

Kombolcha General and Preparatory Secondary

School Grade 12th Biology Work sheet

Time allowed: 2 hour

Direction: -This examination contain 100 multiple choice questions. Each item has only one best answer. Choose the best answer from the given alternatives.

1. At which stage of scientific method the idea of spontaneous generation has been disproved
 - A. Designing experiment
 - B. Making prediction
 - C. Constructing theory
 - D. Observation
2. Some readers are influenced by coffee in order to read/study long time. Suppose you want to make an experiment about the effect of coffee on reading, then coffee represents:
 - A. Control variable
 - B. Confounding variable
 - C. Independent variable
 - D. Dependent variable
3. Suppose controlled experiment is designed to prove the effect of chemicals in tomato juice on the germination of tomato seed. The dependent variable of the experiment is
 - A. The presence or absence of chemicals in the tomato juice
 - B. The number of seeds which are germinated
 - C. The amount of water supplied
 - D. The amount of heat supplied
4. Which biological tool helps biologist to separate blood into blood plasma and blood cells?
 - A. Autoclave
 - B. Microscope
 - C. GPS
 - D. Centrifuge
5. How can biotechnology is applied to reduce pollution caused by the use of inorganic fertilizers in agriculture by
 - A. Using enzymes produced by genetically engineered bacteria in food processing

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industry

- B. Using thermo stable enzymes of genetically engineered bacteria in washing powders
 - C. Selecting and propagating varieties with high growth rates and productivity
 - D. Using enzymes in manufacturing industrial processes to reduce CO₂ emission
6. Which of the following is **TRUE** about antiretroviral drugs that are used by AIDS patient? It
- A. Break the life cycle of HIV in cells
 - B. Gives cure for AIDS
 - C. Act as vaccine against HIV
 - D. Prevents the transmission of HIV
7. Opportunistic infection that act as signal for the **final** stage of HIV infection is
- A. Outbreak of genetic diseases
 - B. Development of degenerative diseases
 - C. Keep replacing of T- helper cells
 - D. Sign of the disease Kaposi's Sarcoma
8. Which property of water is useful for aquatic plants to photosynthesize?
- A. Water has high heat of capacity
 - B. Water is transparent
 - C. Water has high surface tension
 - D. Water is less dense than other liquid
9. Which of the following molecule is **NOT** organic?
- A. Sodium bi carbonate
 - B. Glucose
 - C. Adenine
 - D. Methane
10. If certain food stuff gave positive result with Benedict test, **only** after it was hydrolyzed with hydrochloric acid. Which of the following substance does it contain?
- A. Starch
 - B. Glucose
 - C. Sucrose
 - D. Lipid
11. Which level of protein structural organization does alpha helix belong?
- A. Primary structure
 - B. Secondary structure
 - C. Tertiary structure
 - D. Quaternary structure
12. Which one of the following is **INCORRECT**?
- A. Alpha and beta glucoses are isomers of each other
 - B. Hydroxyl group of alpha glucose is found below the alpha carbon

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- C. Glucose is isomers of fructose
- D. Glucose and galactose are ketose carbohydrates
13. A reaction in which two small molecules joined together to form larger more complex molecules and water as a by product is
- A. Hydrolysis
B. Hydrogenation
C. Condensation
D. Phosphorylation
14. Identify the statement that correctly explains why each cell contains so many different enzymes? Enzymes are
- A. Consumed in the process of catalysis
B. Specific to their action
C. Used over and over again
D. Easily synthesized in the cell
15. Which of the following enzyme is important to produce liquid center chocolates in food processing industry?
- A. Invertase
B. Xylanase
C. Biotin
D. Pepsin
16. Which model of enzyme action states that the shape of the substrate molecule and the active site are complementary?
- A. Induced fit model
B. Phospholipid bilayer
C. Fluid mosaic model
D. Lock & key model
17. Which of the following is **NOT** the function of an enzyme?
- A. Lowering activation energy
B. Speeding up a reaction
C. Increasing the energy levels of
D. Catalyzing reaction
18. A significant change in P^H that can affect an enzyme molecule by:
- A. Changing the color and polarity of food item
B. Altering the charges on the amino acid that form the active sites of an enzyme
C. Building strong ionic bond leading to stabilization of enzyme
D. Increasing the boiling temperature of the substrate
19. If the ratio of non-competitive inhibitor molecules to substrate molecules is 4:6, the rate of enzyme controlling reaction will be:

