

[This question paper contains 4 printed pages.]

Sr. No. of Question Paper : 753 E Your Roll No.....

Unique Paper Code : 107481

Name of the Course : **B.Sc. (Hons.) Botany/Biochemistry/Microbiology/  
Anthropology/Zoology.**

Name of the Paper : Cell Biology-II (CBHT 402)

Semester : IV

Duration : 3 Hours

Maximum Marks : 75

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Answer five questions in all, including Q. No. 1 which is compulsory.
3. Illustrate your answers with diagrams wherever necessary.

1. (a) Expand the following (any five):

(i) CFTR

(ii) GAGs

(iii) RSV

(iv) TNF

(v) MPF

(vi) Cdk

(vii) NGF

(5)

(b) Define the following (any five) :

(i) Calmodulin

P.T.O.

- (ii) Lipid-rafts
- (iii) Proto-oncogenes
- (iv) Stem cells
- (v) Metastasis
- (vi) Restriction point
- (vii) Aquaporins (5)

(c) Fill in the blanks (any five)

- (i) A \_\_\_\_\_ tumor, is capable of invading surrounding normal tissue.
- (ii) The enzymes bringing about the events of apoptosis are called \_\_\_\_\_.
- (iii) \_\_\_\_\_ is considered to be a secondary messenger in hormonal signalling.
- (iv) A complex polymer of phenolic residues called \_\_\_\_\_ provides further strength to the secondary walls in plants.
- (v) \_\_\_\_\_ span the entire lipid layer and have portions exposed on both sides of the membrane.
- (vi) \_\_\_\_\_ genes act to inhibit cell proliferation and tumor development. (5)

2. Differentiate between any five of the following :

- (a) Facilitated diffusion and ATP-mediated transport.
- (b) Tight and gap junctions
- (c) Endocrine and paracrine signalling

- (d) Plant and bacterial cell walls
  - (e) Adeno and retroviruses
  - (f) Cyclins and Cohesins (5×3=15)
3. Discuss the following (any three) :
- (a) Receptor mediated endocytosis
  - (b) Role of cyclic AMP in cell signalling
  - (c) Synaptonemal complex
  - (d) Cell-cell interactions (5×3=15)
4. Explain any three of the following:
- (a) ABC transporter
  - (b) Check points for cell cycle regulation
  - (c) Events of apoptosis
  - (d) Fluid mosaic model of plasma membrane (5×3=15)
5. Write short notes (attempt any five) on the following :
- (a) Properties of cancer cells
  - (b) Mobility of membrane proteins
  - (c) Components of primary and secondary cell walls
  - (d) Autocrine and endocrine signalling Therapeutic cloning and somatic cell nuclear transfer (5×3=15)

6. Explain any **three** of the following :

- (a) Medical applications of stem cells
- (b) Endergonic  $\text{Na}^+/\text{K}^+$  pumps
- (c) Strategies for prevention of cancer
- (d) Components of extracellular matrix

(3×5=15)