Biology Model exam for ASTU Special school

Choose the best answer for the following questions

1) Which one of the following is incorrect regarding conservation of species and natural resources?
   A) Protecting the natural resources but not to be used
   B) Protecting natural resources and the species and harvest on sustainable basis specially species
   C) Conserving species for the coming generation is inevitable
   D) Bothe renewable and non-renewable resources should be conserved

2) In the application of Biological knowledge for human benefits, for instance, when a gene from one species that is introduced to another species is termed as_____

   A) GMO B) SCP C) Transgenic organism D) Transgene

3).Which one of the following is not true about the significance of forensic science?

   A) It is a potential sources of evidence using hair, blood etc.

   B) It determines the paternity cases of children

   C) It is also an excellent tool to investigate crime

   D) It is also important to determine sexes of individuals

4. In the nervous system one of the following is the proper function of the myelin sheath, which one is it?

   A) Conducts information away from the cell body

   B) It is a fatty substance

   C) It protects and insulates neurons

   D) Some nerve fibers are unmyelinated and slow impulse conduction

5. In human nervous system neurotransmitters are synthesized by _____

A) Synaptic vesicles B) Presynaptic neuron C) Synaptic knob D) Postsynaptic neuron

6. The release of neurotransmitter chemicals will be released by the action of _____

A) Synapse B) Endocytosis C) Exocytosis D) Synaptic transmission

7. Which one of the following is responsible for regulation of thirst, and an appetite in human brain physiology?

A) Cerebrum B) Cerebellum C) Hypothalamus D) Thalamus

8. The thick outer most layer of the brain and spinal cord is _____

A) Grey matter B) white matter C) Brainstem D) Dura matter

9. A part of peripheral nervous system which is responsible for regulating involuntary body functions is _____

A) Somatic system B) Autonomic system C) Parasympathetic system

D) Sympathetic system

10. Which one of the following is incorrect about the spinal cord in human nervous system?

A) The spinal cord is encased and protected by the vertebrae

B) In the spinal cord the white matter is found in the middle but the grey matter is found outside

C) The nerves that originates from the spinal cord are spinal nerves

D) the spinal cord has much simpler structure than the brain

11. One of the following is different from the rest, identify it?

A) Keratinocytes B) Melanocytes C) Langerhans cells D) Hallucinogens

12. Which one of the following is true, regarding the small ossicles in the ear?

A) Incus---------Malleus----------Stapes

B) Anvil----------Hammer----------Stirrup

C) Malleus----------Incus----------Stapes

D) Stapes----------Incus----------Malleus

13. If too much growth hormone is produced during childhood, the individual will be_____

A) Dwarf B) Giant C) Emotionally disturbed D) Stunted

14. Identify the proper functions of thyroxine and triiodothyronine?

A) Stimulates milk production by mothers after delivery

B) Controls most of intracellular chemical reactions in human body

C) Control the growth of ovaries in women and testicles in men

D) Promotes the growth of the entire body

15. Which one of the following the function of oxytocin hormone in human body system?

A) Controls the concentration of water or body fluid in normal circumstances

B) Promotes normal metabolism in human body at any time

C) Promotes release of milk from mammary glands of the breast to nipples during suckling

D) Controls water excretion into the urine

16. Which one of the following is incorrect about the effect of climate change?

A) Climate change can cause desertification

B) Climate change destabilizes the Earth's temperature

C) CFC is GHG but it does not contribute for the occurrences of drought

D) Carbon dioxide is a GHG which is the major cause for ozone depletion

17. Which one of the following is the result of climate change?

A) Melting of an ice and rising in the level of seas and oceans

B) Increasing the ice cap and decreasing the seas and oceans

C) Extreme weather and natural disasters are becoming less and less

D) Climate change cannot disrupt food security

18. One of the following is true about Tsunami, which one is it?

A) It is caused by external factors like strong wind and rain

B) It is caused by shifting of tectonic plates on the surface of the land

C) It is caused by rising in the level of ocean and seas

D) It is caused by enormous ocean waves caused by earth quakes

19. One of the following is true about climate change negotiation/protocol, which one is it?

A) Berlin mandate given or developed Copen Hagen in 2001

B) Koyoto protocol was agreed in (Copen Hagen, 1997)

