

NATIONAL EDUCATIONAL ASSESMENT AND EXAMINATIONS AGENCY (NEAEA)
ETHIOPIAN UNIVERSITY ENTRANCE EXAMINATION (EUEE)
BIOLOGY EXAMINATION 2006

BOOKLET CODE: 00

NUMBER OF ITEMS:

SUBJECT CODE: 00

TIME ALLOWED: 00

1. Which of the following do viruses share with cells? Not Answered

- A) Cell wall
- B) Cytoplasm
- C) Nucleic acid ✓
- D) Protoplasm

2. Which one of the following cellular forms did Robert Hooke observe under his crude microscope?

Not Answered

- A) Bacteria
- B) Protozoa
- C) Yeast
- D) Empty cell wall ✓

3. In the case of enzymatic chemical reactions, what do you call the substance that is acted up on by an enzyme? Not Answered

- A) Polypeptide
- B) Coenzyme
- C) Vitamin
- D) Substrate ✓

4. Choose the organisms that belong to the eukaryotes? Not Answered

- A) Bacteria
- B) Blue -green algae
- C) Amoeba ✓
- D) Virus

5. While conducting research, which of the following should a biologist do first? Not Answered

- A) Generate a hypothesis

- B Conduct experiment
- C) Communicate the results
- D) Identify a research question / problem ✓

6. Which of the following structures is NOT present in animal cells? Not Answered

- A) Cell wall ✓
- B) Nucleus
- C) Protoplasm
- B) Nucleic acid

7. An experimental animal stopped responding to a stimulus that has been repeated so many times .What type of learned behavior is this ? Not Answered

- A) Latent learning
- B) Habituation ✓
- C) Imprinting
- D) Operant conditioning

8. Behavior that is repeated on a daily basis is referred to as: Not Answered

- A) Lunar
- B) Circadian ✓
- C) Circannua
- D) Seasonal

9. Which molecule in the cell is the constituent of the gene? Not Answered

- A) Nucleic acid ✓
- B) Protein
- C) Lipid
- D) Carbohydrate

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

Not Answered

- A) Microbiology
- B) Evolution ✓
- C) Mutation
- D) Reproduction

11. What is the general term for the part of the protoplasm that lies outside the nucleus? Not Answered

- A) Cytosol
- B) Cytoplasm ✓
- C) Central vacuole
- D) Plasma membrane

12. How many net ATP molecule are generated through anaerobic respiration , when a single glucose molecule is change to pyruvate in the human body? Not Answered

- A) Tow ✓
- B) Three
- C) Four
- D) Six

13. Which of the following groups of bacteria consists of rod shaped cells? Not Answered

- A) Gram - positive
- B) Bacilli ✓
- C) Cocci
- D) Spirilla

14. How many carbon and oxygen tomes are there in a molecule of maltose? Not Answered

- A) 6 carbon and 6 oxygen
- B) 12 Carbone and 11 ✓
- C) 11 carbon and 12 oxygen
- D) 24 carbon and 12 oxygen

15. On which of the following organelles of the eukaryotic cell does protein synthesis take place?

Not Answered

- A) The nucleus
- B) The ribosome ✓
- C) The chloroplast
- D) The mitochondrion

16. Which of the following parts of plant roots is harboring nitrogen fixing bacteria Not Answered

- A) Root nodule ✓
- B) Root hair
- C) Root tip
- D) Root cap

17. Which of the following is true about protozoa? Not Answered

- A) They are a group of bacteria
- B) They are one-celled organisms ✓
- C) They represent both plant and animals
- D) They are unicellular animals

18. Which of the following is a distinguishing feature of amino acids that is NOT found in carbohydrates?

Not Answered

- A) Carbon

- B) Oxygen
- C) Hydrogen
- D) Nitrogen ✓

19. Which of the following statement is true about matter and energy in the ecosystem? Not Answered

- A) Both matter and energy are recycled
- B) Matter is not recycled energy is recycled
- C) Matter is recycled energy is not recycled ✓
- D) Energy is recycled more than matter does

20. Which one of the following molecule in living things is not an organic molecule? Not Answered

- A) Sugar
- B) Nucleotide
- C) Amino acid
- D) Water ✓

21. At which stage is most of the ATP generated in aerobic respiration? Not Answered

- A) Glycolysis
- B) Link reaction
- C) Krebs cycle
- D) Electron transport ✓

22. Which of the following is the common characteristic of all enzymes? Not Answered

- A) They act inside cells only
- B) They are proteins ✓
- C) They require cofactors
- D) They operate at any P^H

