Biology revision question from grade 10 all units

1. Which Ethiopian biologist was instrumental in negotiating policies to safeguard biodiversity and community rights to genetic resources?
    A. Dr. Tewolde Berhan Gebre Egziabher
    B. Professor Tilahun Yilma
    C. Dr. Melaku Worede
    D. Professor Yalemtsehay Mekonnen
2. Dr Aklilu Lemma's discovery primarily aimed at controlling which disease?
    A. Malaria
    B. Schistosomiasis
    C. Tuberculosis
    D. Rinderpest
3. Which Ethiopian research institute is renowned for its work on infectious diseases, vectors, and human parasitic diseases?
    A. Institute of Biodiversity Conservation (IBC)
    B. Aklilu Lemma Institute of Pathobiology (ALIPB)
    C. Ethiopian Health and Nutrition Research Institute (EHNRI)
    D. Ethiopian Institute of Agricultural Research (EIAR)
4. What is the purpose of using immersion oil with the 100x objective lens on a microscope?
    A. To increase the contrast of the image
    B. To magnify the image
    C. To prevent air bubbles
    D. To improve resolution by reducing light refraction
5. What is the main function of the stains used in microscopy?
    A. To magnify the specimen
    B. To make the cells easier to see
    C. To preserve the specimen
    D. To increase the resolving power of the microscope
6. What type of sample preparation is needed for electron microscopy?
    A. Fixation with colored dyes
    B. Use of lead and uranium stains
    C. No preparation required
    D. Mounting living cells directly on slides
7. What is a major disadvantage of using electron microscopes?
    A. Limited magnification
    B. Can only observe living cells
    C. Specimens must be observed in a vacuum
    D. Inexpensive and widely available
8. Which organelles are stained by haematoxylin?
    A. Mitochondria
    B. Chloroplasts
    C. Nuclei
    D. Chromosomes

9. In which part of the cell does most of the chemical reactions needed for life take place?
    A. Nucleus
    B. Cytoplasm
    C. Ribosome
    D. Endoplasmic reticulum
10. Which of the following best describes the selectively permeable nature of the cell membrane?
    A. It allows all substances to pass through.
    B. It allows only water to pass through.
    C. It allows some substances to pass through but not others.
    D. It does not allow any substances to pass through.
11. The permanent vacuole in plant cells is important for
    A. Protein synthesis.
    B. Cellular respiration.
    C. Keeping the cells rigid to support the plant.
    D. Controlling the passage of substances in and out of the cell.
12. Which of the following is **not** one of the seven life processes common to most living organisms?
    A. Nutrition
    B. Respiration
    C. Digestion
    D. Growth
13. Which of the following accurately reflects the cell theory proposed by Matthias Schleiden and Theodore Schwann in 1839?
    A. Cells are the fundamental structural and functional units of all living organisms.
    B. All cells originate from pre-existing cells.
    C. Cells are made up of three main components: the cell membrane, cytoplasm, and nucleus.
    D. Cells exist only as single-celled organisms.
14. What does cell specialization entail in multicellular organisms?
    A. It involves cells adapting to perform specific functions based on their location in the embryo and genetic instructions.
    B. It refers to cells that have the potential to differentiate into any type of cell in the body.
    C. It describes cells that are specialized to exist only as single-celled organisms.
    D. It pertains to cells that remain undifferentiated throughout their lifespan.
15. Why do muscle cells contain many mitochondria?
    A. To produce enzymes for digestion.
    B. To store genetic material.
    C. To provide energy for muscle contraction.
    D. To help with cell division.