C) Koyoto protocol was agreed in (Copen Hagen, 2001)

D) USA withdrawal from Koyoto protocol was in 2005

20. Which one of the following are the exact sources of greenhouse gases?

A) Hydroflourocarbon--- Fertilizer, animal waste

B) Methane---deforestation, fossil fuel combustion

C) Carbon dioxide---landfills, rice paddies

D) Nitrous oxide--- fertilizer, animal waste

21. Which one of the following is the formation of new species in response to the changing environmental conditions?

A) Adaptation B) Extinction C) Phylogenetic diversity D) Speciation

22. Which one of the following factor can help us to control global warming?

A) Reducing consumption of fossil fuel

B) Reducing solid waste

C) Limiting wastage of water

D) Burning of human-generated waste

23. Which one of the following species is an endemic to Ethiopian?

A) Giant mole rat B) Warthogs C) klipspringer D) Greater kudu

24. Of the following national parks the one which is found in Afar region is _____

A) Nechisar national park

B) Yangudi Rasa national park

C) Kuni-Muktar sanctuary

D) Omo national park

25. Which of one of the following natural resource is an exhaustible?

A) Minerals B) Wildlife C) Soil fertility D) Aquatic animals

26. Which one of the following carbohydrate is found in human blood?

A) Maltose B) Fructose D) Galactose D) Glucose

27. Which one of the following incorrect about cholesterol in general?

A) Cholesterol is used to make membranes of the body cells

B) High level of cholesterol reduces the risk of heart attack

C) Cholesterol is used to make sex hormones

D) Cholesterol is used to make hormones used to reduce stress

28. Which one of the following is the richest source of calcium in human nutrition?

A) Common salt, green vegetables, red meat

B) Most foods, eggs, green vegetables, liver

C) Fish, dairy products, fish, bread, vegetables

D) Most foods, green vegetables, eggs, liver

29. If a small baby drinks milk and immediately get vomit, the milk that get out of the baby's stomach coagulates, this shows--

A) The presence of high amount of pepsin in the gastric juice

B) The presence of high amount of renin in the gastric juice

C) The presence of bile in the gastric juice

D) The presence of lipase in the stomach

30. Which can happen during breathing?

A) When we breathe in, our ribs move up and out, the diaphragm relaxes

B) When we breathe in the ribs move up and out, the diaphragm contracts

C) The intercostal muscles between the ribs relaxes

D) Nothing happen to intercostal muscles during breathing

31. Of the following which is the function of platelets in human circulatory system?

A) Transporting oxygen

B) Transporting carbon dioxide

C) Blood clotting in accidents

D) Production of antibodies to defend the body

32. Which one of the following system best describes the passage of oxygenated blood?

A) Right auricle—Pulmonary artery—Lung—Left auricle

B) Left auricle—left ventricle—aorta—arteries—Capillaries

C) Right ventricle—aorta----lung—right auricle—lung

D) Left auricle---right auricle---lung—venulus

33. A series of steps designed to help you solve problems and answer questions

A) Scientific methods B) Experiment C) Hypothesis D) Observation

34. In science an educated guess or calculated guess is known as_____

A) Observation B) Conclusion C) Hypothesis D) Question

35. When a scientist shares his findings with other scientists, he is

A) Analyzing data B) Making hypothesis C) Communicating results D) Experimenting

36. What is the correct order of the steps in the scientific method?

A) Make a hypothesis, test the hypothesis, analyze the results, ask a question, draw conclusions, communicate results.

B) Ask a question, analyze results, make a hypothesis, test the hypothesis, draw conclusions, communicate results.

C) Ask questions, make a hypothesis, test the hypothesis, analyze results, draw conclusions,

communicate results

D) Ask a question, make a hypothesis, test hypothesis, draw conclusions, analyze results, communicate results

37. You are studying a newly discovered species and want to analyze its genetic information. What type of molecule would you analyze?