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- A. 60% inhibited
B. 40% activated
C. 40% inhibited
D. Increased when the substrate increase
20. In an enzyme catalyzed reaction, the ratio of the substrate to the enzyme is 5:5, why the rate remain constant even though more substrate is added to the reaction? Because of the:
- A. Loss of substrate specificity by the enzyme
B. Inhibition of enzyme-substrate complex formation
C. Inactivation of the enzymes
D. Saturation of the enzymes
21. Suppose four cells A, B, C, and D have surface area to volume ratio of 4, 2, 1 and 0.5, respectively. Which cell gets enough resources?
- A. Cell A
B. Cell B
C. Cell C
D. Cell D
22. The statement that declares 'the cell retains dual existence as a distinct entity and building block in the formation of living organism' was proposed by:
- A. Miescher and Aristotle
B. Kolliker and Dutrochet
C. Schleiden and Schwann
D. Watson and Crick
23. Prokaryotic cell differs from eukaryotic cells in that, prokaryotic cells have:
- A. Presence of cellulose cell wall
B. Smaller ribosome
C. Linear DNA
D. Chloroplast
24. If red blood cells were immersed in to certain solution, then the cell will gain water and eventually burst. Which of the following is **TRUE** about the cell and the solution?
- A. The solution is hypotonic to the cell
B. The solution is hypertonic to the cell
C. The cell is hypotonic to the solution
D. The cell is isotonic to the solution
25. Which of the following transport system move substances against concentration gradient across plasma membrane?
- A. Facilitated Diffusion
B. Osmosis
C. Active transport
D. Simple Diffusion
26. Which one of the following models of plasma membrane currently accepted in the modern cell biology?

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C. Unit membrane model

D. Sandwiched model

27. Which one of the following organelle is **CORRECTLY** paired with its respective function?

A. Mitochondria-site of cellular respiration

C. Lysosome-site of lipid synthesis

D. Smooth ER-site of protein synthesis

B. Ribosome –maintain turgidity of cell

28. If the suspension of a mixture of cellular organelles is spun at different speed of centrifugation, which organelle settled last?

A. Mitochondria

C. Fragments of cell membrane

B. Chloroplast

D. Ribosome

29. The metabolism of the building blocks of carbohydrates, lipids and proteins converges at:

A. Calvin cycle

C. Glycolysis

B. Krebs cycle

D. Electron transport chain

30. Which process of respiration helps to generate most of the energy stored in the glucose molecule?

A. Substrate level phosphorylation

C. Oxidative phosphorylation

D. Anaerobic respiration

B. Glycolysis

31. Which of the following molecule provides least energy at the end of Electron transport chain?

A. 4FADH + 1NADH

C. 13 ATP

B. 5NADH

D. 6FADH

32. How many molecules of net ATP are produced in glycolysis from the breakdown of two molecules of glucose?

A. 2

B. 34

C. 38

D. 4

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33. The synthesis of sugar in Calvin cycle of C₄ plant takes place in:
- A. Grana of mesophyll cells
 - B. Stroma of bundle sheath cells
 - C. Stroma of mesophyll cells
 - D. Grana of bundle sheath cells
34. Which of the following is C₃ plant that is adapted in temperate climate?
- A. Cactus
 - B. Sugarcane
 - C. e
 - D. Pineapple
 - C. Wheat
35. Cyclic photophosphorylation produces
- A. O₂ and ATP
 - B. NADPH₂ and ATP
 - C. O₂ only
 - D. ATP only
36. Which of the following groups of bacteria consists of rod shaped cell?
- A. Bacillus
 - B. Coccus
 - C. Spiral
 - D. Spirochaeta
37. Which of the following is **TRUE** about bacteria?
- A. All bacteria have capsule
 - B. All bacteria have cell wall
 - C. All bacteria have flagella
 - D. All bacteria possess lipopolysaccharides
38. The organism that are used to oxidize alcohol like beer, wine, or cider to Ethanoic acid is
- A. *agrobacterium*
 - B. yeast
 - C. *lacto bacillus*
 - D. *acetobacter*
39. Which of the following disease and microbes' relation is **mis-matched**?
- A. Polio- virus
 - B. Botulism – bacteria
 - C. Farmer's lung – protozoa
 - D. Salmonellosis – bacteria
40. The particular segment of DNA can be transferred in to tobacco plant by using
- A. Gene gun
 - B. Plasmids

