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EDITION ONE



BIOLOGY

WORKBOOK AND PREVIOUS PAST PAPERS

GRADE 11 CH1-3

2022

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BIOLOGY GRADE 11 CHAPTER 1 MCQ

1. Anti-HIV/AIDS clubs are today common in schools and colleges. What is their main contribution in the fight against the pandemic?

A. Provide medication for AIDS patients
B. Encourage the boys to have girl friends
C. Encourage the girls to have boy friends
D. Raise awareness about the problem among students

2. Suppose a student noticed that many plants in a garden died following an excess application of a certain fertilizer, to which step of the scientific method would this correspond?

A. Formulation of a hypothesis
B. Experimentation
C. Observation
D. Collecting information to support hypothesis

3. Suppose in an experiment designed to test a hypothesis that water is essential for seed germination, equal number of soaked seeds were placed in vials A, B and C (group I) and dry seeds in vials D and E (group II), Which one of the following is **NOT** true about this experiment?

A. Vials A, B and C are replications
B. Group I is the experimental group
C. Vials D and E are replications
D. The experimental lacks a control group

4. What is a theory in biology?

A. A statement without proof
B. Hypothesis that has been supported by many experiments and/or observations.
C. Proof that a hypothesis is true and that it is ready to conduct experiments to prove or disprove the hypothesis
D.. An statement or educated guess

5. Which are of biology studies how organisms undergo growth, differentiation and morphological changes?

A. Physiology
B. Development
C. Taxonomy
D. Cytology

6. Which of the following types is true about the meanings contained in the name HIV and AIDS?

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A. HIV refers to the symptoms that characterize the condition C. AIDS refers to symptoms
B. AIDS refers to the causative agent D. HIV refers to its probable origin from chimpanzees

7. Using the following information, choose the alternative that shows the correct sequence of the scientific method:

A. Forming a hypothesis C. Identifying the problem
B. Performing an experiment D. Observation

8. Which of the following corresponds to the first step of the scientific method?

A. Analyze the data collected C. Identify a topic to be studied
B. Undertake the research D. State the results

9. When trying to view an object under the microscope and after switching to the high power objective, which adjustment knob do you use in order to see a clear picture?

A. The coarse adjustment C. The fine adjustment
B. The middle adjustment D. The arm of the microscope

10. If you observe a piece on which several small squares are drawn, under which of the following magnifications of the microscope do you count more number of the squares?

A. 40X B. 100X C. 400X D. 1000X

11. If, after dividing plant materials into two groups, an experimenter has applied a fertilizer to group "A" plant and not to group "B" plant, what are group "B" plants called?

A. Control group C. Test group
B. Experimental group D. Variable group

12. In the scientific method, which one of the following is used to test a hypothesis?

A. Observation B. Theory C. experiment D. Prediction

13. What does an ornithologist study?

A. The biology of mammals C. the biology of fishes
B. The biology of frogs and reptiles D. the biology of birds

14. Which one of the following best defines modern biology?

A. The study of animals C. The study of plant and animals

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B. The study of living things D. The study of transfer energy

15. What is the total magnification power of a microscope with a 10X ocular lens and 25X objective lens?

A. 2.5X B. 35X C. 250X D. 2,500X

16.A field biologist who studies the behavior of primates in the forest is most likely expected to frequently use which method of data collection?

A. Experiment B. Animal dissection C. Observation D. Comparative

17.Which one of the following objective and ocular combinations of the light microscope, respectively, gives the greatest magnification?

A. 10X and 10X C. 40X and 12X
B. 4X and 10X D. 100X and 10X

18. . What is the term used to express the ability of a microscope to show details clearly?

A. Enlargement B. Reduction C. Magnification D. Resolution

19. A scientifically accepted, well –tested hypothesis is known as:

A. Theory B. Guess C. Prediction D. All of the about

20. Which of the following is **not** an important unifying theme in biology?

A. The evolution of life C. The diversity and unity of life
B. The interdependence of living organisms D. The variation in climatic factors

21. Which tool of the biologist is more suitable for culturing bacteria in the laboratory?

A. Test tubes B. Microscopes C. Petri dishes D. Beakers

22. Which of the following corresponds to the being step of a scientific work?

A. Testing hypotheses C. Conducting experiments
B. Making observations D. Drawing conclusions

23. In an experiment that is testing the effect of temperature on the germination rate of certain seeds, in which one of the following should the experimental and thee control groups differ?

A. The amount of water the receive C. The age of the seeds assigned to them.
B. The number of seeds assigned to them. D. The temperature at which they are kept.

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24. Which of the following laboratory equipment is used to separate the organelles of the cell according to their density?

A. Incubator B. Centrifuge C. Measuring cylinder. D. Filer paper with fine pores

25. Which one of the following types of microscopes is the best to show the details of the surface of an object?

A. Optical microscope. C. Compound microscopes
B. Scanning electron microscope. D. Transmission electron microscope.

26. Which of the following is **NOT** in agreement with the scientific method?

A. Putting forward testable hypotheses C. Carrying out experiments in duplicates.
B. Putting forward personal value judgments. D. Analyzing results and drawing conclusions

27. To which major area of relevance and applications of biology is the production of transgenic organisms related? A. Agriculture B. Environment C. Biotechnology D. Medicine

28. A cell was examined under a compound light microscope with an eyepiece lens marked 13X and an objective lens marked 40X. How many times larger would the cell appear to the viewer?