16. What is the primary function of ciliated epithelial cells in the respiratory system?
    A. To transport oxygen to the bloodstream.
    B. To protect underlying tissues from damage.
    C. To move mucus and microbes away from the lungs.
    D. To store genetic information.
17. What characteristic allows epithelial cells to perform diffusion effectively?
    A. Their large number of mitochondria.
    B. Their flattened shape or presence of microvilli.
    C. Their ability to contract and relax.
    D. Their role in carrying oxygen.
18. What is the primary function of ciliated epithelial cells in the respiratory system?
    A. To transport oxygen to the bloodstream.
    B. To protect underlying tissues from damage.
    C. To move mucus and microbes away from the lungs.
    D. To store genetic information.
19. What is a key feature of sperm cells?
    A. They contain a large food store.
    B. They have a long tail for propulsion.
    C. They have multiple nuclei.
    D. They do not contain mitochondria.
20. How do embryonic cells become specialized?
    A. By dividing into more embryonic stem cells.
    B. By switching on and off certain genes in the nucleus.
    C. By merging with other specialized cells.
    D. By changing their location in the body.
21. What are embryonic stem cells?
    A. Cells that form the lining of the lungs.
    B. Cells that have not yet assumed their final functional characteristics.
    C. Cells that are specialized to carry out specific functions.
    D. Cells that only exist in adult organisms.
22. How do organelles contribute to cell function?
    A. By storing water and maintaining cell turgor pressure.
    B. By facilitating cell division and replication.
    C. By compartmentalizing different cellular activities.
    D. By synthesizing ATP molecules for energy production.
23. What is the role of enzymes in cellular processes?
    A. Enzymes help in transporting nutrients across the cell membrane.
    B. Enzymes store genetic information in the nucleus.
    C. Enzymes regulate the rate of specific chemical reactions.
    D. Enzymes facilitate cell communication through signaling pathways.

24. Why do cells have organelles?
    A. To create a controlled environment for chemical reactions to prevent chaos.
    B. To store excess nutrients and energy for future use.
    C. To maintain structural integrity and shape of the cell.
    D. To regulate cell division and growth processes.
25. Why does diffusion occur?
    A. Due to the force applied by external sources
    B. Because particles gain energy to move to a higher concentration
    C. Because of the random movement of particles
    D. Because particles attract each other to form clusters
26. What adaptation increases the rate of diffusion in cells?
    A. Decreasing the surface area of the cell membrane
    B. Reducing the number of particles in the surrounding area
    C. Increasing the thickness of the cell membrane
    D. Increasing the surface area of the cell membrane
27. Which term describes the difference in concentration between two areas?
    A. Gradient
    B. Equilibrium
    C. Osmosis
    D. Plasmolysis
28. Diffusion is considered a passive process because it
    A. Requires energy input
    B. Moves particles against their concentration gradient
    C. Involves movement from high to low concentration
    D. Requires specialized transport proteins
29. How do living organisms benefit from diffusion?
    A. It speeds up the movement of particles from low to high concentration
    B. It allows rapid movement of substances without a concentration gradient
    C. It facilitates the movement of essential substances like oxygen and glucose
    D. It prevents the movement of waste substances into cells
30. What happens to a cell placed in an isotonic solution?
    A. Water moves out of the cell.
    B. Water moves into the cell.
    C. There is no net movement of water.
    D. The cell bursts.
31. What cellular structure is primarily responsible for regulating the movement of substances into and out of the cell?
    A. Cell wall
    B. Nucleus
    C. Plasma membrane
    D. Chloroplast

