

Time: 3 hours

Marks: 100

N. b.

1. All questions are compulsory and carry equal marks.
2. Figures to right indicate full marks.
3. Draw neat labeled diagrams wherever necessary.
4. Attempt the questions in order.
5. Please check whether you have got the right question paper.

**Q.1 A) Fill in the blanks by choosing the correct options given below. 05**

- a) ----- described a live animal cell.  
(Theodore Schwann, Matthias Schleiden, Anton van Leeuwenhoek.)
- b) ----- are called power houses of cell.  
(Lysosomes, Golgi Complex, Mitochondria)
- c) TGN region is found in -----  
(Golgi complex, Endoplasmic reticulum, Nucleolus)
- d) ----- is a covalent linkage that links glycosides.  
(Peptide bond, Glycosidic bond, Ester linkage)
- e) The disease scurvy is caused due to deficiency of -----  
(Vitamin A, Vitamin C, Vitamin D)

**B) Match the columns I and II and rewrite. 05**

- | Column I         | Column II                  |
|------------------|----------------------------|
| a) Nucleolus     | i. Benda                   |
| b) Lysosomes     | ii. Leopold Gmelin         |
| c) Mitochondria  | iii. Joins two amino acids |
| d) Peptide bond  | iv. Christian de Duve      |
| e) Ester Linkage | v. Fontana                 |

**C) State whether True or False 05**

- a) In prokaryotic cell nucleus is absent.
- b) A typical mammalian nucleus has about 300 to 400 pores.
- c) Microtubules are discovered by De Robertis and Franchi in 1935.
- d) Peptide bond is found in lipids.
- e) The disease rickets is caused due to deficiency of vitamin D.

**D) Define the following. 05**

- a) Plasma membrane
- b) Osmosis
- c) Zone of exclusion
- d) Biomolecules
- e) Lipids

- Q.2** A) Describe the generalized structure of prokaryotic and eukaryotic cell. **10**  
**OR**  
 A) Describe diffusion and osmosis.
- B) Explain any Two from the following. 10**  
 a) Cell theory  
 b) Ultrastructure of nuclear membrane and pore complex.  
 c) General structure of plasma membrane.  
 d) Functions of microfilaments.
- Q.3** A) Give an account on occurrence functions of lysosomes. **10**  
**OR**  
 A) Give an account on Krebs's cycle **10**
- B) Explain any Two from the following. 10**  
 a) Ultrastructure of endoplasmic reticulum  
 b) Occurrence and morphology of mitochondria.  
 c) Types of lysosomes  
 d) Biogenesis of mitochondria.
- Q.4** A) Discuss the concept of micromolecules and macromolecules. Add a note on functions of macromolecules. **10**  
**OR**  
 A) Discuss the classification of fatty acids. **10**
- B) Explain any Two from the following. 10**  
 a) Properties of Carbohydrates.  
 b) Basic and typical structure of amino acids.  
 c) Ester linkage.  
 d) Deficiency and clinical significance of Vitamin D.
- Q.5** **Write short notes on any Four 20**  
 a) Ultrastructure of nucleus.  
 b) Simple diffusion.  
 c) Occurrence of endoplasmic reticulum.  
 d) Glycosidic bond  
 e) Clinical significance and causes of deficiency of Vitamin B<sub>12</sub>.  
 f) Functions and deficiency manifestation of Vit. A

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