23. In a cross between round green pea of $RRyy$ genotype wrinkled yellow pea of $rrYY$ genotype, what is the expected genotype of the F_1 ? Not Answered

- A) $RRyy$
- B) $rrYY$
- C) $RRYY$
- D) $RrYy$ ✓

24. Which of the following cellular structures is possessed by all cells Not Answered

- A) Cell membrane ✓
- B) Nucleus
- C) Cell wall
- D) Golgi apparatus

25. During the krebs cycle which of the following molecule temporarily stores most of the energy released from food molecule Not Answered

- A) ADP
- B) ATP
- C) NADH✓
- D) FADH

26. Which of the following carbohydrate has structural function? Not Answered

- A) Cellulose✓
- B) Glycogen
- C) Starch
- D) Sucrose

27. Which of the following forms of nitrogen are readily utilization by green plants? Not Answered

- A) Atmospheric nitrogen
- B) Nitrite
- C) Ammonium ion
- D) Nitrate✓

28. In some crosses of maize, the progeny produces better yield than the parents. What is this phenomenon known as? Not Answered

- A) Dominance
- B) Hetrozygosity
- C) Hybrid vigor✓
- D) Inbreeding depression

29. Which of the following techniques is used to separate DNA fragments according to their size on gel?

Not Answered

- A) Southern blotting
- B) Electrophoresis✓
- C) Radioactive labeling
- D) Digestion by restriction

30. Which of the following group of animals have males with ZZ and females with ZW sex chromosome constitution? Not Answered

- A) Grasshopper
- B) Birds✓
- C) Mammals
- D) Honey bee

31. The molecule of which pigment is located at the reaction center of a photosystem? Not Answered

- A) Chlorophyll a ✓
- B) Chlorophyll b
- C) Carotenoid
- D) Accessory pigments

32. According to Lamarck's theory of evolution what is the mechanism by which evolving organisms acquire new structures? Not Answered

- A) Mutation
- B) Hereditary variation
- C) Use -and- disuse of parts of the body ✓
- D) Recombination of ancestral genes

33. In which of the activities of the honey bee colony are worker bees involved? Not Answered

- A) Laying eggs
- B) Serving as queens
- C) Reproductive function
- D) Taking care of the larvae ✓

34. In which one of the following ways the Tundra biome differs from desert biome? Not Answered

- A) It is a treeless biome
- B) It has little biodiversity
- C) It receives little precipitation
- D) It has permanently frozen subsoil ✓

35. Which one of the following is the mechanism by which two genes located on the same chromosome are separated? Not Answered

- A) Independent assortment
- B) Segregation
- C) Linkage
- D) Crossing over ✓

36. If present in the fermentation system which one of the following would negatively affect alcohol production by yeasts? Not Answered

- A) Water
- B) Oxygen ✓
- C) Glucose
- D) Fermentation enzyme

37. Which of the following can be taken as case for evidence of evolution from the field of plant and animal breeding? Not Answered

- A) Artificial breeding always creates new species
- B) Artificial breeding only produces new organisms with higher yield

- C) Artificial breeding shows that natural selection can produces variations ✓
- D) Artificial breeding can produces new variations in organisms

38. Which of the following mechanism moves digested amino acids and glucose across the plasma membrane of the cell lining the wall of the small intestine? Not Answered

- A) Osmosis
- B) Simple diffusion
- C) Facilitated diffusion
- D) Active transport ✓

39. Where exactly in the cell dose the Krebs cycle take place? Not Answered

- A) Mitochondrial matrix ✓
- B) Inner mitochondrial membrane
- C) Cytoplasmic fluid
- D) Outer mitochondrial membrane

40. What is the ultimate source of renege for all organism living on the earth? Not Answered

- A) Water
- B) Oxygen
- C) Nitrogen
- D) The sun ✓

41. Which of the following substance is NOT necessary for photosyntheseis to take place? Not Answered

- A) Chlorophyll
- B) Carbon dioxide
- C) Oxygen ✓
- D) Water

42. Which group of organic compound includes the enzymes? Not Answered

- A) Proteins ✓
- B) Lipids
- C) Starches
- D) Carbohydrates

43. Into which of the following organic compound can lipase maltase and sucrose be grouped? Not Answered

- A) Hormones
- B) Carbohydrates
- C) Nucleic acids
- D) Enzymes ✓

44. Choose the characteristics that viruses share with living things. Not Answered

- A) They are made up of many specialized cells
- B) They contain genetic material ✓
- C) They reproduce by mitosis
- D) They contain chlorophyll

