A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 59B20

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2019

Elective

Biomedical Engineering

15UBM920 CANCER BIOLOGY

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

1. Cancer caused by CO1-R

   (a) Uncontrolled mitosis (b) Uncontrolled meiosis

   (c) Rupturing of cells (d) Loss of immunity of cells

2. Which of the following types of protein could be coded by a tumor suppressor gene CO1-R

   (a) A protein that forms apart of growth factor signaling path way

   (b) A protein that codes for a DNA repair enzyme

   (c) A protein that helps prevent apoptosis

   (d) A protein that controls progression through the cell cycle

3. The following are the theories of carcinogenesis except CO2-R

   (a) Epigenetic theory (b)Virus theory

   (c) Immune surveillance theory (d) Multiclonal theory

4. Cancer cells can be easily destroyed by the radiations due to CO2-R

   (a)Fast mutation (b) Rapid cell division (c) Lack of mutation (d) Lack of oxygen

5. Oncogenes may be activated by all ,expect CO3-R

   (a) Promoter insertion (b) Viral infection

   (c) Reverse transcriptase (d) Mutations in proto oncogene

6. Which one of the following genes is involved in the conversion of proto-oncogenes into oncogenes causing cancer? CO3-R

(a) Metastasis genes (b) Angiogenesis genes

(c) Transposons (d) Tumor suppressor genes

7. Which of the following determines the energetically favorable direction of transport of the charged molecule across a membrane? CO4-R

(a) Membrane potential (b) Electrical potential

(c) Electro chemical gradient (d) Membrane equilibrium

8. Characteristic of a malignant tumor is defined as CO4-R

(a)Increase in size with time (b)Chromosomal abnormalities

(c) Presence of a pseudo capsule (d)Invasion beyond the basement membrane

9. When the radiation therapy is done to reduce the effect of cancer, it is called as_____ CO5-R

(a) Mutative treatment (b) Reduction treatment

(c) Palliative treatment (d) Genesis treatment

10. Which cancer is completely eradicated by radiation therapy CO5-R

(a) Cancer of stomach (b) Rectal cancer (c) Lung cancer (d) Skin cancer

PART – B (5 x 2= 10Marks)

11. What is cancer? Give causes of cancer. CO1-R

12. Mention any two human carcinogenesis. CO2-R

13. What are oncogenes? CO3-R

14. Define metastatic cascade. CO4-R

15. Differentiate between chemotherapy and radiation therapy. CO5-R

PART – C (5 x 16= 80Marks)

16. (a) Explain in detail about tumor suppressor genes. CO1-App (16)

Or

(b) Discuss in detail about various molecular tools and detection methods involved in cancer detection. CO1-App (16)

17.	(a)	Explain in detail about chemical carcinogenesis and physical carcinogenesis.	CO2-App	(16)
		Or		
	(b)	Discuss in detail about mechanisms of radiation carcinogenesis.	CO2-Ana	(16)
18.	(a)	Describe in detail about proto oncogene activity and growth factor.	CO3-Ana	(16)
		Or		
	(b)	Give some example of oncogenes. Draw neatly the retrovirus life cycle and explain it.	CO3-Ana	(16)
19.	(a)	Explain in detail about the clinical significance of invasion.	CO4-U	(16)
		Or		
	(b)	Write briefly about proteinases and tumor cell invasion.	CO4-Ana	(16)
20.	(a)	Write short notes on (i)Chemotherapy (ii)Radiation therapy	CO5-U	(16)
		Or		
	(b)	Give the detailed account of gene therapy and advancement in cancer therapy treatment.	CO5-U	(16)