



NUMBER OF ITEMS: 100

SUBJECT: Biology

First self assesment MODEL EXAM 2012E.C

GRADE : 12

TIME ALLOWED: 2:00 HOURS



INSTRUCTION:

This Biology exam contains 100 question items with four alternative answers each and represented by the capital letters A, B, C and D. Choose the best answer to each question item and blacken zero under the letter that represents your chosen answer.

1. All of the following are values that everyone has to develop for the fight against HIV **Except**.
 - A. Self esteems involving self confidence
 - B. Respect and care for others
 - C. Homosexuality
 - D. responsible sexual behavior
2. It is true to say that;-
 - A. All bacteria are parasite
 - B. flagella is the characteristic of all bacteria
 - C. All bacteria have cell wall
 - D. All bacteria have external membrane outside peptidoglycan cell wall
3. Which of the pieces of equipment do biologists use to sterilize objects?
 - A. Water bath
 - B. Incubator
 - C. Centrifuge
 - D. Autoclave
4. In genetic engineering, which one of the following is used to stitch the gene into another DNA molecule?
 - A. Plasmid
 - B. Restriction endonuclease
 - C. Ligase
 - D. Polymerase
5. The first step of scientific method involves;-
 - A. Performing an experiment
 - B. Making observation
 - C. Forming a hypothesis
 - D. Predicting the result of the experiment
6. All of the following ways are the role of antiretroviral drug to reduce the spread of HIV within a person **Except**
 - A. Block enzyme involved in the entry phase
 - B. Activate assembly of virus particles
 - C. Block reverse transcription
 - D. Block protein synthesis
7. Which one the following biological equipment is useful in biology laboratory?
 - A. Petridishes
 - B. Theodolite
 - C. Plant press
 - D. Pitfall traps
8. Viruses differ from other cellular organisms in that viruses are;-
 - A. Look posses cellular organelles
 - B. Presence of genetic materials
 - C. Have circular DNA
 - D. Reproduce inside the host
9. The minimum distance of which a microscope is capable of distinguishing two points as separate is its:-
 - A. Staining
 - B. Mounting
 - C. Resolving power
 - D. Magnification
10. A very strong structural molecule in plants is formed by hydrogen bonding between chains of glucose molecule is ;
 - A. Wax
 - B. Starch
 - C. Cellulose
 - D. Glycogen
11. What colour do gram-negative bacteria stain with gram's stain?
 - A. Purple
 - B. White
 - C. Pink
 - D. Red
12. Among the following organisms, which one belongs to Eukaryotes?
 - A. Stereptococcus
 - B. C. Blue green algae
 - C. Bacilli
 - D. Paramecium
13. Which one of the following elements is found in protein and nucleic acids but **does not** occur in carbohydrates?
 - A. Hydrogen
 - B. Nitrogen
 - C. Oxygen
 - D. Carbon
14. Lipids are distinguished from other organic molecules because they;-
 - A. Form large protein molecules
 - C. Do not dissolve in water

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- A. Transduction B. Conjugation C. Co-transformation D. Transformation
30. The polysaccharide that act as strengthening material of bacterial cell wall is;
A. Cellulose B. Peptidoglycan C. Chitin D. Starch
31. What term is used to describe the chemical process of living organisms that involves both joining up of monomers to produce polymers and the splitting of polymers to monomers?
A. Catabolism B. Anabolism C. Polymorphism D. Metabolism
32. Which one of the following property of genetic code that best defines the genetic code for a specific amino acid similar to all kinds of organism?
A. Triplet code B. Universal code C. Non overlapping code D. Degenerate code
33. The mutation created when chromatids do **not** segregate successfully is;
A. Inversion B. Duplication C. Non disjunction D. Point mutation
34. Which one of the following is **not** the component of Stanley miller's spark discharge of experiment?
A. Methane B. Water C. Carbon monoxide D. Ammonia
35. Among the following characteristic, which one makes Drosophila (fruit fly) are convenient Experimental animal?
A. They are big animal with long life cycle
B. They are expensive and complex to breed
C. They have only four pairs of chromosomes per cell
D. The chromosomes small
36. Which one of the following is different from the rest?
A. Sex cell B. Gamete C. Zygote D. Reproductive cell
37. Which of the following is the most abundant polysaccharide found in animals?
A. Glycogen B. Sucrose C. Cellulose D. Starch
38. Which one of the following is true?
A. Homologues chromosome carry alleles of the same genes at different loci
B. Same allele are Co dominant; both alleles are expressed in the homozygote
C. Dominant alleles are expressed in homozygote and in the heterozygote
D. Genes are different version of alleles
39. What is the name of the energy needed for protein synthesis?
A. ATP B. ADP C. CTP D. GTP
40. Which process of chromosomal mutation is held responsible for chronic myelogenous leukemia?
A. Translation B. Translocation C. Transcription D. Duplication
41. Two parents of genotype Aa are crossed breed, The alleles show complete dominance. What proportion of the offspring will phenotypically look their parents?
A. $\frac{1}{4}$ B. 0 C. $\frac{3}{4}$ D. $\frac{1}{2}$
42. In the process of preparing genetic fingerprints, which one of the following comes first before all others?
A. Radioactive labeling B. Autoradiography C. Blotting D. Gel electrophoresis
43. When an enzyme is denatured by temperature or an extreme P^H , which one of does it lost?
A. Peptide bond B. Primary structure C. Tertiary structure D. Secondary structure
44. Which alternative correctly matches the polymer with its monomer?
A. Carbohydrate----fatty acids C. Nucleic acid-----nucleotides
B. Lipids -----amino acids and glycerol D. Protein -----monosaccharides
45. The basic difference between Lamarckism and Darwinism is that;-
A. Outcome of evolution C. Mechanism of evolution
B. Existence of evolution D. Presence of variation
46. Allopatric speciation is;-