A. 40 times B.53 times C. 400 times D. 520 times

29. In an experiment designed to test the effect of different concentrations of a fertilized on the growth of a plant, which one of the following is the dependent variable?

A. The growth rate of the plant. C. Plats assigned to the control group
B. Concentrations of the fertilizer applied. D.Plats assigned to the experimental group

30. What is the reason that Louis Pasteur used a swan-necked flask instead of straight necked one in his experiment designed to disprove the theory of spontaneous generation?

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A. To allow free passage of air to the broth inside the flask
B. To prevent the escape of any microorganism from the flask
C. To keep the broth in the flask hot to kill microorganism
D. To trap particles from the air that might enter the flask before reaching the broth

31. A biologist applied the scientific method repeatedly, gathered a large amount of supporting experimental data and finally described a pattern or relationship between different factors. What is the best term that refers to facts established in this way?

A. Theory B. Hypothesis C. Prediction D. Law

32. Which of the following is true about the antiretroviral drugs currently used to treat AIDS patients?

A. They cure AIDS C. they serve as anti-HIV vaccines
B. They stop HIV transmission D. they slow down HIV multiplication

33. Which of the following steps in the scientific method comes following observation?

A. Prediction B. Hypothesis C. Experiment D. Theory

34. What is the specialist in biology called if he/she studies fossils to generate new knowledge on the origin and evolution of living things of part geologic periods?

A. Geneticist B. Ecologist C. Paleontologist D. comparative Biochemist

35. Which of the following practices does **NOT** normally transmit HIV?

A. Sexual intercourse through anus C. Sharing injection needles
B. Blood transfusion D. Shaking hands

36. Which of the following field equipment is used to determine an exact location of a place?

A. Theodolite B. Global positioning system C. Field microscope D. Field PH kit

37. What is a theory in biology?

A. The outcome of an experiment
B. A proof that shows the hypothesis is true

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C. A hypothesis supported by experiments and/or observations
D. An opinion or educated guess resulting from observations

38. For which of the following is a theodolite used in biology education?

A. Measuring the height of trees
C. Recording positions where a species is found.
B. Measuring the rate of flow of water in a cell.
D. Measuring the pH of water or soil.

39. What is the advantage of using HAART (highly active anti-retroviral therapy) for the treatment of HIV?

A. It gives a lasting immunity to HIV.
C.It prevents mutation of HIV.
B. It prevents re-infection by HIV.
D. It helps to break the life cycle of HIV

40. On which one of the following principles are most of the anti-HIV drugs currently in use working?

A. Inhibition of enzyme action
C. Degradation of viral particles
B. Digesting of viral particles
D. Phagocytosis of the virus

41. Which of the following is a recently developed active area of research in biology today?

A. Taxonomic study
C. Ecological research
B. Study about the cell theory
D. Stem cell research

1. While conducting research, which of the following should a biologist do first?

A. Generate hypothesis
C. Conduct experiments
B. Communicate the results
D. Identify a research question/problem

42. What is the branch of biology that studies about the origin and gradual changes of living things?

A. Microbiology B. Evolution C. Mutation D. Reproduction

43. Suppose in an experiment conducted to test a new drug, 20 people were given the drug and 20 people a placebo. What is the control of the experiment?

A. People who received the placebo
C. People who received the new drug
B. The new drug itself
D. The new drug and the placebo

44. What is the difference between HIV and AIDS?

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A. AIDS is the virus and HIV is the disease
B. AIDS is the disease and HIV is the virus
C. Both AIDS and HIV refer to the disease
D. Both AIDS and HIV refer to the virus

45. Biotechnology can be applied in environmental remediation. To which of the major application areas of biotechnology is this most related?

A. Medicine and nutrition
B. Biodiversity and industry
C. Medicine and industry
D. Agriculture and environment

46. . Which of the following steps of scientific methods comes before all the rest?

A. Hypothesis B. Experiment C. Conclusion D. Reporting the result

47. . What do we call a scientist who specializes in studying insects?

A. An ecologist B .An entomologist C. A paleontologist D. A microbiologist

48.. Which of the following is formulated as a possible outcome of an experiment ?

A. Hypothesis B. Prediction C. Data analysis D. Recording the data

50. In scientific method, what is the importance of a background research for a given problem?

A. To formulate a hypothesis
B. To prepare report of result
C. To make a prediction
D. To make a conclusion

51. Among the following scientists who contributed to the cell theory , identify the one who stated that " a cell can arise only from another cell like it"

A. Robert Hooke B. Theodor Schwann C. Mathias Schneider D. Rudolf Virchow

52. In which of the following ways do retroviruses differ from other RNA viruses?

A. Their genetic material is DNA
B. They copy RNA toDNA molecule
C. Their genetic material in RNA
D. They copy RNA from DNA molecule

53. What is the ultimate source of all scientific knowledge?

A. Observation B. Guessing C. Trial and error D. Observation and experimentation

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54. What did Francesco Redi prove through his experiment?