45. Which one of the following eukaryotic cell organelles was a free living cell before eukaryotic cells evolved?

Not Answered

- A) Nucleus
- B) Ribosome
- C) Chloroplast ✓
- D) Nucleolus

46. If radioactive substance that weighs one kilogram has a half-life of 100 years what would be the percentage of the substance left after 300 years?

Not Answered

- A) 50
- B) 30
- C) 25
- D) 12.5 ✓

47. Which of the following is more true about the male of the honey bee?

Not Answered

- A) It has no father
- B) It is sterile ✓
- C) It is diploid
- D) It regulates the colony

48. Which of the following PH values represents the strongest base?

Not Answered

- A) 2
- B) 7
- C) 13 ✓
- D) 15

49. In Ethiopia, which one of the following vertebrate groups has the largest number of genera?

Not Answered

- A) Mammals
- B) Birds ✓
- C) Reptiles
- D) Amphibians

50. Which of the following is an accurate representation of the relationships between the terms metabolism anabolism and catabolism?

Not Answered

- A) Anabolism = Catabolism
- B) Metabolism =Catabolism

- C) Anabolism = Catabolism + Metabolism
- D) Metabolism = catabolism + Anabolism ✓

51. Which do you call structures that have the same evolutionary origin but now are different in structure or have different functions? Not Answered

- A) Endemic
- B) Analogous
- C) Homologous ✓
- D) Indigenous

52. Which term describes the process by which water is lost by evaporating through the stomata of leaves ? Not Answered

- A) Transport
- B) Transpiration ✓
- C) Anchorage
- D) Adhesion

53. Which of the following is true about saturated fatty acids? Not Answered

- 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

54. For a biological detergent to effectively remove oily and greasy dirt, which of the following enzymes should it contain? Not Answered

- A) Cellulase
- B) Protease
- C) Amylase
- D) Lipase ✓

55. In which kingdom of life is it most likely to find many examples of organisms that can undergo metamorphosis? Not Answered

- A) Monera
- B) Fungi
- C) Plantae
- D) Animals ✓

56. During protein synthesis where in the cell does transcription take place? Not Answered

- A) Ribosome
- B) Nucleus ✓
- C) Endoplasmic reticulum
- D) Golgi apparatus

57. What is a perfect flower? Not Answered

- A) A flower with petals and pistil
- B) A flower with stamens and sepals
- C) A flower with stamens and pistil ✓
- D) A flower with sepals and petals

58. Which molecules carry the instruction for protein synthesis? Not Answered

- A) Carbohydrates and lipids
- B) Amino acids
- C) DNA and RNA ✓
- D) Enzymes

59. Which region of the human digestive tract contains enzymes that perform well at low PH? Not Answered

- A) Mouth
- B) Stomach
- C) Small intestine ✓
- D) Sunlight

60. Which of the following resources is needed by an ecosystem from outside in order to sustain itself

Not Answered

- A) Producers
- B) Macronutrients
- C) Micronutrients
- D) Sunlight ✓

61. Which of the following is true about the substance represented by the chemical formula $C_2H_5NO_2$?

Not Answered

- A) Simple sugar
- B) Inorganic substance
- C) Fatty acid
- D) Amino acid ✓

62. Which one of the following characteristic is UNNECESSARY for an object to be considered a living thing?

Not Answered

- A) Ability to respond to stimuli
- B) Ability to reproduce
- C) Ability to grow
- D) Ability to move ✓

63. Which field studies the way in which individual traits of organisms are transmitted from one generation to the next? Not Answered

- A) Genetics ✓
- B) Ecology
- C) Evolution
- D) Morphology

64. In which of the following ways is the carbon dioxide of the atmosphere fixed in to the Carbone found in organic molecules? Not Answered

- A) In the breathing processes of all animals
- B) In the decomposition of organic molecules
- C) In the process of photosynthesis by green plants ✓
- D) In all the cellular respiration processes of organisms