- A. Reproduction during different season C. Different courtship in mating period
 B. Involving geographical separation D. Reproduction at different time of a day
47. Suppose two related animal **cannot** interbreed because they become active at different times of the day. This is;-
 A. Seasonal isolation C. Behavioral isolation
 B. Habitat isolation D. Temporal isolation
48. The presence of lipid in food is tested by;-
 A. Biuret test B. Emulsion test C. Iodine test D. Benedict's test
49. During protein synthesis, which of the following molecules transports amino acids to their correct positions in the group chains of polypeptide?
 A. mRNA B. tRNA C. rRNA D. Deoxyribonucleic acid
50. If an enzyme 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. End product inhibition C. Competitive inhibition
 B. Allosteric inhibition D. Non-competitive inhibition
51. In which of the following organic compounds can protease and lactase be grouped?
 A. Nucleic acids B. Carbohydrates C. Hormones D. Enzymes
52. Which one of the following is **not** the function of RNA molecules?
 A. Transport amino acids C. Carries instructions from DNA to RNA
 B. Self--replicable D. Structural components for ribosome's
53. Enzymes are specific to only one kind of reactions because:
 A. Enzymes are biological catalysts C. Enzymes may affected by several factors
 B. Enzymes can be reused D. Each enzymes have unique shape
54. From evolution point of view, which of the following animal is expected to have hemoglobin protein are the **least** similar to that of human?
 A. Dog B. Frog C. Macaque D. Lamprey
55. Which of the lists include type 1 fossils?
 A. Bone fragments, teeth fragment, plant body impression, hair
 B. Foot print, stone tools, coprolite, bone fragment
 C. Bone remains, teeth fragment, leaf, coprolite, hair
 D. Bone, teeth, skin impression, seed, foot print, coprolite
56. To overcome an energy barrier between reactants and products in a chemical reaction, energy must be provided to get the reaction started, this energy is:
 A. Activation energy C. Initiation energy
 B. Kinetic energy D. Reaction energy
57. Which of the following is the **correct** step in fossilization process?
 A. Death, permineralization, exposure, sedimentation
 B. Death, sedimentation, uplift, permineralization
 C. Death, permineralization, sedimentation, exposure
 D. Death, sedimentation, permineralization, exposure
58. All of the following is true about protein synthesis in eukaryotic organism **Except**
 A. mRNA are modified before leaving the nucleus
 B. Transcription and translation are coupled
 C. Transcription occur in the nucleus
 D. Transcription and translation are separated
59. Among the following proteins, which one belongs to control the plasma glucose concentration?