32. What is the key difference between diffusion and osmosis?
    A. Diffusion involves movement of water molecules; osmosis involves movement of solute molecules.
    B. Diffusion occurs across a semi-permeable membrane; osmosis occurs across a permeable membrane.
    C. Diffusion moves particles from low to high concentration; osmosis moves water from high to low concentration.
    D. Diffusion is the movement of particles from high to low concentration; osmosis is the movement of water from low to high concentration.
33. In an experiment, a plant cell is placed in a solution where the concentration of water outside the cell is higher than inside the cell. What will happen to the cell?
    A. It will shrink.
    B. It will swell.
    C. It will burst.
    D. There will be no change.
34. Which term describes a solution that has a higher concentration of solute compared to another solution?
    A. Isotonic
    B. Hypotonic
    C. Hypertonic
    D. Saturated
35. What happens when a cell is placed in a hypertonic solution?
    A. Water moves into the cell.
    B. Water moves out of the cell.
    C. There is no net movement of water.
    D. Solute moves into the cell.
36. How do plant cells maintain rigidity due to osmosis?
    A. By losing water and becoming flaccid.
    B. By gaining water and becoming turgid.
    C. By maintaining equal water concentration inside and outside the cell.
    D. By actively pumping solutes out of the cell.
37. Which of the following best explains why osmosis is crucial for living organisms?
    A. It helps in active transport of molecules.
    B. It maintains constant internal conditions.
    C. It allows movement of solutes across the membrane.
    D. It prevents movement of water across the membrane.
38. What happens to a red blood cell placed in a hypertonic solution?
    A. It shrinks.
    B. It swells.
    C. It maintains its shape.
    D. It bursts.

39. In which type of solution will there be no net movement of water across a cell membrane?
    A. Hypotonic
    B. Hypertonic
    C. Isotonic
    D. Saturated
40. What is turgor pressure in plant cells primarily caused by?
    A. Movement of solutes into the vacuole
    B. Movement of water out of the cell
    C. Movement of water into the cell
    D. Active transport of ions across the membrane
41. Which of the following best describes the role of active transport in cells?
    A. Moving water across a membrane
    B. Moving substances from low to high concentration
    C. Allowing only water movement
    D. Releasing energy from respiration
42. In which situation is active transport crucial for cellular function?
    A. Movement of water molecules
    B. Transport of substances along the concentration gradient
    C. Absorption of ions from dilute solutions
    D. Facilitation of osmosis in animal cells
43. What is the primary function of carbohydrates in the human body?
    A. To provide structural support
    B. To store genetic information
    C. To provide energy
    D. To regulate body temperature
44. Which of the following is a storage form of carbohydrate in animals?
    A. Starch
    B. Cellulose
    C. Glycogen
    D. Sucrose
45. Which carbohydrate cannot be digested by humans due to its structural composition?
    A. Glucose
    B. Starch
    C. Cellulose
    D. Sucrose
46. What is the chemical test used to detect the presence of starch?
    A. Benedict's test
    B. Iodine test
    C. Biuret test
    D. Grease spot test

47. Which chemical reaction type occurs when two simple sugars join to form a double sugar like sucrose?
    A. Condensation
    B. Oxidation
    C. Hydrolysis
    D. Reduction
48. Which of the following conditions is associated with severe protein-energy malnutrition?
    A. Marasmus
    B. Rickets
    C. Anemia
    D. Scurvy
49. What is a key characteristic of lipids?
    A. They are primarily used for quick energy release.
    B. They are soluble in water.
    C. They contain a high proportion of oxygen.
    D. They dissolve in organic solvents but not in water.
50. Which statement about saturated fatty acids is correct?
    A. They have double bonds between carbon atoms.
    B. They are commonly found in plant lipids.
    C. They are liquid at room temperature.
    D. They have single covalent bonds between carbon atoms.
51. What is the main role of fats and oils in the body?
    A. Structural support for bones
    B. Primary source of vitamins
    C. Essential for blood clotting
    D. Energy storage and insulation
52. Which type of fatty acid contains two or more double bonds in its hydrocarbon chain?
    A. Saturated fatty acid
    B. Monounsaturated fatty acid
    C. Polyunsaturated fatty acid
    D. Trans fatty acid
53. Which vitamin is necessary for the formation of light-sensitive chemicals in the retina?
    A. Vitamin A
    B. Vitamin B1
    C. Vitamin C
    D. Vitamin D
54. Which mineral is involved in the improper formation of teeth and bones if deficient?
    A. Sodium
    B. Magnesium
    C. Phosphorus
    D. Chlorine