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- C. Viruses
D. Agro bacterium
41. Which anti-retro viral drug prevents the assembly of new virus particle?
- A. Non- nucleotide reverse transcriptase
B. Protease inhibitors
C. Nucleotide reverse transcriptase
D. Entry inhibitors
42. In which of the following way do retroviruses **differs** from other RNA viruses?
- A. Their genetic material is DNA
B. Their genetic material is RNA
C. They copy RNA to DNA molecule
D. They replicate their RNA by own
43. Which of the following is **CORRECT** sequence of viral infection?
- A. Release → Assembly → Replication → Entry → Attachment
B. Release → Replication → Entry → Assembly → Attachment
C. Entry → Attachment → Assembly → Replication → release
D. Attachment → Entry → Replication → Assembly → Release
44. Assume a cell is infected by a virus, then the virus released after its multiplication by rupturing of cell membrane. Which life cycle of a virus represents this mode of reproduction?
- A. Lytic
B. Chronic
C. Lysogenic
D. Latency
45. Viruses are **NOT** cellular because:
- A. They are categorizing in prokaryotic organisms
B. They manufacture their own food
C. They lack necessary organelles
D. They cause a wide range of disease
46. At which stage HIV life cycle can infect the brain?
- A. Latency
B. Disease
C. Acute
D. Entry
47. Which anti retro viral drugs provide faulty version of building blocks for the virus to convert RNA to DNA?
- A. Nucleotide reverse transcriptase inhibitors

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- B. Non nucleotide reverse transcriptase inhibitors
 - C. Protease inhibitors
 - D. Entry inhibitors
48. If an organism was dying and eventually its DNA is decomposed. Which of the following element is **NOT** recycled?
- A. Sulfur B. Nitrogen C. Phosphorus D. Carbon
49. By growing legumes during crop rotation by farmers, which component of soil became improved by these plants?
- A. Phosphorus B. Sulphur C. Nitrogen D. Carbon
50. What do we call the protein component of an enzyme in the conjugated enzymes?
- A. Prosthetic group C. Cofactor
- B. Coenzyme D. Apoenzyme
51. Which of the following aquatic biome possess intermediate salt content, extreme movement and unique habitat due to mixing of salt water and fresh water?
- A. Oceanic pelagic C. Estuarine
- B. Oceanic abyssal D. Wet land
52. Which of the following Biome has the highest net primary productivity?
- A. Tundra C. Tropical rain forest
- B. Taiga D. Desert
53. Suppose four sites A, B, C, and D have Simpson's index of diversity (d) values of 8, 4, 2 and 1, respectively. Which site is dominated by one or just few species?
- A. Site A B. Site B C. Site C D. Site D
54. Which of the following practices with indirect effects on biodiversity?
- A. High population growth C. Illegal logging
- B. Deforestation D. Overgrazing
55. In terms of genera, which vertebrate group is most diverse in Ethiopia?
- A. Amphibian C. Aves
- B. Mammalia D. Reptile
56. If the age pyramid of a certain country is broad at the base, what does this tell about the trend of the population size of the country? The population size is
- A. Declining B. Growing fast

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- C. Increasing slowly
- D. Stabilizing
57. In certain area of our ecosystem, Ethiopian wolf and domestic dogs hunt rats for their nourishment. What type of competition occurs between them?
- A. Interspecific competition
- C. Intra specific competition
- B. Symbiotic interaction
- D. Intra or inter specific competition
58. If the blood group of the father and the mother is 'AB' and heterozygous 'B' respectively. What is the probability of their children will be co-dominant?
- A. $\frac{1}{4}$
- B. $\frac{2}{4}$
- C. $\frac{3}{4}$
- D. $\frac{1}{2}$
59. Suppose plant 'A' has chromosome number of $22/2n$ and plant 'B' has chromosome number of $16/2n$. How many chromosomes are found in hybrid fertile offspring from these two plants?
- A. 44
- B. 31
- C. 19
- D. 38
60. IF a color blind woman married a normal vision man, what will be the chance of their daughter will be color blind?
- A. 0%
- B. 50%
- C. 75%
- D. 100%
61. Suppose round yellow (heterozygous for both trait) pea plant is crossed with round yellow (heterozygous for seed shape only) and produced 320 seeds. How many of the seed expected to be wrinkled green?
- A. 120
- B. 85
- C. 20
- D. 0
62. Suppose four genes A, B, C&D have loci on the same chromosome with cross over value of $CD=20\%$, $CB=16\%$, $AD=12\%$ & $BD=4\%$ then the sequence of gene is
- A. ABDC
- B. CADB
- C. CABD
- D. ABCD
63. Suppose a DNA molecule possesses 400 nucleotides long, from the total number 30% of them are guanine. How many of them expected to be thymine?
- A. 140
- B. 80
- C. 120
- D. 170
64. During the process of genetic engineering which enzyme are used to split open

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plasmid for making transgenic organism?