A. Maggots appear spontaneously on foods placed anywhere

B. Maggots do not appear in foods kept in jars that are protected with a cover

C. Maggots do not appear in foods kept in open air.

D. Flies appear spontaneously on rotting meat kept in closed or open jars.

55. What an ethologist study?

A. Insect diets B. Soil types C. Fossil fuel D. Animal behavior

56. What do you call the reasoning technique in science where general principles are used to analyze specific cases?

A. Induction B. Deduction C. Pseudo-deduction D. Pseudo-induction

57. The following are Simpsom´s Index of species diversity calculated or four areas containing the same types of species, Which index value is from the area dominated relatively by a few number of species?

A. 8,00 B. 6.00 C. 3.5 D.2.5

58. Choose the step comes at the last step in the scientific method

A. Proposing the hypothesis C. Formulation of a scientific theory

B, Conducting experiment D. Making prediction

59. Which of the following is a worthwhile biological problem for scientific investigation?

A. Estimation of the amount of carbon in a forest ecosystem

B. How a crying dog can tell who among elders of the village is going to die next

C. How witchcraft inflict bad health by cursing a healthy person

D. How the traditional medicine men/women cure a possessed person

60. Which of the following is the correct sequence of the steps in scientific research?

A Hypothesis formulation → conclusion → experiment → question

B. Question → Hypothesis formulation → experiment → conclusion

C. Hypothesis formulation → question → experiment → conclusion

D. Question → hypothesis formulation → conclusion → experiment

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61. Which of the following types of cancer is known to mostly developed in AIDS patients?

A. Cervical cancer B. Stomach cancer C. Kaposi's sarcoma D. Breast cancer

62. Who was the person that first observed living cells moving around when he examined drops of water under the microscope?

A. Robert Brown B. Robert Hooke C. Anton van Leeuwenhoek D. Theodor Schwann

63. For what purpose do biologists use the GPS receiver?

A. To produce area maps B. To measure tree heights C. To estimate tree ages D. To count tree rings

64.In an experiment designed to study the effect of temperature on the rate of seed germination , which of the following the experimenter vary?

A. Seed number B. Water quality C. Temperature D. Seed size

65. "Rats can be produced by keeping rags and grains at a corner of a room". Which of the following line of thinking supports this statement?

A. Darwinian evolution B. Spontaneous generation C. Alternation of generation D. Sexual reproduction

66. What is the specific name of biological scientists who do research that tries to find evidence of life on other planets in solar system?

. A. Neurobiologists B. Paleontologists C. Astrobiologists D. Biogeographers

67. Which of the following is NOT a universal property of all living things?

A. Heritable characters B. Reproduction C. Phoiosythesis D. Growth and development

68. How does a simple microscope differ from a compound microscope?

A. A simple microscope has no lens B. A simple microscope has got two lens

C. A simple microscope uses mirrors as lens D. A simple microscope has only one lens.

69. Which of the following is the major mechanism by which AIDS is transmitted?

A. Mother to fetal transmission B. Heterosexual intercourse

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C. Homosexual intercourse D. Contaminated blood transfusion

70. Which of the following types of microscopes is most suitable for a detailed study of surface structure of an object?

A. Field microscope B. Optical microscope C. Scanning electron microscope D. Dissecting microscope

71. Why does sucrose give a negative result when mixed and heated with Benedict's solution?

A. Because it is not a sugar molecule B. Because it is a reducing sugar

C. Because it is a non - reducing sugar D. Because it is not a monosaccharide

72. Which of the following is consistent with science?

A. Proof by investigation of the causes of a phenomenon B. Proof by reference of a respected leader

C. Proof by reference to an unknown object D. Proof based on lessons from a person one believes

73. Which of the following are all the tools mainly used in the laboratory rather than in field situation?

A. Centrifuges, microscopes, measuring cylinders, petri dishes

B. Flow meters , centrifuges, theodolites, microscopes

C. Centrifuges, plant presses, flow meters, microscopes

D. Theodolites, petri dishes, GPS receivers, measuring cylinders

74. Which of the following cellular structures is NOT found in gram-positive bacteria?

A. Outer membrane B. Plasma membrane C. Perplasmic space D. Peptidoglycan

75.What color is expected upon hearing a mixture of glucose and Benedict′s solution?

A. Blue black B. Brick red c. Yellow D. Light blue

76.Which research can most likely discover a vaccine that may be used against AIDS?

A. Agricultural research B. Biological research C. Social research D. Space research

77. What is the good thing about having a control group in scientific experimentation?

A. It reduces the validity of experimental results by reducing the factors

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B. It reduces the reliability of the experimental results by adding more samples

C. It provides a means for correcting experimental data & adjust to expectations

D. It provides a standard against which the experimental results can be compared

78. Which tool of the biologist is expected to be found in a standard dissecting kit?

A. A magnifying glass B. An insect net C. A pitfall trap D. A centrifuge

79. Suppose you have observed a spot where somebody had urinated is swarmed by ants , Which of the following would you do first if you want to study the reason in a scientific manner?

A. Making prediction B. Formulating hypothesis

C. Carrying out experiments D. Gathering background information

80. In scientific investigation , which of the following variables CANNOT be controlled by the experimenter?

A. Independent variable B. Dependent variable C. Confounded variable D. Experimental variable

81. Which of the following equipment is used by field biologists to estimate the abundance of organisms in an area?

A. Quadrant B. Theodolite C. Plaint press D. Global positioning system (GPS

82 In which of the following health problems can the signal for the final stage of HIV/AIDS infection be found?

A. Nervous system B. Digestive system C. Circulatory system D. Immune system

83.Which protein structure found in antibodies is responsible for the ability of a protein to bind to a specific antigen and destroy it during antigen-antibody reaction?