55. Which vitamin is necessary for the absorption of calcium and phosphorus by bones?
    A. Vitamin A
    B. Vitamin C
    C. Vitamin D
    D. Vitamin B1
56. What is the primary role of sodium in the body?
    A. Making bones and teeth
    B. Carrying oxygen in red blood cells
    C. Maintaining body fluid levels
    D. Sticking cells together
57. Fibre or roughage in the diet primarily helps in
    A. Energy production
    B. Muscle growth
    C. Peristalsis and preventing constipation
    D. Maintaining fluid balance
58. How does the structure of a tooth relate to its function in digestion?
    A. Teeth store saliva to aid in chemical digestion.
    B. The shape of teeth helps in breaking down food mechanically.
    C. Teeth produce enzymes that begin the breakdown of proteins.
    D. Teeth neutralize stomach acid before it enters the mouth.
59. Which protease enzyme is responsible for breaking down proteins in too low pH medium?
    A. Erepsin
    B. Trypsin
    C. Rennin
    D. Pepsin
60. Why is the small intestine lined with villi and microvilli?
    A. To increase the acidity for better enzyme function.
    B. To provide a larger surface area for nutrient absorption.
    C. To secrete digestive enzymes directly into the intestine.
    D. To protect against bacterial infections.
61. What happens to undigested food material as it moves through the large intestine?
    A. It is absorbed into the bloodstream.
    B. It is broken down by enzymes into simple sugars.
    C. It is stored temporarily in the appendix.
    D. Water is absorbed from it to form solid feces.
62. What happens to the ribcage and diaphragm during exhalation?
    A. Ribcage expands, diaphragm contracts
    B. Ribcage contracts, diaphragm relaxes
    C. Ribcage contracts, diaphragm contracts
    D. Ribcage expands, diaphragm relaxes

63. Which of the following is **not** a characteristic of alveoli that facilitates efficient gas exchange?
    A. Large surface area
    B. Thick mucus layer
    C. Short diffusion distance
    D. Moist surfaces
    E. Rich blood supply
64. What is the function of the epiglottis during swallowing?
    A. It opens the trachea wider to allow more air into the lungs.
    B. It produces mucus to moisten the air passing through.
    C. It closes off the trachea to prevent food from entering the lungs.
    D. It helps in the exchange of gases in the alveoli.
65. What effect does high altitude have on breathing rate?
    A. Decreases breathing rate due to higher oxygen levels
    B. Increases breathing rate due to lower oxygen levels
    C. No effect on breathing rate
    D. Decreases breathing rate due to lower atmospheric pressure
66. What do we call the maximum amount of air you can take into or breathe out of your lungs?
    A. Tidal volume
    B. Vital capacity
    C. Residual volume
    D. Inspiratory reserve volume
67. What happens to the breathing rate of fit individuals compared to unfit individuals during exercise?
    A. Increases more rapidly and takes longer to return to normal
    B. Decreases significantly and stays low
    C. Remains the same as at rest
    D. Increases less rapidly and returns to normal faster
68. Which term refers to the amount of air taken in and out during normal breathing at rest?
    A. Vital capacity
    B. Residual volume
    C. Tidal volume
    D. Total lung capacity
69. What happens during anaerobic respiration in muscle cells when oxygen is insufficient?
    A. Glucose is fully broken down into carbon dioxide and water.
    B. Glucose is partially broken down into lactic acid and energy.
    C. Glucose is converted into ethanol and carbon dioxide.
    D. Glucose is stored as glycogen.
70. In what way is fermentation in yeast cells similar to anaerobic respiration in muscle cells?
    A. Both produce ethanol as a waste product.
    B. Both occur in the presence of oxygen.
    C. Both produce ATP without using oxygen.
    D. Both processes occur in the mitochondria.

