

4/H-64 (iv) (Syllabus-2015)

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(May/June)

BIOCHEMISTRY

(Honours)

(Cell Biology and Physiology)

(BCHEM-401)

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 between a typical plant and animal cell. Explain the role of lysosomes and endoplasmic reticulum in eukaryotic cells. 4+4=8
- (b) Discuss the salient features of TMV. 6

(2)

2. (a) What is cytoskeleton? Using diagrams, describe the structure and composition of microtubules and microfilaments. $2+7=9$
- (b) Briefly explain the mechanism of flagellar locomotion. 5
3. Write short notes on any *two* of the following : $7 \times 2 = 14$
- (a) Stem cells
- (b) Density gradient centrifugation
- (c) Phase contrast microscopy
4. (a) Describe the commonly utilized staining techniques in microscopy. 8
- (b) Using appropriate diagrams, briefly explain the structure of mitochondria and chloroplast. 6

PART—B

(Physiology)

5. (a) Explain the absorption and transport of calcium in animals. Describe the role of calcium in blood coagulation. $5+4=9$
- (b) How is carbon dioxide transported from tissues to lungs? Discuss. 5

(3)

6. (a) Using suitable diagrams, describe the structure and functions of photoreceptor cells. 8
- (b) During muscle contraction, what changes are observed in sarcomeres? 6
7. (a) How are hormones classified? Explain how paracrine signaling differs from endocrine signaling. $4+2=6$
- (b) What is POMC? Explain the generation of different POMC peptides with illustrations. $2+6=8$
