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**C 125**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Third Semester

Biotechnology

BT 1202 — CELL BIOLOGY

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define an Eukaryotic cell with suitable diagram.
2. Write short notes on cytoskeletal proteins and its functions.
3. What is the function of sodium potassium pump and how its works?
4. What is endocytosis? Explain with one example.
5. What is the function of a membrane bound receptor? Explain with one example.
6. Explain endocrine signaling with suitable example.
7. How cyclic AMP act as a second messenger?
8. What is the molecular basis of cholera toxin action?
9. Define cell line with one example.
10. Write short notes on storage and maintenances of cell cultures.

PART B — (5 × 16 = 80 marks)

11. (i) Explain in detail ATP dependant proton pumps. (8)  
(ii) Explain the mechanism of entry of viruses and toxins into cells. (8)
12. (a) Explain in detail what is meiosis.

Or

- (b) Write an essay on cell cycle.

13. (a) (i) Explain calcium ion flux and cell signaling. (8)  
(ii) Role of cyclic GMP and G proteins in cell signaling. (8)

Or

- (b) (i) Write on protein phosphorylation. (5)  
(ii) How protein kinases are regulated? (5)  
(iii) Write about tumor necrosis factor receptor families. (6)
14. (a) (i) Explain cellular differentiation. (6)  
(ii) Role of matrix in cell growth. (5)  
(iii) How will you prevent contamination in cell cultures? (5)

Or

- (b) (i) What are the immunochemical, morphological analysis techniques available for cell culture studies? (8)  
(ii) Discuss the techniques for propagation of eukaryotic cells. (8)
15. (a) Write an essay on receptors and cell signaling. (16)

Or

- (b) Explain in detail autocrine, paracrine and endocrine mode of signal transduction with one example each. (16)
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