71. Which chamber of the heart receives deoxygenated blood from the body?
    A. Left atrium
    B. Left ventricle
    C. Right atrium
    D. Right ventricle
72. What type of blood vessel has walls that are one cell thick to allow for the exchange of substances?
    A. Arteries
    B. Veins
    C. Capillaries
    D. Arterioles
73. Which of the following best describes the role of valves in veins?
    A. To increase blood pressure
    B. To prevent the backflow of blood
    C. To store blood
    D. To filter blood
74. What is the primary function of the left ventricle?
    A. To pump blood to the lungs
    B. To receive oxygenated blood from the lungs
    C. To pump oxygenated blood to the body
    D. To receive deoxygenated blood from the body
75. What causes the heart sounds that can be heard through a stethoscope?
    A. The contraction of the heart muscles
    B. The opening and closing of the heart valves
    C. The flow of blood through the coronary arteries
    D. The movement of blood in the veins
76. What term describes the pressure in the arteries when the heart beats or contracts?
    A. Diastolic pressure
    B. Systolic pressure
    C. Venous pressure
    D. Capillary pressure
77. Which structure in the heart prevents the backflow of blood into the right atrium?
    A. Bicuspid valve
    B. Tricuspid valve
    C. Semilunar valve
    D. Mitral valve
78. Which of the following is the correct path of blood flow after a drug is injected into the left arm?
    A. Left arm → Veins → Vena cava → Right atrium → Right ventricle → Pulmonary artery → Lungs → Left atrium → Left ventricle → Aorta → Arteries → Body
    B. Left arm →Arteries → Aorta → Left atrium → Left ventricle → Pulmonary vein → Lungs → Right atrium → Right ventricle → Veins → vena cava → Body
    C. Left arm →Veins → Vena cava → Left ventricle → Right atrium → Pulmonary artery → Lungs → Left atrium → Right ventricle → Aorta → Arteries → Body
    D. Left arm → Arteries → Aorta → Right ventricle → Right atrium → Pulmonary vein → Lungs → Left atrium → Left ventricle → Vena cava → Veins → Body

79. What happens when blood from incompatible blood groups is mixed?
    A. Agglutination
    B. Hemolysis
    C. Thrombosis
    D. Compatibility
80. Which blood cells are involved in the immune response?
    A. Thrombocytes
    B. Leucocytes
    C. Erythrocytes
    D. Plasma cells
81. Which of the following statements is true based on Pasteur's experiments?
    A. Micro-organisms can arise from non-living things.
    B. Boiled broth will turn cloudy without exposure to air.
    C. Infectious diseases are caused by micro-organisms.
    D. Micro-organisms are not present in the air.
82. Why is it important to sterilize inoculating loops before using them?
    A. To prevent contamination of cultures
    B. To enhance bacterial growth
    C. To provide nutrients to bacteria
    D. To cool the bacteria
83. What triggers the immune response in your body when a pathogen enters?
    A. Antibodies
    B. Antigens
    C. Phagocytes
    D. Hemoglobin
84. How does the immune system 'remember' a pathogen it has encountered before?
    A. By storing the pathogen's DNA
    B. By keeping a record of the pathogen's shape
    C. By producing memory cells
    D. By changing the body's genetic code
85. Which method of controlling micro-organisms involves heating to 171 °C for one hour?
    A. Boiling
    B. Autoclaving
    C. Pasteurization
    D. Dry heat
86. What does Ultra High Temperature (UHT) treatment involve?
    A. Heating food to 100 °C for 10 minutes
    B. Heating food to 71.6 °C for 15 seconds
    C. Heating food to 135-150 °C for 2-6 seconds
    D. Heating food to 160 °C for 2 hours
87. What is the importance of the immune response triggered by vaccines?
    A. It causes the disease in a mild form
    B. It provides immediate immunity
    C. It prevents future infections by the same pathogen
    D. It eliminates the need for further medical treatment