- A. Structural B. Antibody C. Antigen D. Peptide hormone
60. Mr Abebe is an albino but his wife Azeb is not, they are expecting to have a baby, if the baby is an albino, what is the possible genotype of Azeb?
A. aa B. Aa C. A D. AA
61. If due to incomplete dominance, the F1 plant from a cross of red flower with white flower parents are pink, which of the following ratios are expected in the F2 generation?
A. 3 red, 1 pink, 1 white C. 2 red, 1 pink, 1 white
B. 1 red, 1 pink, 1 white D. 1 red, 2 pink, 1 white
62. Which of the following is related to the theory of Lamarck?
A. Evolution is the result of struggle for existence
B. If not controlled, human population growth exceed food supply
C. Evolution is based on the use and disuse of body parts
D. Individuals in a species show variation in their characteristics
63. Which of the following is **incorrect** about stratigraphy?
A. Strata at the bottom layer are newly created than others
B. Lower strata contains older fossils
C. As strata gets deeper fossil age increase
D. Strata at the top layers contain recent fossils
64. Enzymes are important biological catalysts because they:-
A. Lower the entropy of the biochemical reaction
B. Increase the free energy of a biochemical reaction
C. Lower the activation energy of a biochemical reaction
D. Supply the energy to initiate a biochemical reaction
65. Which of the following belongs to the category of heterotrophic?
A. Blue green algae B. Fungi C. Ferns D. Higher plants
66. Which of the following variable is **least** likely to affect an enzymes rate of reaction?
A. P^H value B. CO₂ concentration C. Temperature D. Concentration of substrate
67. When trying to view an object under the microscope and after switching to the high power objective, which knobs do you in order to see a clear picture?
A. The arm of the microscope C. The coarse adjustment
B. The fine adjustment D. The middle adjustment
68. Which of the following organelles are likely to be more abundant in active cells such as the muscles of the human heart?
A. Chromosomes B. Lysosomes C. Mitochondria D. Golgi-bodies
69. Which of the following pairs are both organelles concerned with energy transformation?
A. Vacuole and chloroplast C. Mitochondria and chloroplast
B. Mitochondria and nucleus D. Chloroplast and nucleus
70. Which one of the following is different from the rest?
A. Substitution B. Inversion C. Addition D. Deletion
71. What the position of a particular gene on a chromosome?
A. Codon B. Allele C. Loci D. Anticodon
72. Which of the following biological discoveries is contributed by Gregor Mendel?
A. The double helix of DNA C. The inheritance of characteristic
B. The first optical microscope D. The modern theory of cell
73. Without nitrogen, organisms could synthesis one of the following biological molecules **Except**
A. The genetic material C. The principal energy transfer molecule

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- A. shoot is positive to phototropism C. Root is negative to geotropism
 B. root is positive to phototropism D. Shoot is negative to phototropism
90. The process by which cells like amoeba and white blood cell take and internalize particles such as bacteria is:
 A. Pinocytosis B. Osmosis C. Phagocytosis D. Active transport
91. A type of innate behavior in which the kinesis of woodlice in responding to change in light intensity and humidity is:
 A. Orientational B. Instinctive C. Habituation D. Simple reflex
92. To which of the following molecule is most of the energy released during the krebsCycle transferred?
 A. FADH₂ B. ATP C. ADP D. NADH
93. The rate of diffusion across the cell membrane is affected by the:
 A. Shape of glycolipids and glycoprotein C. Temperature and size the molecule
 B. Membrane structure and phagocytosis D. Temperature and pinocytosis
94. Louis pasture's experiment on microorganisms using a flask with a lengthened S-shaped neck was to
 A. Disprove the theory of spontaneous generation. C. Kill pathogens using heat.
 B. Prove the fermentation of sugar. D. Prove that germs cause diseases.
95. What is resolution power of a microscope? It is the
 A. Brightening of the parts of the object to show more details
 B. Scattering of the parts of the object to show more details
 C. Magnifying of small objects to make them visible
 D. Colouring of small objects to make them visible
96. What makes the phospholipids molecules arrange themselves into a bilayer in a water medium?
 A. Their high solubility in water
 B. The length of the fatty acid chains
 C. The presence of hydrophilic and hydrophilic group
 D. The double bond of the fatty acids
97. Which one of the following is **NOT** a heterotrophic mode of nutrition?
 A. Parasitic B. Saprobiotic C. Carnivores D. Chemosynthetic
98. One of the following can determine whether the unicellular organism is a prokaryotic or eukaryotic?
 A. The presence or absence of cell membrane
 B. The presence or absence of cytoplasm
 C. The presence or absence of membrane bounded organelles
 D. The presence or absence of DNA materials
99. Which of the following plant cellular structure important to produce and breakdown of hydrogen peroxide?
 A. Chloroplast B. Lysosomes C. Mitochondria D. Peroxisome
100. Which one of the following is NOT a component of Neo-Darwinism theory?
 A. Natural selection C. Inheritance of acquired trait
 B. Genetic theory D. Theory of animal behaviour

THE END