- A. Restriction endonuclease
- B. Ligase enzyme
- C. Hydrolase
- D. Transferase

65. The base sequence in the coding strand of DNA is GCCTTA, what will be the base sequence in the mRNA codon?

- A. CGGAAT
- B. CGGAAU
- C. GCCUUA
- D. GCCTTA

66. Suppose the amino acid coding region in an mRNA is 2400 nucleotide long how long is the protein in terms of amino number?

- A. 2400 amino acids
- B. 1200 amino acids
- C. 400 amino acids
- D. 800 amino acids

67. Which of the following method is used to transfer antibiotic resistant gene from one bacterium to another by a virus?

- A. Transformation
- B. Transduction
- C. Translocation
- D. Conjugation

68. Which of the following types of chromosomal mutation give rise to an extra chromosome?

- A. Inversion
- B. Translocation
- C. Deletion
- D. Non- disjunction

69. The photosynthetic pigment in earliest autotrophic organism is

- A. Carotene
- B. Phycoerythri
- C. Phycocyanin
- D. Phycobins

70. The theory of origin of life that states life has always exists in the universe and always will on earth is

- A. Eternity of life
- B. Spontaneous generation
- C. Cosmozoan theory
- D. Creationism

71. If the radioactive substance that weight one kilogram has a half-life of 1000 years. Calculate the percentage of unchanged radioactive substance after 3000years.

- A. 25%
- B. 30%
- C. 12.5%
- D. 50 %

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72. Based on difference in number of amino acids found in hemoglobin, which one of the following animal has distant phylogenetic relation to human beings?
- A. Chicken B. Horse C. Frog D. Gibbon
73. The wings of butterflies and birds have similar function but are quite different in their origin. This is an **EXAMPLE** of:
- A. Analogous structure C. Vestigial structure
B. Homologous structure D. Adaptive structure
74. What is the reproductive isolation mechanism if two populations of snakes do not interbreed because they have different courtship pattern?
- A. Temporal B. Seasonal C. Geographical D. Behavioral
75. During the evolution of the human, which of the following features developed before all the rest as evidenced from fossil records?
- A. Large brain C. Ability to make tools
B. Bipedalism D. Development of more nibbled finger
76. Which one of the following is **INCORRECT** statement about behavior?
- A. Innate behavior is genetically determined
B. Learned behavior is fully functional at first attempt
C. Learned behavior is developed through trial and error
D. Innate behavior is common to all member of a species
77. Which hominid is nearest to modern human in the phylogenetic tree of human evolution?
- A. *Ardepthecusramidus* C. *Homo neanderthaleis*
B. *Homo erectus* D. *Homo habilis*
78. The attachment formation and strong emotional bond between an infant and its primary caregiver is
- A. Imprinting C. Sensitization
B. Conditioned response D. Reflex
79. Which one of the following is an **EXAMPLE** of orientational innate behavior?

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- A. Kinesis in wood lice
 - B. Sudden withdrawal of limbs from hot objects
 - C. Blinking of the eye
 - D. Nest building by birds
80. Suppose you may observe your friends when he prepares soap for about three times, finally you will become able to prepare soap by yourself without reinforcement. This type of learning is:
- A. Insight learning
 - B. Operant learning
 - C. Latent learning
 - D. Classical conditioning
81. After a prey had escaped from a mouth of predator, it jumped violently with slight touch by insignificant object that does not pose any harm. The type of learning behavior is:
- A. Operant conditioning
 - B. Habituation
 - C. Latent learning
 - D. Sensitization
82. In Pavlov's experiment on the classical conditioning, after conditioning the ringing of bell is:
- A. Unconditioned stimulus
 - B. Unconditioned response
 - C. Conditioned stimulus
 - D. Conditioned response
83. Which of the following is an **EXAMPLE** of learned behavior?
- A. Suckling of the new born at mother's breasts
 - B. Salivation by conditioned dogs at the sound of a bell
 - C. Withdrawal of hands suddenly from hot objects
 - D. Blinking the eyes when something gets into them
84. Which one of the following does honey bees use to inform other bees about the location and distance of new source of nectar?
- A. Pheromones
 - B. Waggle dance
 - C. Buzzing noise
 - D. Vibration of wings
85. What we call an area that an animal reserves for itself, so as to exclude other members of same species is:

