

2 0 2 1

( July )

BIOCHEMISTRY

( Honours )

( Cell Biology and Physiology )

Marks : 56

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

Answer **four** questions, taking **two** from each Part

PART—A

( Cell Biology )

1. (a) Compare and contrast between a typical animal and plant cell. 7
- (b) With appropriate diagrams, discuss the structure and functions of gram-positive cell wall. 7
2. Write notes on the following : 7×2=14
  - (a) Bacterial taxis
  - (b) TMV

3. (a) Describe the various commonly utilized staining techniques in microscopy. 8
- (b) Describe the use of centrifugation in sub-cellular fractionation. 6
4. (a) What is cytoskeleton? Using diagrams, describe the structure and composition of microtubules and microfilaments. 8
- (b) Explain the importance of stem cells in animal system. 6

PART—B

( Physiology )

5. (a) How are proteins digested in the gastrointestinal tract? What is the end product of protein digestion and how are they absorbed? 3+4=7
- (b) Explain in detail the mechanism of skeletal muscle contraction. 7
6. (a) Define respiration. Explain the oxygen-hemoglobin dissociation curve. What are the factors that affect the affinity of oxygen binding to hemoglobin? 1+3+5=9
- (b) Briefly explain the roles of rod and cone cells in vision. 5

( 3 )

7. (a) Write short notes on any *two* of the following : 2×2=4
- (i) GPCR
  - (ii) G-protein
  - (iii) Second messenger
- (b) What is POMC? Explain the generation of different POMC peptides with illustrations. 2+5=7
- (c) What are the similarities and differences between intracellular and cell surface receptors? 3

★ ★ ★