65. Which of the following is NOT a term used to describe organisms that have had foreign genes added to them? Not Answered

- A) Genetically modified organisms
- B) Transgenic organisms
- C) Genetically engineered organisms
- D) Pathogenic organisms ✓

66. Which of the following is prevented from taking place if populations are separated by a geographic barrier? Not Answered

- A) Mutation
- B) Evolution
- C) Gene flow ✓
- D) Natural selection

67. In protein synthesis, what is produced during transcription? Not Answered

- A) Protein
- B) mRNA ✓
- C) DNA
- D) Polypeptide

68. If a cell fails to clear its cellular debris which one of its organelle is most likely NOT functioning? Not Answered

- A) Nucleus
- B) Mitochondria
- C) Endoplasmic reticulum ✓
- D) Ribosomes

69. Which of the following applies to the tropical rainforest? Not Answered

- A) Low rainfall and high temperature
- B) Low rainfall and low temperature

- C) High rainfall and high temperature ✓
- D) High rainfall and low temperature

70. Which stage in the life cycle of HIV is inhibited by the antiretroviral drug known as integrase inhibitor?

Not Answered

- A) conversion of viral RNA to DNA
- B) Replication of the viral genome
- C) Insertion of the viral genome in to host genome ✓
- D) Release of the viral progeny from the cell

71. Which of the following groups of plants carry out light dependent and light independent reaction of photosynthesis in separate cells?

Not Answered

- A) C-3 plants
- B) C-4 plants ✓
- C) CAM plants
- D) plants with out chlorophyll

72. Among the following identify the organelle in which nucleic acid is NOT found ?

Not Answered

- A) Mitochondria
- B) Chloroplast
- C) Ribosome
- D) Golgi apparatus ✓

73. Which of the following can create strong inter- specific competition if share by two or more species?

Not Answered

- A) Habitat ✓
- B) Ecosystem
- C) Niche
- D) Predator

74. The half-life of carbon-14 is about 5730 years. If a fossil is 17200 years old, about what percent of its original carbon -14 is still present in the fossil?

Not Answered

- A) 75 %
- B) 50 %
- C) 25 %
- D) 12 % ✓

75. Which of the following pairs of individuals have identical DNA fingerprints?

Not Answered

- A) Father and son
- B) Mother and daughter
- C) Brother and sister
- D) Monozygotic twins ✓

76. Among the following which one has little or no contribution to the loss of biodiversity? Not Answered

- A) Overgrazing by domestic animals
- B) Clearing forests to grow crops
- C) Growing crops of improved varieties
- D) Growing crops of land ✓

77. Suppose sites A,B,C and D have Simpson's Index of Diversity (d) values of 20,8,16,and 3, respectively, which site is dominated by one or just a few species? Not Answered

- A) Site A
- B) Site B
- C) Site C
- D) Site D ✓

78. Which of the following types of chromosome mutations gives rise to an extra chromosome? Not Answered

- A) Inversion
- B) Trans location
- C) Deletion
- D) Non- disjunction ✓

79. Suppose a hypothetical cube- shaped cell has sides of 10 micrometers, what is the surface area to volume ratio of this cell? Not Answered

- A) 6:10 ✓
- B) 10:10
- C) 3:6
- D) 4:8

80. which of the following pairs are analogous structures ? Not Answered

- A) Wing of bird and wing of a butterfly ✓
- B) Front leg of a horse and a human arm
- C) Wing of a bird and wing of a bat
- D) Front leg of a frog and wing of a bat

81. How are unsaturated fats distinguished? Not Answered

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

82. Which of the the following mating produces children all having the same ABO blood phenotypes

Not Answered

- A) AO x AB

- B) BB x OO ✓
- C) AO x BO
- D) AA x BO

83. Which of the following is the largest ecological unit? Not Answered

- A) A community
- B) A biome
- C) A population
- D) An ecosystem ✓

84. Among the following fossil hominid species which one is the oldest of all? Not Answered

- A) Homo erectus
- B) Ardipithecus ramidus
- C) Australopithecus afarensis ✓
- D) Australopithecus africanus

85. During aerobic respiration what is the route through which protons return from the mitochondrial inter-membrane space back to its matrix? Not Answered

