(6 pages)

S.No. 6135 **P 22 BTE 1 A**

(For candidates admitted from 2022–2023 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Biotechnology — Elective

CANCER BIOLOGY

Time : Three hours Maximum : 75 marks

SECTION A — (20 marks)

Answer ALL questions.

I. (A) Multiple choice questions: (5 × 1 = 5)

1. Migration of cancerous cells from site of origin to other parts of body forming secondary tumor is called

(a) Diapedesis (b) Metastasis

(c) Proliferation (d) None of the above

2. Which of the fallowing gene is involved in conversion of proto- oncogenes into oncogenes causing cancer

(a) Tumor suppressor genes

(b) Transposons

(c) Metastasis genes

(d) Angiogenesis genes

3. Which one of the fallowing cancer does not form neoplasm

(a) Lymphoma (b) Sarcoma

(c) Lipoma (d) Leukemia

4. Certain statements are made about regulation of cancer

A. cellular level of tumor suppressor protein p53 is maintained by ubiquitin ligase Mdm^2

B. Overexpression of Mdm^2 was not found to convert normal cell into cancer cell by destabilizing p53.

C. Protein pl9 does not inhibit the activity of Mdm^2 thus stabilizing p53.

D. Loss of p19 function never converts normal cell into cancer cell

Choose the correct combination

(a) A and C (b) B and A

(c) A and B (d) A and D

5. This is concerned with the intrinsic pathway of apoptosis

(a) cytochrome d (b) cytochrome c

(c) cytochrome b (d) cytochrome a

(B) Fill in the blanks: (5 × 1 = 5)

6. Uncontrolled cell division may result in an over abundance of cells that look normal under a microscope. This process is known as ————

7. Tumors that invade neighbouring tissue are called ————

8. Apoptotic bodies can be recognized with the presence of ————.

9. ———— stimulate cytochrome release from mitochondria

10. Name the drug which acts as alkylating agent in chemotherapy ————

II. Define / Explain the following questions: (5 × 2 = 10)

11. Malignancy

12. BCl_2

13. Cdk inhibitors

14. Stem cells

15. Tumor markers

SECTION B — (5 × 5 = 25)

Answer ALL questions, choosing either (a) or (b).

16. (a) Describe the stages of neoplasm.

Or

(b) Define cancer. Write general classification of cancer.

17. (a) Describe the mechanism of tumorigenesis.

Or

(b) Write a note on Irradiation carcinogenesis and its mechanism.

18. (a) Write about the functional characteristics of Oncogenes:

(i) ras

(ii) erbA

Or

(b) Define tumor suppressor gene. Briefly explain the role of p53.

19. (a) Give a brief account on the process of Angiogenesis in tumor.

Or

(b) Define Metastasis. Write an account on Molecular mechanism of tumor metastasis.

20. (a) Write the classification of Cytotoxic drugs and their mechanism.

Or

(b) Describe the methods of cytogenetics in cancer. Elaborate FISH.

SECTION C — (3 × 10 = 30)

Answer any THREE questions.

21. Write a note on cancer. Give a detailed description of clonal origin, hallmarks of cancer.

22. Explain the mechanism of carcinogenesis with reference to Hepatitis Virus.

23. Illustrate apoptotic signaling pathways. Explain the role of caspases in mediating apoptosis.

24. Write a detailed account on diagnosis of cancer using microarray.

25. Write a note on Immunotherapy in cancer.

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