88. What type of immunity is given when a mother breastfeeds her baby?
    A. Artificial active immunity
    B. Artificial passive immunity
    C. Natural active immunity
    D. Natural passive immunity
89. Which vitamin deficiency can be caused by a large tapeworm infection?
    A. Vitamin C
    B. Vitamin D
    C. Vitamin B12
    D. Vitamin A
90. Drug-resistant tuberculosis occurs when
    A. Mycobacterium tuberculosis mutates into a virus
    B. Treatment with antibiotics is not completed as prescribed
    C. BCG vaccine fails to protect against tuberculosis
    D. Tuberculosis is transmitted through contaminated food
91. What characteristic makes mosquitoes efficient vectors for diseases like malaria?
    A. Their capacity for long-distance flight
    B. Their preference for human blood meals
    C. Their adaptability to various environments
    D. Their feeding activity during nighttime
92. What is the best strategy to prevent diarrheal diseases like cholera and typhoid in communities?
    A. Building more hospitals
    B. Improving sanitation and access to clean water
    C. Implementing mandatory vaccination programs
    D. Encouraging travel restrictions
93. What complication can occur if a pregnant woman with untreated gonorrhea passes the infection to her baby?
    A. Blindness in the child
    B. Deafness in the child
    C. Developmental delay
    D. Respiratory failure
94. Why are STIs often difficult to detect in their early stages of infections?
    A. They mimic common cold symptoms
    B. They are asymptomatic
    C. They are caused by different pathogens
    D. They are only found in rural areas
95. Why do biologists classify living things?
    A. To complicate their study.
    B. To create chaos and confusion.
    C. To simplify their study.
    D. To reduce biodiversity.
96. What is the significance of DNA, RNA, and proteins in modern taxonomy?
    A. They are used to confuse scientists.
    B. They are broadly similar across all species.
    C. They have no role in classification.
    D. They are used to determine relationships between species.

97. What is a dichotomous key primarily used in biology?
    A. To make classification confusing.
    B. To make decisions about species classification.
    C. To simplify the identification of unknown organisms.
    D. To create chaos in biological studies.
98. How do organisms in the kingdom Protista differ from those in the kingdom Monera?
    A. Protista are multicellular, while Monera are single-celled.
    B. Protista have eukaryotic cells, while Monera have prokaryotic cells.
    C. Protista are photosynthetic, while Monera are heterotrophic.
    D. Protista are found in terrestrial environments, while Monera are aquatic.
99. Which is a common feature among all organisms classified in the kingdom Fungi?
    A. They produce their own food through photosynthesis.
    B. They are multicellular.
    C. They have eukaryotic cells.
    D. They are all decomposers
100. Which phylum is characterized by having a complete digestive system but lacks a circulatory system?
    A. Nematoda
    B. Arthropoda
    C. Echinodermata
    D. Platyhelminthes
101. Which of the following is a feature of phylum Mollusca?
    A. Segmented bodies
    B. Jointed limbs
    C. Stinging cells
    D. Soft muscular foot
102. Animals in Phylum Annelida are characterized by
    A. Bodies with radial symmetry and stinging cells
    B. Bodies divided into regular segments with chaetae
    C. Bodies protected by a shell and divided into head, foot, and visceral mass
    D. Bodies with tube feet for movement and radial symmetry
103. Which class of arthropods includes animals that are mainly terrestrial, have eight legs, and spin silken webs?
    A. Insecta
    B. Crustacea
    C. Arachnida
    D. Diplopoda
104. Animals in Phylum Porifera are characterized by
    A. Radial symmetry and stinging cells
    B. Flattened bodies with a complete digestive system
    C. A body divided into regular segments
    D. Being hollow filter feeders with pores
105. Animals in Phylum Nematoda are characterized by
    A. Flattened bodies and a complete digestive system
    B. Narrow, thread-like bodies with bilateral symmetry
    C. Soft bodies with a ring of tentacles
    D. A body divided into regular segments