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- A. Territory
B. Ritual fighting
C. Caste
D. Eusociality
86. Female moth attracts sexual male far away from 2km by producing highly volatile chemical substance from its body. This type of pheromones term as
A. Releaser pheromones
B. Alarm pheromones
C. Territorial pheromones
D. Sex pheromones
87. Which one of the following idea is **NOT** part of Darwin's contribution to science?
A. Descent with modification
B. Inheritance of acquired trait
C. Survival of the fittest
D. Natural selection
88. Darwin first began to formulate his concept of evolution by natural selection after
A. Experimenting with animal
B. Observing patterns among the geographical location of certain species
C. Reading the writing of Wallace
D. Agreeing with Lamarck about the driving force behind evolution
89. Lamarck proposed that organism
A. Have innate tendency forwards perfection
B. Can change as a result of survival of the fittest
C. Belongs to species that never change
D. Offspring show natural variation in feature
90. The organelle that modify, package and distribute protein to the appropriate part of the cell is
A. Ribosome
B. Mitochondria
C. Golgi body
D. Rough Endoplasmic reticulum
- Question number 91 is based on the following data**
- | | | | |
|---------------|---------------|-------------------|-----------------|
| 1. Centrifuge | 3. Theodolite | 5. GPS | 7. Petri dish |
| 2. Balance | 4. Quadrat | 6. Dissecting kit | 8. Pitfall trap |
91. Which of the following equipment could be used by biologist outside the laboratory?
A. 1, 2, 6 & 7
B. 3, 5, 6 & 8
C. 2, 3, 4 & 5
D. 3, 4, 5 & 8

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92. Which of the following molecules are needed to synthesize 150 molecules of triglycerides?
- A. 150 glycerol and 150 fatty acid
 - B. 150 glycerol, 300 fatty acid and 150 phosphate group
 - C. 150 glycerol and 450 fatty acid
 - D. 50 glycerol, 50 fatty acid and 50 phosphate group
93. Which of the following **DOES NOT** act as cofactor to an enzyme?
- A. Zinc ion
 - B. Niacin
 - C. Riboflavin
 - D. Renin
94. In the photosystem, the reaction center molecule in which light dependent reaction begin
- A. Chlorophyll a
 - B. Chlorophyll b
 - C. Carotenoid
 - D. Antenna complex
95. Suppose a person drinks too much alcohol every day throughout his life. Eventually his livers become malfunctioned as a result of cirrhosis of liver. This type of disease is
- A. Deficiency
 - B. Degenerative
 - C. Human induced
 - D. Genetic disease
96. The biochemical process that increase the amount of Nitrogen in the soil during nitrogen cycle
- A. Denitrification
 - B. Nitrification
 - C. Ammonification
 - D. Nitrogen fixation
97. Secondary succession differs from primary succession to the same climax is that:
- A. It takes greater period of time
 - B. It doesn't involve pioneer species
 - C. There is an existing seed bank
 - D. It starts from previously un colonized area
98. Which of the following factor contributes increasing the size of population in a particular ecosystem if all density independent factors are constant? When
- A. Mortality exceeds natality
 - B. Immigration exceeds emigration
 - C. Emigration exceeds natality
 - D. Mortality exceeds Immigration
99. The process of transferring DNA fragment from gel to nylon membrane during DNA

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finger printing

A. Hybridization with gen probe

C. Blotting

B. Electrophoresis

D. autoradiography

100. The type of natural selection that is operated on Palm trees that grows in calcareous and volcanic soil develops different reproductive behavior and against soil with Neutral P^H is

A. Stabilizin

B. Disruptive

D. Temporal

g

C. Directional

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ከ9-12 ላላችሁ ተማሪዎች

እንደሚታወቀው ከ2015 ዓ.ም ጀምሮ የዩኒቨርሲቲ መግቢያ ፈተና ከ9ኛ-12ኛ ክፍል ያለውን የሚያጠቃልል ነው። ይህም ተማሪዎች ላይ ጫና መፍጠሩ የማይቀር ነው። እኛም ከ2015 ዓ.ም የት/ት ዘመን ጀምሮ በነፃ Mathematics ትምህርትን ከ9ኛ-12ኛ ክፍል ላላችሁ ተማሪዎች Example & Exercise Solution ጨምሮ ቀለል ባለ እና በሚገባችሁ መንገድ ለየት ያሉ YouTube video እያዘጋጀን የምናግዛችሁ መሆኑን ስናሳውቃችሁ በታላቅ አክብሮት ነው። ከእናንተ የሚጠበቀው በትኩረት መከታተል ብቻ ነው።

Computation የበዛበት ጊዜ ላይ ስላለን ታሪክ ለመቀየር ለስኬት ዛሬ ጀምራችሁ ተነሱ

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Join አድርጉ ታተርፋላችሁ

Mathematics ይከብዳል ማለት እና አስጠኒ መፈለግ ቀረ



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Thank You

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