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

Question Paper Code: 59B20

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

Elective

Biomedical Engineering

15UBM920 CANCER BIOLOGY

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The cell cycle or cell-division cycle is the series of events that take place in a cell leading to its division and duplication of its DNA (DNA replication) to produce _____ daughter cells. CO1-R

   (a) One (b) Two (c) Three (D) Four

2. _____ can able to diffuse through the plasma membrane and bind to internal receptors. CO1-R

   (a) Signal transduction (b) Signal receptors

   (c) Hydrophobic Molecules (d) Water-soluble legends

3. Carcinogenesis is the formation of a cancer, where_____ cells are transformed into cancer cells. CO2-R

   (a) Normal (b) Injured (c) death (d) Affected

4. _____ is the default state of all cells in cancer. CO2-R

   (a) Carcinogenesis (b) DNA mutations (c) Oncogenic viruses (d) Proliferation

5. Which one of the following gene 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

6. Which of the following is characteristic of a malignant rather than a benign tumour? CO3-R

(a) Undergoes metastasis.

(b) Develops a blood supply.

(c) Cells divide an unlimited number of times.

(d) Grows without needing a growth signal.

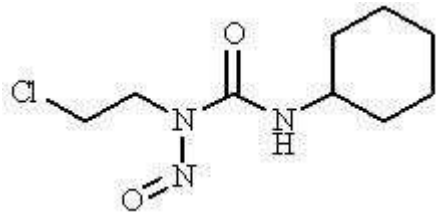
7. A marker for the diagnosis of pancreatic cancer is: CO4-R

(a) CA 15-3 (b) CA 19-9 (c) Alphafetoprotein (AFP) (d) CYFRA 21-1

8. Patients that have acquired immunodeficiency syndrome are at increased risk for which of the following neoplasms? CO4-R

(a)Colorectal Cancer (b) Meningioma (c) Kaposi's sarcoma (d) Hepatocellular carcinoma

9. The following structure is used in the treatment of brain tumours. CO5-R



What is the structure called?

(a) Carmustine (b) Lomustine (c) Streptozotocin (d) Cyclophosphamide

10. Chemotherapeutic drugs can cause? CO5 -R

(a) Only necrosis (b) Only apoptosis

(c) Both necrosis and apoptosis (d) Anoikis

PART – B (5 x 2= 10Marks)

11. Draw cell cycle neatly. CO1- R

12. List the importance of diet in cancer development. CO2- R

13. Define oncogenes. CO3- R

14. Outline metastasis. CO4- R

15. What is gene therapy? CO5 -R

PART – C (5 x 16= 80Marks)

16.	(a)	(i) Demonstrate molecular tools available for diagnosis of cancer.	CO1 -U	(8)
		(ii) Compare and contrast begnin and malignant tumor and its Salient features.	CO1- U	(8)
		Or		
	(b)	(i) Classify different forms of cancer induced by food materials and its preventive measures.	CO1- U	(8)
		(ii) Illustrate the role of tumor markers in cancer screening.	CO1- U	(8)
17.	(a)	Sketch the metabolism of carcinogenesis and explain in detail.	CO2- App	(16)
		Or		
	(b)	Describe the principles and the mechanism involved in physical carcinogenesis.	CO2 -Ana	(16)
18.	(a)	Explain the identification of retroviral oncogenes in detail.	CO3- Ana	(16)
		Or		
	(b)	Demonstrate the role of growth factors involved in the transformation of oncogenes.	CO3- Ana	(16)
19.	(a)	Elaborate on basement membrane disruption in cancer metastasis.	CO4- U	(16)
		Or		
	(b)	Brief three step theory of invasion of cancer in detail.	CO4 -U	(16)
20.	(a)	How the cancer will be detected? Explain in detail.	CO5- U	(16)
		Or		
	(b)	Describe the nano drug delivery system for cancer therapy.	CO5- U	(16)