106. To which phylum does an organism with a notochord, hollow nerve cord, and gill slits belong?
    A. Phylum Arthropoda
    B. Phylum Mollusca
    C. Phylum Chordata
    D. Phylum Annelida
107. Which of the following animals is correctly matched with its phylum?
    A. Earthworm - Phylum Nematoda
    B. Jellyfish - Phylum Mollusca
    C. Snail - Phylum Coelenterata
    D. Starfish - Phylum Echinodermata
108. What is a significant difference between frogs and toads?
    A. Frogs have rough, dry skin.
    B. Toads have smooth, moist skin.
    C. Frogs have more webbed feet.
    D. Toads have brightly colored bodies.
109. Which of the following statements is true about cartilaginous fish such as sharks and skates?
    A. They have a bony skeleton
    B. They have opercula covering their gills
    C. They have gills and scales
    D. They are usually smaller in size
110. Animals in class Reptilia are characterized by
    A. Being endothermic and using feathers for flight
    B. Having dry skin with scales and laying eggs on land
    C. Producing milk for their young and having hair on their skin
    D. Using gills for respiration and having fins for swimming
111. What does a pyramid of biomass illustrate in a food chain?
    A. The number of trophic levels involved
    B. The proportion of energy passed between trophic levels
    C. The type of organisms present at each level
    D. The amount of organic material at each trophic level
112. Why are food webs considered more realistic representations of energy flow than simple food chains?
    A. They include all species in an ecosystem.
    B. They illustrate the competition between organisms.
    C. They show the flow of energy and nutrients in multiple directions.
    D. They emphasize the role of decomposers in recycling nutrients.
113. Why do decomposers break down dead matter?
    A. To release oxygen into the atmosphere.
    B. To compete with primary producers for nutrients.
    C. To recycle nutrients back into the soil.
    D. To derive energy for their own metabolic processes.
114. How does deforestation impact the carbon cycle?
    A. It decreases the amount of carbon dioxide in the atmosphere
    B. It increases the amount of oxygen in the atmosphere
    C. It reduces the number of decomposers in ecosystems
    D. It releases stored carbon into the atmosphere as carbon dioxide

115. Which group of bacteria reduces the amount of nitrates in the soil?
    A. Nitrifying bacteria
    B. Decomposing bacteria
    C. Denitrifying bacteria
    D. Nitrogen-fixing bacteria
116. What is the main reason for Arctic animals changing the color of their coats between summer and winter?
    A. To adapt to different food sources
    B. To attract mates
    C. To blend with changing environments
    D. To regulate body temperature
117. What adaptation allows desert animals to be active during cooler parts of the day?
    A. Burrowing underground
    B. Nocturnal behavior
    C. Hibernation
    D. Migration to cooler climates
118. How do succulent plants like cacti survive in dry climates?
    A. By increasing transpiration rates
    B. By storing water in their tissues
    C. By growing deep taproots
    D. By shedding leaves in dry seasons

✍ Practice until you can't get it wrong!

Answer Key

1. A. Dr. Tewolde Berhan Gebre Egziabher
2. B. Schistosomiasis
3. B. Aklilu Lemma Institute of Pathobiology (ALIPB)
4. D. To improve resolution by reducing light refraction
5. B. To make the cells easier to see
6. B. Use of lead and uranium stains
7. C. Specimens must be observed in a vacuum
8. C. Nuclei
9. B. Cytoplasm
10. C. It allows some substances to pass through but not others.
11. C. Keeping the cells rigid to support the plant.
12. C. Digestion
13. A. Cells are the fundamental structural and functional units of all living organisms.
14. A. It involves cells adapting to perform specific functions based on their location in the embryo and genetic instructions.
15. C. To provide energy for muscle contraction.
16. C. To move mucus and microbes away from the lungs.
17. B. Their flattened shape or presence of microvilli.
18. C. To move mucus and microbes away from the lungs.
19. B. They have a long tail for propulsion.
20. B. By switching on and off certain genes in the nucleus.
21. B. Cells that have not yet assumed their final functional characteristics.
22. C. By compartmentalizing different cellular activities.
23. C. Enzymes regulate the rate of specific chemical reactions.
24. A. To create a controlled environment for chemical reactions to prevent chaos.
25. C. Because of the random movement of particles
26. D. Increasing the surface area of the cell membrane
27. A. Gradient
28. C. Involves movement from high to low concentration
29. C. It facilitates the movement of essential substances like oxygen and glucose
30. C. There is no net movement of water.
31. C. Plasma membrane
32. D. Diffusion is the movement of particles from high to low concentration; osmosis is the movement of water from low to high concentration.
33. B. It will swell.
34. C. Hypertonic
35. B. Water moves out of the cell.
36. B. By gaining water and becoming turgid.
37. B. It maintains constant internal conditions.
38. A. It shrinks.
39. C. Isotonic
40. C. Movement of water into the cell
41. B. Moving substances from low to high concentration
42. C. Absorption of ions from dilute solutions
43. C. To provide energy
44. C. Glycogen