- A) Proton pump
- B) ATP synthase ✓
- C) Ion channel
- D) Membrane lipid

86. From which of the processes of cellular respiration is the majority of the ATP generated? Not Answered

- A) Anaerobic fermentation
- B) Glycolysis and link reaction
- C) Electron transport and chemiosmosis ✓
- D) Krebs cycle and glycolysis

87. Choose the one that represent a chemical formula of an organic compound? Not Answered

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

88. In which of the following solutions does an animal cell undergo hemolysis? Not Answered

- A) In hypotonic solution ✓
- B) In hypertonic solution
- C) In isotonic solution
- D) In both hypotonic and hypertonic solution

89. On which of the following does the rate of algal photosynthesis in a lake depend? Not Answered

- A) The Oxygen content of the water ✓
- B) The nitrogen content of the water
- C) The elevation where the lake is found
- D) The amount of light that penetrates the lake water

90. What does the absence of chloroplast in a unicellular organism indicate? Not Answered

- A) Reproduction by sexual means
- B) Autotrophic nutrition
- C) Heterotrophic nutrition ✓
- D) Completed lack of metabolic processes

91. Which of the following did the early heterotrophs do that probably assisted the origin of autotrophs?

Not Answered

- A) They added oxygen and chlorophyll to the environment
- B) They added carbon dioxide to the environment ✓
- C) They stored energy in the bonds of inorganic compound
- D) They manufactured food from carbon dioxide and oxygen

92. If DNA contain 10% thymine, what is the percentage of cytosine in the DNA? Not Answered

- A) 10%
- B) 30%
- C) 40% ✓
- D) 90%

93. Which of the following conclusions can be drawn the structural similarities observed between the flippers of whales and the arms of humans? Not Answered

- A) The human species began life in the ocean
- B) The human species and whales share a common ancestry ✓
- C) Whales are older than the human species
- D) Whales have evolved from early humans that went back to the ocean

94. Which of the following will happen if a plant cell is kept in a solution that is stronger than its protoplasts?

Not Answered

- A) The cell will become turgid
- B) The central vacuole will expand
- C) The protoplasts will get plasmolysed ✓
- D) The cell will swell and burst

95. Which of the following is produced when a lipid molecule is hydrolyzed? Not Answered

- A) Amino acid and water
- B) Amino acid and glucose

- C) Fatty acids and glycerol ✓
- D) Glucose and glycerol

96. What is the ecological succession in which plant communities establish after an area has been completely demolished by fire? Not Answered

- A) Tree succession
- B) Secondary succession ✓
- C) Primary succession
- D) Bare rock succession

97. What is the difference between HIV and AIDS? Not Answered

- A) AIDS is the virus and HIV is the disease
- B) Both AIDS and HIV refer to the disease
- C) AIDS is the disease and HIV is the virus ✓
- D) Both AIDS and HIV refer to the virus

98. From which organism is the first antibiotic used in medicine produced ? Not Answered

- A) Gram negative bacteria
- B) Members of the fungi ✓
- C) Genetically modified protozoa
- D) Higher plants

99. Biotechnology can be applied in environmental remediation . To which of the major application areas of biotechnology is this most related? Not Answered

- A) Medicine and nutrition
- B) Medicine and industry
- C) Biodiversity and industry
- D) Agriculture and environment ✓

100. 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? Not Answered

- A) People who received the placebo ✓
- B) People who received the new drug
- C) The new drug itself
- D) The new drug and the placebo

Your Answers

you have scored 0 out of 0

Answer Key

1.C	11.B	21.D	31.A	41.C	51.C	61.D	71.B	81.C	91.B
2.D	12.A	22.B	32.C	42.A	52.B	62.D	72.D	82.B	92.C
3.D	13.B	23.D	33.D	43.D	53.A	63.A	73.A	83.D	93.B
4.C	14.B	24.A	34.D	44.B	54.D	64.C	74.D	84.C	94.C
5.D	15.B	25.C	35.D	45.C	55.D	65.D	75.D	85.B	95.C
6.A	16.A	26.A	36.B	46.D	56.B	66.C	76.D	86.C	96.B
7.B	17.B	27.D	37.C	47.B	57.C	67.B	77.D	87.A	97.C
8.B	18.D	28.C	38.D	48.C	58.C	68.C	78.D	88.A	98.B
9.A	19.C	29.B	39.A	49.B	59.C	69.C	79.A	89.A	99.D
10.B	20.D	30.B	40.D	50.D	60.D	70.C	80.A	90.C	100.A

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