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

38. A molecule ending in "**ose**" is most likely to be what type of macromolecule?

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

39. Cellulose and starch are examples of _____

A) Monosaccharides B) Disaccharides C) Lipids D) Polysaccharides

40. In biochemical reactions catalysts:

A) Speed up a reaction and are used up in the process

B) Speed up a reaction and are not used up in the process

C) Slow down a reaction and are not used up in the process

D) Slow down a reaction and used up in the process

41. Some people cannot digest milk products because they lack a specific enzyme. Which enzyme would be used to break down the lactose in milk?

A) Maltase B) Sucrase C) Hydrolase D) Lactase

42. Which of the following is the correct order of food substance, enzyme and breakdown product of the digestive process in the stomach respectively?

A) Fat, trypsin, glycerol B) Protein, pepsin, amino acid C) Starch, lipase, glucose

D) Lipid, amylase, fatty acid

43. Bacteria are usually cultured in _____

A) Pipettes B) Test tubes C) Beakers D) Petri dishes

44. HIV/AIDS can be transmitted from infected individual to uninfected one by means of_____

A) Via eating food with infected individual

B) Via shaking the hands of infected individuals

C) Via sharing infected needles

D) Via walking together on roads with infected individuals

45. Anti-retroviral drugs are drugs that

A) Prevent other illness from developing in someone with AIDS

B) Give someone immunity against AIDS

C) Stop transmission of HIV from person to person

D) Break the life cycle of HIV within a cell

46. Organic molecules always contain

A) Carbon and hydrogen B) Oxygen and hydrogen C) Carbon D) Carbon and oxygen

47. Functional group of fatty acid is _____

A) Amino acid B) Carboxyl group C) Ketone group D) Aldehyde group

48. A compound microscope is different from a simple microscope in_____

A) It has condenser

B) It has more than one objective lens

C) It has more than one ocular lens

D) It has both ocular and objective lenses

49. What is the cause of infectious diseases?

A) The parental B) Carcinogenic substances C) Microorganisms D) Bad lifestyles

50. Which one of the following shows the feeding method of decomposers?

A) Autotrophic nutrition B) Parasitic nutrition C) Intracellular digestion

D) Saprobiotic nutrition

51. The techniques of creating new DNA molecules that not exist in nature is:

A. Genetic engineering C. Biodiversity

B. Bioremediation D. Biomolecule

52. The component of cell that used in the collection, packaging, and distribution of molecules in the cell is:

A. Chloroplast C. Golgi body

B. Endoplasmic reticulum D. lysosome

53. Which one of the following is the major feature of prokaryotic cells?

A. They have true nucleus

B. They lack membrane-bounded organelles

C. They possess compartmentalized structures

D. They are mostly multicellular

54. Modern cell theory includes all of the following, except

A. All organisms are composed of cells

B. All cells composed of linear chromosome in the nucleus

C. Cells are the smallest structural and functional units of life

D. Cells arise from a previously existing cell

55. If the concentration of the solutes inside the cell is higher than outside the cell, the

solution inside the cell is:

A. Hypertonic solution
C. water diffuses into the cell
B. The cell gets shrink
D. The cell gets plasmolysis

56. Which one of the following is not true about parts of the cell and their functions?

A. Golgi body, produce energy for consumers
B. Ribosomes, manufacture proteins
C. Cell wall, maintains cell shape
D. Lysosomes, break down old organelles

57. The following Table compares bacterial cells, plant cells, and animal cells. Question number 7 based this Table.

Feature	**Bacteria cells**	**Animal cells**	**Plant cells**
Ribosomes	A	80S	80S
DNA	Circular	B	Linear
Mitochondria	C	Present	Present
Chloroplast	Absent	Present	D

58. In the above Table, A, B, C, D can be respectively stated as

A. 70S, circular, present, present
B. 80S, linear, present, absent
C. 80S, circular, absent, absent
D. 70S, linear, absent, present