A. Primary C. Secondary C. Quaternary D. Tertiary

84. The word science comes from the Latin word ‘scienta’ meaning what?

A. Study B. experiment C. life D. knowledge

85. Which of the following laboratory tools is LEAST accurate to measure 1ml of liquid?

A. Pipette B. Measuring cylinder C. Burette D. Beaker

86.In a report of a scientific experiment, description of which of the following comes before all the other?

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A. Procedure B. result C. hypothesis D. conclusion

87.From among the following, chose the field which is a branch or parts of biotechnology.

A. Parasitology B. immunology C. phycology D. genetic engineering

88. Which of the following laboratory glassware is used for culturing bacteria?

A. Petri dish B. Test tube C. Filter paper D. Measuring cylinder

89. Which of the following is publicly an UNDESIRED research activity?

A. Breeding a new crop variety C. synthesis of new vaccine
B. Manufacturing of a new medicines D. breeding a new pathogenic microorganism

BIOLOGY GRADE 11 CHAPTER 2 MCQ-

1. Which of the following elements occur more abundantly in living organisms than the others?
   A. Aluminum B. Phosphorus C. Lead D. Zinc
2. Both plant and humans keep in their bodies the stored forms of carbohydrates. What are these stored forms called, respectively?
   A. Glycogen, starch B. Starch, cellulose C. Starch, glycogen D. Cellulose, glycogen
3. In which of the following is the macromolecule correctly matched with its monomer building blocks?
   A. Carbohydrates – Glycerol C. Lipids – Amino acid
   B. Proteins – Fatty acids D. Nucleic acids – Nucleotides
4. How many carbon atoms are contained in two molecules of glucose?
   A. 6 B. 12 C. 16 D. 24
5. Of the constituents of protoplasm, which one is inorganic in nature?
   A. Starch B. Protein C. Water D. None of the above
6. Which of the following is the most abundant form of carbohydrate on earth?
   A. Starch B. Cellulose C. Glycogen D. Chitin
7. In which of their constituents do the nucleotides of DNA and RNA differ from each other?
   A. In the purine bases C. In the phosphate group
   B. In the pyrimidine bases D. In all of the above

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8. Which one of the following elements is found in protein and nucleic acids but does not occur in carbohydrates?
   A. Carbon B. Nitrogen C. Oxygen D. Hydrogen
9. Which of the following molecules is known as the energy currency of the cell?
   A. Glucose B. Starch C. Fat D. ATP
10. What is the stored form of sugar that is found human tissues?
    A. Cellulose B. Coenzyme C. Nucleic acid D. Glycogen
11. Which of the following classes of crops is a good source of proteins?
    A. Leafy vegetables B. Cereals C. Pulses D. Roots and tubers
12. What makes phospholipid molecules arrange themselves into a bilayer in a water medium?
    A. The double bonds of the fatty acids C. The length of the fatty acids
    B. The presence of hydrophilic and hydrophobic groups D. Their high solubility in water
13. Which of the following is a polysaccharide?
    A. Sucrose B. Glucose C. Cellulose D. Fructose
14. Choose the alternative that shows the monomer and polymer of carbohydrates?
    A. Nucleotied, amino acid C. Monosaccharide, polysaccharide
    B. Polypeptide, polynucleotide D. Nucleic acid amino acid
15. Which of the following is the most abundant polysaccharide found in plants?
    A. Glycogen B. Cellulose C. Sucrose D. Starch
16. What term is used to describe the chemical process of living organisms that involves both the joining up of monomers to produce polymers and the splitting of polymers to monomers?
    A. Anabolism B. Metabolism C. Catabolism D. Polymorphism
17. Which alternative correctly marches the polymer with its monomer?
    A. Carbohydrate- amino acid C. Nucleic acid – nucleotide
    B. Protein – monosaccharide D. Lipid – fat
18. All of the following carbohydrates are polysaccharides except which?
    A. Glucose B. Cellulose C. Starch D. Glycogen
19. Which one of the following sugars do babies get from the milk of their mother
    A. Maltose B. Sucrose C. Lactose D. Fructose
20. Which of the following are **not** included in lipids?
    A. Nitrogenous bases B.Waxes C. Steroids D. Phospholipids
21. Which of the following is true about both DNA and RNA?
    A. Both are single stranded C. Both have a five carbon sugar
    B. Both are polymers of amino acids D, Both contain the same four nitrogenous bases
22. Which property of water keeps the bottoms of lakes and the lift there in from being frozen during cold winters in the temperate regions?
    A. Its highest density at 4 C^0 C. its high boiling point
    B. Its high heat of vaporization D. Its high latent heat of fusion
23. Which of the following helps to keep the biological membranes in a fluid state?

