics

12. The Characteristics of the Chi-Square Distributions are , but one is not

A. It is a symmetric distribution.
B. The shape of the chi-square distribution depends on the degrees of freedom.
C. As the number of degrees of freedom increases, the chi-square distribution becomes more nearly symmetric.

D. The values of χ^2 are nonnegative.

13. In which of the following non random sampling techniques does the researcher ask the research participants to identify other potential research participants?

A. Snowball
B. Convenience
C. Purposive
D. Quota

14. In a test of H_o: p = 0.4 against H_A: p ≠ 0 .4, a sample of size 100 produces Z_{cal} =1.28 for the value of the test statistic. Thus, the p- value (or observed level of significance) of the test is approximately equal to: 0.90; which one is true

A. Reject the null hypothesis at 5% significance level.
B. Do not reject the null hypothesis at 5% significance level
C. Reject the alternative hypothesis at 5% significance level
D. We cannot concluded at 5% significance level

15. One of the following are useful when determines sample size of study population, except?

A. Desired level of accuracy or maximum tolerable error
B. Amount of variability in the population
C. Level of confidence required
D. Size of study populations
E. none of the above

16. The Essential features of a census data except,

A. Individual enumerations
B. Universality
C. Defined periodicity
D. Taken sample at regular intervals
E. Simultaneity

17. In order to calculate the t- test statistic for a hypothesis test, you do

not need to

A. Calculate sample mean
B. Know a sample size
C. State a null hypothesis
D. Standard error

18. Which one of true statement about central limit theorem regarding sampling distributions.

    A. The Sampling distribution of means of size n is equal to population mean.
    B. The sampling distribution of any statistic will be normal or nearly normal.
    C. The standard deviation of sample mean is given by $\sigma/\sqrt{n}$.
    D. All are correct sentence.

19. Which one of the following shows distinctions between a population parameter and a sample statistic?

    A. A population parameter is only based on conceptual measurements, but a sample statistic is based on a combination of real and conceptual measurements
    B. A sample statistic changes each time you try to measure it, but a population parameter remains fixed
    C. A population parameter changes each time you try to measure it, but a sample statistic remains fixed across samples.
    D. The true value of a sample statistic can never be known but the true value of a population parameter can be known.