59. Which one of the following is not happening during the light reaction of photosynthesis?

A. Light energy is absorbed by chlorophyll molecules
B. Energy stored in the form of ATP and NADPH
C. Oxygen is liberated to the atmosphere
D. Glucose is synthesized from CO_2 and H_2O

60. Which of the following is not happening during hypotonic solution in animal cells?

A. Water diffuses into cells
B. The cells may burst and undergo cytolysis
C. Cells get bigger and turgid
D. Cells loss water and become flaccid

61. The surface-area-to volume ratio determined by:

A. The amount of energy released in respiration
B. The amount of energy conserved
C. The amount of oxygen deserved for respiration
D. The of energy used it released by respiration

62. In the fluid mosaic model of plasma membrane structure, ions can be pass through:

A. Channel protein C. Peripheral proteins

B. Carrier proteins D. Glycoproteins

63. The movement of particles from low concentration to higher concentration using an expenditure of energy would be:

A. Facilitated diffusion C. Active Transport

B. Osmosis D. Passive transport

64. Round seed shape (R) is dominant over wrinkled seed shape (r) in pea plants. When heterozygous round seed shape (Rr) is crossed with wrinkled seed shape (rr). What is the possible progeny?

A. 302 Round: 102 wrinkled C. 103 Round: 99 wrinkled

B. 210 Round: 95 wrinkled D. 103 Round: 315 wrinkled

65. The phenomena in which heterozygote lack the dominant and recessive relationship, and each allele is capable of some degree of phenotypic expression referred to as:

A. Complete dominance C. Incomplete dominance

B. Co-dominance D. Full dominance

66. A man with blood type-B marries a woman with type-A blood. They have a child with type-AB blood. What is the parent's genotype?

A. AO and BB C. BB and BO

B. AA and AO D. AO and AO

67. Which one of the following plant hormones stimulates cell division in plants?

A. Abscisic acid
B. Cytokinin
C. Ethylene
D. Gibberellic acid

68. Which one is not true about Telophase?

A. The nuclear membrane is reconstructed around each group of chromosomes giving rise to one nucleus at each pole.
B. Reappearance of nucleoli
C. The division of cytoplasm of a cell
D. The chromatid pairs attach themselves to the equator of the spindle

69. When two *Tall* plants are crossed, *445 tall* plants and *145 short* plants are obtained. The genotype of parent plants will be:

A. TT x Tt
B. TT x tt
B. Tt x Tt
D. Tt x tt

70. Ato Tullu after having four children, 2 sons and 2 daughters, what is the probability that the next child to be a baby son?

A. 25%
B. 50%
C. 75%
D. 100%

71. If a woman is a carrier for the Sex-linked trait of haemophilia and her husband is hemophilic, which of the following is true?

A. 50% of the progeny will be hemophilic

B. All daughters will be carrier

C. All sons will be hemophilic

D. All offspring will be haemophilic

72. A cross between two true breeding lines one with red flowers and other with white flowers produces F1 offsprings of pink in colour. When the F1 progeny are selfed a 1:2:1 ratio of red to pink to white flowers is observed. What genetic phenomenon is consistent with these results?