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A. Waxes B.Phospholipids C. Cholesterol D. Water

24. Which of the following compounds is an important component of the exoskeleton of arthropods such as insects?
A. Oil B.Sugar C. Protein D. Chitin
25. How many carbon atoms are contained in a single molecule of sucrose?
A. 6 B. 12 C. 24 D. 48
26. Which of the following compounds is an important component of the bacteria cell wall?
A. Chitin B. Peptidoglycan C. Cellulose D. Pectin
27. Which of the following pairs of elements are fond in all carbohydrates in addition to the element carbon?
A. Nitrogen and Oxygen C. Hydrogen and Oxygen
B. Hydrogen and nitrogen D. Phosphorus and nitrogen
28. In the process of amino acid condensation, which one of the following happens?
A. Oxygen is used up. C. Carbon dioxide is released
B. Water is released as a byproduct D, Protein is broken down into amino acid
29. Which of the following properties of water makes sweat an effective body cooler?
A. Its high specific heat. C. Its low density when frozen.
B. Its high surface tension. D. Its high heat of vaporization.
30. Among the molecules found in cells, which of the following contains less energy?
A. A glucose molecules C. A triglyceride
B. An amino acid D. A water molecule
31. In which one of their structural parts do different molecules of amino acids differ from one another?
A. In their R group C. In their amino group
B. In their carboxyl group D. In their alpha-carbon group
32. If one mixes a sample of a fruit juice and some drops of Benedict's solution and obtains a brick-red precipitate upon warming the mixture, what does the juice contain?
A. Starch B. Reducing sugar C. Sucrose D. Protein
33. The main component of the plant cell wall is _____?
A. Starch B. Cellulose C. Protein D. Chitin
34. How many carbon atoms are there in one disaccharide molecule?
A. 6 B. 12 C. 18 D. 24
35. All proteins contain carbon, hydrogen, oxygen and what other element?
A. Chlorine B. Flourine C. Nitrogen D. Sulphur

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36. What makes unsaturated fatty acids different from saturated fatty acids?
    A. The presence of long chain of carbon. C. The presence of one or more double bonds.
    B. The presence of large number of hydrogen atoms. D.Their occurrence as solid at room temperature.
37. What is the name of the sugar found in milk?
    A. Glucose B. Lactose C. Maltose D. Sucrose
38. In which of its contents RNA differs from DNA?
    A. Deoxyribose and guanine C. Ribose and thymine
    B. Ribose and uracil D. Phosphate and adenine
39. Which of the following groups of substances are all inorganic?
    A. Water, sugar, calcium carbonate C. Sugar, fatty acid, amino acid
    B. Water, calcium carbonate, carbon dioxide D. Carbon dioxide, amino acid, fatty acid
40. In which of the following compounds are both members of the pair are polymers of carbohydrates that naturally occur in plants only?
    A. Starch and chitin C. Starch and cellulose
    B. Glycogen and cellulose D. Glycogen and chitin
41. Which of the following is generally expected to give better health benefits when present in human diet?
    A. Animal fat C. Saturated Fatty acid
    B. Monounsaturated fatty acid D. Polyunsaturated fatty acid
42. Which of the following is a distinguishing feature of amino acids that is **NOT** found in carbohydrates?
    A. Carbon B. Oxygen C. Hydrogen D. Nitrogen
43. Which one of the following molecules in living things is **NOT** an organic molecule?
    A. Sugar B. Nucleotide C. Amino acid D. water
44. How many carbon and oxygen atoms are there in a molecule of maltose?
    A. 6 carbon and 6 oxygen C. 12 carbon and 11 oxygen
    B. 11 carbon and 12 oxygen D. 24 carbon and 12 oxygen
45. Which of the following carbohydrates has structural function?
    A. Cellulose B. Glycogen C. Starch D. Sucrose
46. What can one conclude about the contents of the foodstuff if a mixture of Benedict solution and a foodstuff remain blue after heating?
    A. It contains proteins. B. It lacks starch C. it contains fats. D. it lacks reducing sugar.
47. Which group of organic compounds includes the enzymes?
    A. Proteins B. Lipids C. Starches D. Carbohydrates
48. Which of the following is true about saturated fatty acids?

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A. They have single bonds between carbon atoms
B. They are the same as polyunsaturated fatty acids
C. They are the same as monounsaturated fatty acids
D. They have double bonds between the carbon atoms

49. Which of the following is true about the substance represented by the chemical formula "$C_2H_2NO_2$"?

A. Simple sugar B. Inorganic substance C. Fatty acid D. Amino acid

50. Choose the one that represents a chemical formula of an organic compound?

A. $C_{12}H_{22}O_{11}$ B. $Mg(OH)_2$ C. NH_3 D. NaCl

51. How are unsaturated fats distinguished?

A. They are made up of glucose & fructose
B. They are made up of amino acids & glycerol
C. They have double bonds in their carbon chains
D. They have only single bonds at the points of attachment

52. Which of the following is produced when a lipid molecule is hydrolyzed?

A. Amino acids & water C. Fatty acids & glycerol
B. Amino acids & glucose D. Glucose & glycerol

53. A carbohydrate compound is known to have 12 carbon atoms in the whole molecule. What could this compound be?

A. A polypeptide B. A disaccharide C. A monosaccharide D. A polysaccharide

54. If certain food stuff gave a positive result with Benedict test only after it was hydrolyzed with hydrochloric acid, which of the following substances could it be ?

A. Non-reducing sugar B. Nucleic acid C. Lipid D. Protein

55. Which of the following molecules is **not** a polymer?

A. Protein B. Lipid C. RNA D. Starch

56. Which of the following classes of organic molecules is the least important source of energy for cellular respiration?