45. C. Cellulose
46. B. Iodine test
47. A. Condensation
48. A. Marasmus
49. D. They dissolve in organic solvents but not in water.
50. D. They have single covalent bonds between carbon atoms.
51. D. Energy storage and insulation.
52. C. Polyunsaturated fatty acid.
53. A. Vitamin A.
54. C. Phosphorus.
55. C. Vitamin D.
56. C. Maintaining body fluid levels.
57. C. Peristalsis and preventing constipation.
58. B. The shape of teeth helps in breaking down food mechanically.
59. D. Pepsin.
60. B. To provide a larger surface area for nutrient absorption.
61. D. Water is absorbed from it to form solid feces.
62. B. Ribcage contracts, diaphragm relaxes.
63. B. Thick mucus layer.
64. C. It closes off the trachea to prevent food from entering the lungs.
65. B. Increases breathing rate due to lower oxygen levels.
66. B. Vital capacity.
67. D. Increases less rapidly and returns to normal faster.
68. C. Tidal volume.
69. B. Glucose is partially broken down into lactic acid and energy.
70. C. Both produce ATP without using oxygen.
71. C. Right atrium.
72. C. Capillaries.
73. B. To prevent the backflow of blood.
74. C. To pump oxygenated blood to the body.
75. B. The opening and closing of the heart valves.
76. B. Systolic pressure.
77. B. Tricuspid valve.
78. A. Left arm → Veins → Vena cava → Right atrium → Right ventricle → Pulmonary artery → Lungs → Left atrium → Left ventricle → Aorta → Arteries → Body.
79. A. Agglutination.
80. B. Leucocytes.
81. C. Infectious diseases are caused by micro-organisms.
82. A. To prevent contamination of cultures.
83. B. Antigens.
84. C. By producing memory cells.
85. D. Dry heat.
86. C. Heating food to 135-150 °C for 2-6 seconds.
87. C. It prevents future infections by the same pathogen.
88. D. Natural passive immunity.
89. C. Vitamin B12.
90. B. Treatment with antibiotics is not completed as prescribed.
91. B. Their preference for human blood meals.

92. B. Improving sanitation and access to clean water.
93. A. Blindness in the child.
94. B. They are asymptomatic.
95. C. To simplify their study.
96. D. They are used to determine relationships between species.
97. C. To simplify the identification of unknown organisms.
98. B. Protista have eukaryotic cells, while Monera have prokaryotic cells.
99. C. They have eukaryotic cells.
100. A. Nematoda.
101. D. Soft muscular foot.
102. B. Bodies divided into regular segments with chaetae.
103. C. Arachnida.
104. D. Being hollow filter feeders with pores.
105. B. Narrow, thread-like bodies with bilateral symmetry.
106. C. Phylum Chordata.
107. D. Starfish - Phylum Echinodermata.
108. C. Frogs have more webbed feet.
109. C. They have gills and scales.
110. B. Having dry skin with scales and laying eggs on land.
111. D. The amount of organic material at each trophic level.
112. C. They show the flow of energy and nutrients in multiple directions.
113. C. To recycle nutrients back into the soil.
114. D. It releases stored carbon into the atmosphere as carbon dioxide.
115. C. Denitrifying bacteria.
116. C. To blend with changing environments.
117. B. Nocturnal behavior.
118. B. By storing water in their tissues.