PG Odd Semester (CBCS) Exam., December—2017

BIOTECHNOLOGY

(1st Semester)

Course No. : BTYCC–102

(Cell Biology)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. *(a)* Discuss the structure and function of the nucleus. 5

(b) Differentiate between a prokaryotic cell and an eukaryotic cell. 5

(c) Write a note on fluorescence microscope. 4

OR

2. *(a)* Discuss the features of SEM and TEM. 8

(b) Write about the fractionation of sub-cellular organelles. 6

3. *(a)* Write about the structure-function relationship of biological membranes. 7

(b) Discuss the mechanism of signal transduction through the second messenger cAMP. 7

OR

4. *(a)* What are cell surface receptors? Why are they important for cell signaling? 2+2=4

(b) Compare and contrast between the mechanisms of cell signaling for peptide hormones and steroid hormones. 5+5=10

5. *(a)* What is cytoskeleton? What are the functions of the cytoskeleton? 2+3=5

(b) What are microtubules? Explain the mechanism of assembly and disassembly of microtubules. 2+7=9

OR

6. *(a)* Discuss the significance of cell-matrix interactions. 5

(b) Write about the polymerization of actin. 5

(c) What is E-cadherin? 4

7. *(a)* What are proto-oncogenes? 2

(b) Discuss the mechanism of conversion of proto-oncogenes to oncogenes. 7

(c) What is cellular transformation? 5

OR

8. Write short notes on the following : 7+7=14

(a) Apoptosis

(b) Cell differentiation

9. *(a)* Why is the plant cell wall important? Differentiate between primary and secondary plant cell wall. 2+5=7

(b) Write about chloroplast-nucleus interaction. 7

OR

10. *(a)* Discuss the growth and development of plants. 7

(b) Write about the different types of plastid and their functions. 7

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