A. Nucleic acid B. Lipids C. Carbohydrates D. Proteins

57. For what purpose do molecular biologists use the technology known as polymerase chain reaction or PCR?

A. To insert DNA into plasmids? B. To insert plasmids into bacteria

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C. To multiply copies of DNA molecule D. To produce DNA from RNA

58. Which element is found in nucleic acids?

A. Calcium B. Iron C. Magnesium D. Phosphorus

59. What is the base found in RNA in place of thymine of DNA?

A. Cytosine B. Guanine C. Thymine D. Uracil

60. What is the base found in RNA in place of thymine of DNA?

A. Cytosine B. Guanine C. Thymine D. Uracil

61. In the formation of a macromolecule, what type of reaction would join two subunits together?

A. Hydrolysis reaction B. Dehydration reaction C. Denaturation reaction D. Hydrophobic reaction

62. In the formation of a macromolecule, what type of reaction would join two subunits together?

A. Hydrolysis reaction B. Dehydration reaction C. Denaturation reaction D. Hydrophobic reaction

63. Which of the following is an inorganic molecule?

A. $CaCO_3$ B. CH_4 C. $C_6H_{22}O_{11}$ D. $C_{18}H_{36}O_2$

64. To which group of organic compounds do the triglycerides and waxes belong?

A. Carbohydrates B. Proteins C. Lipids D. Vitamins

65 . In which industrial product is pyruvate fermentation by yeast practically applied?

A. Brewing beer B. Swiss cheese making C. Production of vinegar D. Yoghurt making

66. Which of the following is true about all proteins?

A. They are twenty amino acids long C. They are globular in shape

B. Yhey perform the same function D. The monomers are held together by peptide bond

67. What does the fermentation of glucose by yeast normally yield?

A. Lactic acid ,CO_2, and 2ATP C. CO_2,H2O,and 36 ATP

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B. Alcohol, CO_2,and 2ATP D. Alcohol,CO_2 ,and 36ATP

68. Which hormone promotes human sleep fullness in darkness and controls he sleep -wake cycle?

A. Insulin B. Adrenaline C. Melatonin D. Thyroxine

69. Which two nitrogenous bases belong to the purines?

A. Adenine and thymine B. Adenine and guanine C. Guanine and cytosine D. Thymine and uracil

70. Which one of the following is a functional group of a fatty acids?

A. A ketone group B. An aldehyde group C. An amino group D. A carbohydrate group

71. Which of the following food types would most likely give a negative result upon addition of iodine solution?

A. Bread B. Butter C. Biscuit D. Potato

72. How many fatty acids would a cell need to form a molecule of triglyceride?

A. Two B. Four C. Five D. Three

73. Which one of the following molecules can serve as araw material for industries that produce glucose?

A. Nucleic acids B. Proteins C. Lipids D. Starch

.74. According to the fluid-mosaic model of the plasma membranes , what does the word′ mosaic′ refer to?

A. The hydrophobic property of fatty acids B. The bilayer nature of the membrane

C. The arrangement of the proteins D. The movement of the phospholipids

75. Which of the following organic compound would release both nitrogen and sulfur to the ecosystem when decomposed

A. Polysaccharides B. Sucrose C. Proteins D. Lipids

76. Which of the following classes of fatty acids is without carbon-carbon double bond?

A. Monounsaturated fatty acids B. Unsaturated fatty acids

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C. Saturated fatty acids D. Polyunsaturated fatty acids

77. What is the substance that helps to keep the biological membrane in a fluid state?

A. Waxes B. Water C. Cholesterol D. Phospholipids

78. Which of the following substances is NOT formed when glucose is fermented by yeast?

A. Alcohol B. ATP C. Lactic acid D. Carbon dioxide

79. What are hexoses?

A. Disaccharides with 6 carbon atoms B. Disaccharides with 6 oxygen atoms

C. Monosaccharide with 6 carbon atoms D. Monosaccharide with 6 oxygen

80. In which of the following is the element correctly matched with its main function in human body?

A. Calcium -- builds bones , teeth & muscles B. Chlorine -- help blood carry oxygen

C. Iron-- protect teeth enamel D. Fluorine -- digest food

81. Which of the following elements is most abundant in human cells?

A. Sulphur B. Phosphorus C. Oxygen D. Nitrogen

82. Which of the following correct?

A. In a triglyceride there are three fatty acids and glycerol B. In a triglyceride there is one fatty acids & glycerol

C. An unsaturated fatty acids has only a single C-C bond D. A saturated fatty acids has a single C-C bond

83. What is it that distinguishes organic from inorganic molecules?

A. Presence of C and O B. Presence of H and O C. Presence of C and H D. Presence pf C and N

84.What is the main physiological advantage that certain storage carbohydrates such as glycogen are highly branched polymers?

A. Fast release of glucose B. Slow polymerization of glucose

C. Easy diffusion of food between cells D. Creation of high osmotic potential in cells

85. Which of the following elements is found in the chlorophyll molecule?

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A. Magnesium B. Calcium C. Iron D. Phosphorus

88. Which of the properties of water allows mosquito larvae to hung themselvesdawn into the water from the water surface?

