Semester: 6th

Subject Code: (203144383)   Date: (01/02/2024)
Subject Name: (Cancer Biology)   Time: (1hr: 30min)
                                                                           Total Marks: 40

Sr. No.

Q.1

(A) One-line Questions   **Marks**
1. What is the primary cause of cancer?   **05**
2. Name two types of cancer-causing viruses and their associated cancers.
3. How is the spread of cancer from its original site to other parts of the body termed?
4. What cellular process is often disrupted in cancer, allowing uncontrolled cell growth?
5. What are oncogenes, and how do they contribute to cancer development?

(B) Fill in the blanks
1. _____ is a signaling protein that stimulates the formation of blood vessels.   **05**
2. _____ is a process that eliminates damaged or unwanted cells to maintain tissue homeostasis.
3. Mutations in _____ and _____ genes are associated with an increased risk of breast and ovarian cancers.
4. Familial cancer syndromes are often associated with specific mutations in key _____.
5. The G1 checkpoint is regulated by the tumor suppressor protein _____, inhibiting the activity of cyclin-dependent kinases.

Q.2

Attempt any four (Short Questions)   **12**
(1) How do carcinogens contribute to the development of cancer?
(2) How does the mutation in the p53 gene contribute to cancer development?
(3) Differentiate between benign and malignant tumors, discussing their growth characteristics and potential impact on the body.
(4) Define metastasis and explain how cancer cells spread to form new tumors.
(5) How do cyclins and CDKs coordinate the cell cycle, and what are the consequences of their dysregulation?

Q.3

Attempt any two questions   **08**
(1) Analyze the role of mutations in specific genes, such as p53 and BRCA1/2, in the development of cancer, highlighting the consequences of these mutations on cell regulation.
(2) Explain the role of growth factors and receptors in cell cycle regulation, highlighting their significance in cancer development.
(3) How do oncolytic viruses selectively target cancer cells, and what is their role in cancer therapy?

Q.4

(A) According to Hanahan and Weinberg, what are the six biological hallmarks of cancer?   **05**

(B) Create a personalized treatment plan for a hypothetical cancer patient considering the type and stage of cancer.   **05**

OR

(B) Evaluate the therapeutic implications of understanding cell cycle checkpoints in cancer treatment. Provide examples of drugs targeting these checkpoints.   **05**