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Question Paper Code: 59B20

B.E./B.Tech. DEGREE EXAMINATION, NOV 2018

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. 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 part 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-U (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 CO5- U (16)
- (i) Chemotherapy and
- (ii) Radiation therapy
- Or
- (b) Give the detailed account of gene therapy and advancement in cancer therapy treatment. CO5- U (16)