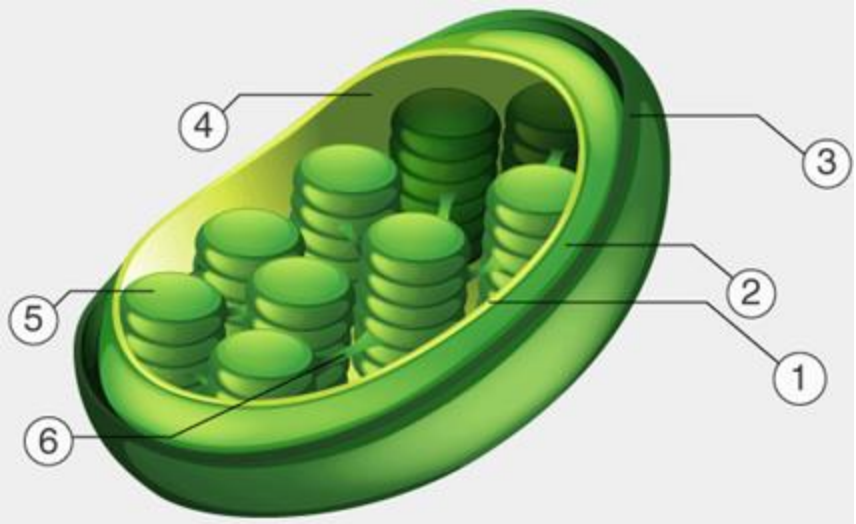
A. Epistasis

B. Incomplete dominance

C. Co-dominance

D. Full dominance

73. The figure below show the diagram of a chloroplast. Questions number73, 74 and 75 are related to the diagram.



Based on the above diagram, number 4, 5, and 6 represent, respectively:

A. Granum, stroma and thalakoid

B. Thanakoid, stroma and granum

C. Stroma, thalakoid and granum

D. Membrane, thalakoid and granum

74. The site of light-dependent reaction of photosynthesis represented by number:

A. 1

B. 3

C. 4

D. 5

75. If the two populations exchange sperms and eggs, but chemical markers prevent the eggs from being fertilized by the wrong sperm and so no alleles are exchanged, such reproductive isolation mechanism can be:

A. Gametic isolation

B. Behavioural isolation

C. Temporal isolation

D. Mechanical isolation

76. The first originated life in the history of an organisms could be:

A. Autotrophic and multicellular
C. Eukaryotic and aerobic
B. Prokaryotic and anaerobic
D. Autotrophic and unicellular

77. In the comparative evidence of evolution, various organs in different groups of vertebrates exhibit common features at their early stage of development, and these features indicate that they evolved from a common ancestor, such evolutionary evidence can be:

A. Comparative embryology
C. Comparative biochemistry
B. Comparative anatomy
D. Comparative fossil records

78. Which one of the following is not the cause for the sources of genetic variations in the gene pool of populations?

A. Chromosomal aberrations
C. Genetic drift
B. Genetic Recombination
D. Spontaneous generation

79. The traits that are expressed in only one gender will be:

A. Sex-linked traits
C. Sex-influenced traits
B. Sex-limited traits
D. Sex-management traits

80. If the haploid number of chromosomes in animal cell is 20, after mitosis divisions the number of somatic chromosomes in the daughter cells is

A. 20 C. 60

B. 40 D. 80

81. Which one of the following group of viruses copy their RNA to DNA?

A. Bacteriophage C. RNA viruses

B. DNA viruses D. Retroviruses

82. Human diseases that transmitted through a vector can be:

A. Chancroid C. Leprosy

B. Leishmaniasis D. Syphilis

83. Which one of the following is not true about DNA?

A. Its back bone is repeatedly made up of sugar and phosphate

B. Its central core is made from bases alone

C. The two strands of the DNA are antiparallel and not complementary

D. Sugar, base and phosphate units are the components of its monomer

84. In dihybrid self-crossing of a plant with genotype AaBb, 4000 offspring were produced. Offspring with genotype AABB will be:

A. 200 C. 500

B. 250 D. 600

85. C_4 photosynthesis more efficient than C_3 photosynthesis in the conditions of:

A. Low light intensity, low temperature and low CO_2 concentrations
B. High light intensity, low temperature and low CO_2 concentrations
C. High light intensity, high temperature and low CO_2 concentrations
D. High light intensity, high temperature and high CO_2 concentrations

86. The changes of allelic frequencies by random events can be:

A. Mutation
B. Genetic recombination
C. Genetic drift
D. Genetic variation

87. CAM photosynthesis is effective in desert plants because of:

A. The light-dependent and light-independent stages not separate in time
B. Leaves open their stomata only during the night for light-independent reactions
C. C4 stages and Calvin cycle are both occur in the same cell
D. C4 stages and Calvin cycle are both occur in the same space

88. Which one of the following statement is correct about the functions of plasma membrane?

A. Regulating substances that enter and leaves the cells
B. packaging and transport of proteins
C. Increasing the fluidity of membrane
D. Neutralising membrane signals