A. Its high specific heat capacity
B. Its hihg latent of vaporization
C. Its high surface tension
D. Its low density in solid state

BIOLOGY GRADE – 11 CHAPTER 3

1. To which group of compounds do enzymes belong?
   A. Lipoproteins
   B. Fibrous proteins
   C. Globular proteins
   D. Deoxyribonucleic acid
2. If an enzyme has its optimum activity at neutral P^H, to which of the following P^H values does this correspond?
   A. P^H 14 B.P^H 7 C. P^H 12 D. P^H4
3. What is true about the rate of an enzyme catalyzed reaction if the enzyme concentration is kept constant and the substrate is supplied in excess? The rate would:
   A. Rise continuously
   B. Stay constant
   C. Decline sharply
   D. None of the above
4. Among the following, identify the molecule that is an enzyme:
   A. Starch B. Cellulase C. Cellulose D. Glycogen
5. An enzyme known as catalase converts hydrogen peroxide into water and oxygen. In this reaction which one is the substrate?
   A. Catalase B. Hydrogen peroxide C. water and oxygen D. water only
6. Identify the enzyme that is used to cut DNA molecules into small pieces?
   A. Urease B. Reverse transcriptase C. DNA polymerase D. Restriction endonuclease
7. Identify the statement that more correctly explains why each cell contains so many different types of enzymes? Enzymes are
   A. Consumed in the process of catalysis
   B. Specific to their substrates.
   C. Used over and over again
   D. Easily synthesized
8. To which category of enzymes do the digestive enzymes that breakdown food substances in the human alimentary canal belong
   A. Intracellular enzymes
   B. Globular enzymes
   C. Extracellular enzymes
   D. Fibrous enzymes

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9. If an enzyme is provided with its normal substrate plus another molecule having the same shape and size as the substrate, which one of the following would happen?
   A. Allosteric inhibition
   B. Competitive inhibition
   C. Irreversible inhibition
   D. End product inhibition
10. If one keeps on adding a substrate to a fixed amount of an enzyme, when does the reaction rate reach a plateau?
   A. When all the substrate is converted to products
   B. When all the active sites of the enzymes are occupied
   C. When most of the enzyme molecules are consumed
   D. When much of the products are accumulated
11. Which of the following is **true** about those bacteria which dwell in hot springs
   A. They are not metabolically active
   B. They use non-protein enzymes
   C. They get energy of activation from the spring heat
   D. Their enzymes do not denature at that temperature
12. Which factor has a more negative effect on the functions of enzymes than the others?
   A. Neutral PH
   B. Optimal amount of salt concentration.
   C. Very high temperature.
   D. Optimal amount of substrate concentration
13. What do we call the substance upon which an enzyme acts?
   A. Product
   B. Activation energy
   C. Substrate
   D. Enzyme-substrate complex
14. When an enzyme is denatured by heat or extreme PH, which one of the following does it lose?
   A. The peptide bond.
   B. Primary structure.
   C. Secondary structure.
   D. Tertiary structure.
15. In Which one of the following points does the induced-fit model of enzyme action differ from the lock-and-key model?
   A. Enzyme lower the energy of activation
   B. Substrates bind at the active site of the enzyme
   C. During the reaction, an enzyme-substrate complex is formed.
   D. The shapes of the substrate and active site are complementary.
16. Which of the following mechanisms do cells use to regulate enzymes catalyzed reactions in metabolic pathways?
   A. Enzyme denaturation
   B. End product inhibition
   C. Irreversible inhibition
   D. Competitive inhibition

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17. Suppose 25% of the molecules of an enzyme are inhibited by a non-competitive inhibitor, which one of the following would happen if the amount of the substrate is increased by 50%?
    A. The reaction rate would double.
    B. More enzyme molecules would get inhibited.
    C. The rate of the reaction would decrease by 50%.
    D. The rate of the reaction would remain unchanged.
18. In competitive inhibition, which one of the following factors determines the rate of the inhibition?
    A. The reaction temperature. C. The enzyme concentration
    B. The substrate concentration D. The ratio of inhibitor to enzyme concentration
19. What are the environmental advantages of using enzymes in industry?
    A. It makes high production possible with less input of heat.
    B. It makes high production possible with high input of heat.
    C. It makes high production possible with emission of more CO_2.
    D. It helps high production with supply of more heat and emission of more CO_2
20. Which of the following classes of enzymes digests carbohydrates?
    A. Amylases B. Lipases C. Proteases D. Nucleases
21. One of the following molecules is the building units of an enzyme molecule.
    A. Amino acids B. Glucose C. Nucleotides D. Fatty acids
22. Which of the following pairs of molecules are known to have catalytic activity?
    A. Lipids and proteins C. Proteins and RNAs
    B. Carbohydrates and proteins D. Proteins and DNAs
23. To which class of enzymes do the digestive enzymes belong?
    A. Esterases B. Transferases C. Hydrolases D. Isomerases
24. Which of the following types of enzyme inhibitions can be removed when the end product of the metabolic pathway is depleted?
    A. Allosteric inhibition C. Non-reversible inhibition
    B. Competitive inhibition D. Reversible competitive inhibition
25. In the case of enzymatic chemical reactions, what do you call the substance that is acted upon by an enzyme?
    A. Polypeptide B. Coenzyme C. Vitamin D. Substrate
26. Which of the following is the common characteristic of all enzymes?
    A. They act inside cells only C. They are proteins
    B. They require cofactors D. They operate at any PH
27. Which of the following pH values represents the strongest base?

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A. 2 B. 7 C. 13 D. 15

28. Into which of the following organic compounds can lipase, maltase and sucrase be grouped?

A. Hormones B. Carbohydrates C. Nucleic acids D. Enzymes

29. For a biological detergent to effectively remove oily and greasy dirt, which of the following enzymes should it contain?

