C 3081

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

Sixth Semester

Biotechnology

BT 1009 — CANCER BIOLOGY

(Regulation 2004)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are cyclin dependent kinase inhibitors (CDKI)? Give any two examples.

2. Differentiate between hereditary cancer and sporadic cancer.

3. What is Knudson postulate?

4. Define Relative Biological Effectiveness (RBE)?

5. Write any two RNA viruses and its associated cancer.

6. Write short notes on oncogene with serine-threonine specific protein kinase activity.

7. Explain briefly on the role of proteinase in the tumor invasion.

8. Write the soil and seed hypothesis of Paget.

9. Write the different types of cancer therapy?

10. What is meant by Chemotherapy? And classify them.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the role of cyclin and cyclin dependent kinase in the regulation of cell cycle with suitable diagram. (16)

Or

(b) Describe the identification of earlier stage of cancer development by using Polymerase Chain Reaction (PCR) technique with suitable examples. (16)

12. (a) (i) Discuss the different categories of carcinogenic compounds with their chemical structure. (6)

(ii) Write the biochemical conversion of polycyclic aromatic hydrocarbons to potent carcinogenic agent? (10)

Or

(b) Illustrate the molecular mechanism of X-ray induced carcinogenesis. (16)

13. (a) Discuss the biochemical role of Ras, Gsp, Gip proteins in normal and transformed cells. (16)

Or

(b) Write an essay on :

(i) molecular mechanism in the activation of proto-oncogene. (8)

(ii) DNA transfection assay. (8)

14. (a) Describe the altered cell surface properties and biochemical process of metastatic cell from tumor cell in details. (16)

Or

(b) Explain the different stages of metastatic process in detail. (16)

15. (a) Explain the stages involved in the delivery of radiation therapy. Discuss the complications of radiation therapy. (16)

Or

(b) What are monoclonal antibodies (MAbs)? Write the application of MAbs in the detection of cancer with suitable example.