89. The fluid mosaic model of plasma membrane suggests that:

A. Both proteins and phospholipids were involved in the structure of the membrane
B. The membrane has cholesterol molecule that facilitates active transport
C. Contains hydrolytic enzymes to digest worn-out cells
D. Contains channel proteins for cell signalling and cell recognition

90. A situations in which the populations separated by water bodies and becoming separate species are:

A. Parapatric speciation
B. Sympatric speciation
C. Allopatric speciation
D. Peripatric speciation

91. The selection that favors individuals at one end of the phenotypic range is:

A. Stabilizing selection
B. Artificial selection
C. Disruptive selection
D. Directional selection

92. From the following which one shows the correct geological time scale from the oldest to the recent?

A. Epochs……...periods…….eras…….....eons
B. Eons…….. ...eras……periods…….Epochs
C. Eras……epochs……..eons……...periods
D. Periods ……..eons……..eras……...epochs

93. Which one of the following is not features of early atmosphere?

A. The presence of methane and ammonia gases
B. UV light abundant
C. Photosynthetic organism release free oxygen
D. Absence of free water

94. Which one of the following is not true about the Lamarck theory?

A. It contributed for the existence of vestigial organs in animals due to their continuous disuse.
B. The theory elaborated the mechanism of evolution through genetic variations
C. It explains that continued use of organs makes it larger, more elaborate, strong and efficient
D. The new habits involve the greater use of certain organs to meet new needs, and the disuse of certain other organs.

95. Which one of the following is not postulate of the theory of natural selection?

A. Rapid multiplication
B. Struggle for existence
C. Inheritance of useful and acquired characters
D. Survival of the fittest

96. Evolution by natural selection states that

A. Individuals that is more likely to reproduce less likely to pass their genes on to their children.
B. Individuals with characteristics best suited to their environment are more likely to survive and reproduce
C. Individuals that are poorly adapted to their environment are more likely to survive & reproduce.
D. Individuals that are poorly adapted to their environment are more likely to pass their genes on to the next generation.

97. When the plants response to the source of water in the soil, it is known as

A. Geotropism
B. Hydrotropism
C. Phototropism
D. Thigmotrophism

98. Water molecules move from the root to top branches and leaves through:

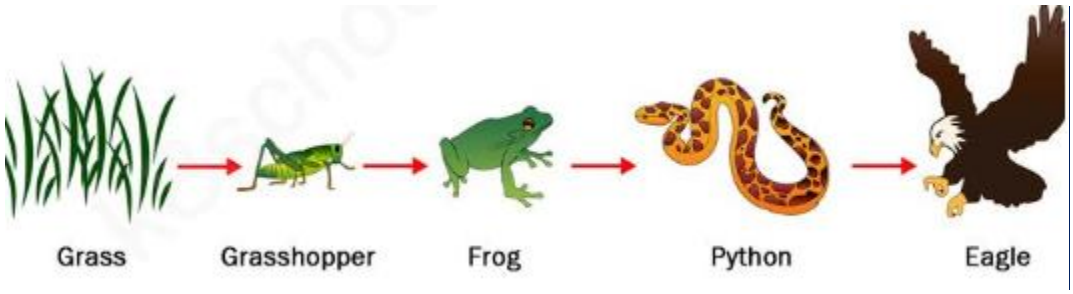
A. Epidermis
B. Stomata
C. Xylem
D. Phloem

99. Meiosis division mainly different from mitosis division in that:

A. Chromosomes line up along equator of the cell
B. Cytokinesis formation
C. Replication of DNA during interphase

D. Synapsis of homologous chromosome

100. The diagram shows the food chain in organisms. Question 50 based on this diagram.



Based on the above diagram producer, second trophic level and tertiary consumers are consecutively represented by:

A. Grass---------Grass hopper-------Frog

B. Grass----------Frog----------Python

C. Grass----------Python----------Eagle

D. Grass--------Grass hopper-------Python

----------Good Luck----------