A. Cellulose B. Protease C. Amylase D. Lipase

30. Which region of the human digestive tract contains enzymes that perform well at low pH?

A. Mouth B. Stomach C. Small intestine D. Large intestinal

31. To which one of the following organic molecules do enzymes belong ?

A. Carbohydrates **B**. Amino acids C. Proteins D. Lipids

32. Which of the following is a coenzyme?

A. NAD B. Carbohydrates C. Water molecule D. Protein

33. Which of yhe following substances has a shape which is similar to that of the substrate of an enzyme?

A. The reaction product C. A competitive inhibitor

B.A cofactor D. An allosteric inhibitor

34. At which level structural organization do protein have the alpha-helix shape?

A. Primary structure C. Tertiary structure

B. Secondary structure D. Quaternary structure

35. Which one of teh following terms refers to how fast an enzyme acts on its substrate?

A. Turn over number B. Substrate number C. Enzyme number D. Product number

36. What does a restriction enzyme do?

A. Restricts transcription C. Prevent DNA from replicating

B. Cuts DNA at specific sites D. Hydrolyzes the DNA molecule

37. The optimum temperature of enzymes found in thermophilic bacteria is:

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A. Lower than for enzymes in the human body C. higher than enzymes in the human body

B, the same as enzymes found in human body D. lower than enzymes found in warm blooded animals

38. If the rate of enzyme catalysed reaction remains constant even when more substrate is added to the reaction ,which of the following might be the reason?

A. Saturation of the enzyme C. Inhibition of enzyme- substrate complex formation

B. Inactivation of the enzyme D. Loss of substrate specificity by the enzyme

. 39. Which of the following will primarily happens if the enzymes in the lysomsomes of a cell are defective?

A. Cellular debris will not be removed C. Chromosome replication will cease

B. ATP production will stop D. Diffusion process will stop

40. Which of the following properties of enzymes makes it possible that a single enzyme molecule can act on many substrate molecules?

A. Enzymes are proteins C. Enzymes lower the energy of activation

B. Enzymes are reused over and over again D. Enzymes are substrate specifi

41. Which process produces mRNA during protein synthesis?

A. Translation B. Replication C. Mutation D. Transcription

42. Which part of the human alimentary canal contains digestive enzymes that functions at acidic pH 7?

A. Stomach B. Mouth C. Esophagus D. Small intestine

43. Which of the following is made of globular proteins?

A. Enzyme B. Keratin C. Collagen D. Glycogen

44. In which area of enzyme application is invertase injected to sucrose paste in order to produce liquid chocolate?

A. Detergent making industry B. Palp and paper industry C. Pharmaceutical industry D. Food processing industry

45. Which one of the following functions best at higher optimum pH than all the rest?

A. Pepsin B. Salivary amylase C. Trypsin D. Enzyme in stomach

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46. Which class of enzyme joins two molecules together by formulation of new bonds?

A. Ligase B. Isomeras C. Lyase D.Hydrolase

47. In an enzymes that contains non- protein organic molecules, in addition to the protein component, what is the protein component called?

A. Apoenzyme B,Coenzyme C. Holoenzyme D. Cofactor

49. Which one of the following should be done in order to remove an enzyme inhibition caused by a competitive inhibitor?

A. Remove affected enzyme molecules B. Add more substrate to the system

C. Remove the end product of the reaction D . Add more inhibitor to the system.

50. How many amino acids are there in all known proteins?

A. About 10 B. About 35 C. About 20 D. About 46

51. Deficiency of which of the following nutrients in human diet is likely result in a deficiency of some co-enzymes like FAD?

A. Essential amino acids B. Vitamins C, Carbohydrates D. Saturated fatty acids

52. What causes tomato fruits to ripen much more slowly when kept in a refrigerator than if left on a table at room tempreture?

A. Low temperature slows the normal action of ripening enzymes

B. Enzymes produced by bacteria normally inhibit ripening

C. Humidity accelarates enzyme activity and ripening process

D. Normal temperature arrests the action of ripening enzymes

53. In what way is the lock - and -key model of enzyme molecule assumed to be different from the induced-fit model?

A. It has low turnover rate B. It does not form enzyme-substrate complex

C. It can not effectively reduce the activation energy D. Shape of active site and the substrate complement

54. Which of the following determines the primary structure of a polypeptide?

A. The peptide bond B. The coding gene C. The hydrogen bonds D. The disulphide bridges

55. Which property listed below is NOT true about enzymes?

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A. They speed up specific chemical reactions B. They are used up in the reaction they catalyze

C. They are affected by pH and substrate concentration D. Small amounts can change a large amounts of substrate

56. Which of the following belongs to the class of enzymes known as transferase?

A. Kinases B. Esterase's C, Fumarases Aldolases

57. What is the functional group of the building blocks of proteins called?

A. Amino group B. Ketone group C. Carboxyl group D. Aldehyde group

58. What is an alternative name for the enzyme pepsin?

A. Trypsin B. Lipase C. Gastric protease D. Gastric polymerase

59. In which of the following is the proteins' structure and its description MISMATCHED?

A. Secondary protein structure - beta pleated sheet B. Primary protein structure - folded protein chain

C. Secondary protein structure - alpha helix structure D. Quaternary protein structure two or more folded chains

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