

Time: 25 Minutes

Marks: 17

OBJECTIVE TYPE

Q.1 Encircle the correct option.

- The digestive vacuoles and autophagosomes are also known as  
(a) Peroxisomes (b) Glyoxisomes  
(c) Secondary lysosomes (d) Phagocytes
- One of the followings is not a function of smooth endoplasmic reticulum (SER).  
(a) Synthesis of proteins (b) Metabolism of lipids  
(c) Detoxification of harmful drugs (d) Transmission of impulse
- The Biomolecule responsible for storing and transmitting genetic information in cells is called  
(a) Proteins (b) Carbohydrate (c) Nucleic Acid (d) Lipids
- The main function of enzymes in living organisms is:  
(a) To provide structural support to cells (b) To transport oxygen in the bloodstream  
(c) To speed up chemical reactions (d) To store energy for future use
- Which organelle in a plant cell is responsible for the process of photosynthesis, converting light energy into chemical energy?  
(a) Nucleus (b) Mitochondria  
(c) Chloroplast (d) Endoplasmic Reticulum  
(d) It weakens and becomes inactive.
- In the lytic cycle of a bacteriophage, the host DNA is:  
(a) Replicated (b) Turned off by a protein coat  
(c) Digested into nucleotides (d) Turned on by removal of a protein coat
- Cell walls of archaeobacteria do not contain  
(a) Peptidoglycan (b) Cellulose (c) Chitin (d) Cutin
- Which of the following is used for lowering blood cholesterol?  
(a) Griseofulvin (b) Cyclosporine (c) Lovastatin (d) Penicillin
- Adiantum exhibits which of the following type of alternation of generations:  
(a) Isomorphic (b) Heteromorphic (c) Homosporous (d) Heterosporous
- The single healthy megaspore retained within the megasporangium germinates to form an egg containing female gametophyte. It is called:  
(a) Integument (b) Ovule (c) Nucellus (d) Embryo sac
- The largest invertebrate animal "giant squid" belongs to which one of the following phyla.  
(a) Cnidaria (b) Arthropoda  
(c) Mollusca (d) Echinodermata
- In birds the organ of voice is  
(a) Larynx (b) Pharynx  
(c) Syrinx (d) Vocal cords
- A loose mass of oval or irregular cells with many intercellular spaces present in the bark of stem is a:  
(a) Stomata (b) Stomatal apparatus (c) Guard cell (d) Lenticels
- Guttation is because of  
(a) High transpiration (b) Low relative humidity  
(c) Negative root pressure (d) Positive root pressure
- Peristaltic movements consist of a wave of contraction of which of the following muscles of alimentary canal.  
(a) Circular (b) Longitudinal  
(c) Smooth (d) Both a and b
- The leucocytes that are about twice the size of red cells, possesses a bilobed nucleus and are 2% of white cells on average is:  
(a) Basophils (b) Monocytes (c) Eosinophils (d) Lymphocytes
- How does the immune system respond to a pathogen it has encountered before?  
(a) It ignores the pathogen (b) It attacks the pathogen aggressively  
(c) It takes time to recognize and respond to the pathogen  
(d) All of these

BISE Mirpur

Biology Model Question Paper

Time Allowed: 2.35 hrs

Total marks: 68

Note: Answer any fourteen parts from section B and attempt any two question from section C. Write your answers neatly and legibly.

Section B (Marks= 42)

Q#2: Attempt any fourteen parts from the following. All parts carry equal marks. (14x3=42)

- i. What is phragmoplast? Give its role in cell division.
- ii. Compare isomers and stereoisomers of glucose. SLO
- iii. Define active site. Name its components alongwith functions of each.
- iv. Define cofactors. Give its types
- v. Discuss the role of RuBisCo in the calvin cycle and explain why it is considered one of the most abundant enzymes on earth. SLO
- vi. Differentiate between prion and viroin.
- vii. What is the chemical composition of cell wall of bacteria.
- viii. List unifying features of Archea that distinguish them from bacteria.
- ix. How would you differentiate between Ascomycetes and basidiomycetes. State atleast three features
- x. Define the following terms  
i) Polyphyletic      ii) Monokaryotic      iii) Dikaryotic
- xi. List atleast six land adaptations of bryophytes
- xii. How single veined leaf evolved in plants.
- xiii. Differentiate between acoelomate and pseudocoelomate
- xiv. Give any three adaptations of Platyhelminthes for parasitic mode of life
- xv. What is apoplast pathway? How does it differ from symplast pathway
- xvi. Name the three types of cells in gastric gland. Give function of each.
- xvii. How lipids and protein absorption occurs in small intestine of man.
- xviii. What is thrombus and differentiate between thrombus and embolus
- xix. How does the immune system distinguish between self and non self and why is this critical for immune function. SLO
- xx. Discuss the process of clonal selection and expansion in B lymphocytes. How does it leads to production of antibodies and memory B-cells. SLO

Section C

Marks: 26

Note: Attempt any two questions. All questions carry equal marks. 2x13=26

- Q#3: a) Describe the formation structure, function and disorders related to lysosomes. (1.5x4)  
b) How do T and B cells work together in adaptive immunity and what are their respective roles in immune response (4)  
c) Describe role of arterioles in vasodilation and vasoconstriction. (3)

- Q#4: a) Explain the chemical composition of acylglycerol and how do they differ from other lipid molecules. (5) SLO  
b) Draw and explain life cycle of Rhizopus. (5)  
c) Give the role of constituents of bile in human. (3)

- Q#5: a) How C<sub>4</sub> plants compensate for the energy loss due to photorespiration under high temperature (5) SLO  
b) List the distinguishing features of Phylum Echinodermata giving relevant examples. (4)  
c) Explain the role of physical barriers in the second line of defence. SLOs (4)

Note: SLO based questions must be taken from chapter # 2,4 and 13.