

11. Arrange the following sequences of tumor development in correct order: 1)Metastasis, 2) Progression, 3) Promotion, 4) Initiation
 1,2,3,4 4,3,2,1 2,3,4,1 3,4,2,1
12. If a DNA is damaged, which of the following gene arrest the cell cycle?
 RB p15 p21 p53
13. Which of the following mutation causes Burkitt's lymphoma?
 Point mutation Translocation Inversion Duplication
14. Oncotype DX used for the screening of breast cancer by measuring the activity of
 20 genes 21 genes 22 genes 23 genes
15. In Wnt Signaling pathway the destruction complex does not consists of
 β -catenin Axin GSK3 APC
16. Which of the following is analog of thymine?
 Thioguanine Mercaptopurine Fluorouracil Cytarabine
17. Which of the following is an anticancer drug synthesized by Streptomyces group of bacteria?
 Doxorubicin Etoposide Teniposide Vinblastine
18. In clinical trials for the development of new drugs, the phase where randomized double-blind trial is generally done?
 Phase I Phase II Phase III Phase IV
19. Basic unit of radiation energy which express the total amount of energy present
 Sieverts RBE Gray Electronvolt
20. Which of the following is NOT a natural stimulator of angiogenesis?
 FGF VEGF Angiostatin Angiogenin

SECTION "B"

Fill in the blanks:

[10 Q \times 0.5=5 marks]

21. Cancer antigen 125 (CA 125) is released into the bloodstream by _____ cancer.
22. A cancer that has not yet invaded through the basal lamina is called _____.
23. Alkylating agents are highly reactive organic molecules that trigger DNA damage by acting as _____ agent.
24. Ammonium chloride when reacts with platinum electrodes forms a nitrogen-containing platinum compound called _____.

25. _____ is an analog of the gonadotropin - releasing hormone that controls the release of gonadotropins.
26. Apoptotic cell death triggered by lack of contact with the extracellular matrix is called _____.
27. The frequency with which a given dominant or homozygous recessive allele yields the expected trait within a population is known as _____.
28. A marker protein that is released into the bloodstream in elevated amounts in person having liver cancer _____.
29. _____ is a term used to refer to any alteration in gene expression that does not involve mutating the structure of a gene itself.
30. A protein that cleaves MMP precursors to active MMPs is called _____.



KATHMANDU UNIVERSITY
End Semester Examination
09 - January 2024

Level : B.Tech.
Year : IV
Time : 2 hrs. 30 mins.

Course : BIOT 410
Semester: I
F.M. : 55

SECTION "C"
[3Q. × 7 = 21 marks]

Attempt *ANY THREE* questions.

1. List the types of cancer caused by various cancer viruses. Describe briefly different mechanisms by which infectious agents can lead to the development of cancer. [2+5]
2. What are the warning signs that act as possible indicators of the presence of cancer? Elaborate on different imaging techniques used for the diagnosis of cancer. [2+5]
3. What is dominant negative p53 mutation? Describe different mechanisms that leads to the loss of heterozygosity. [3+4]
4. Describe the different groups of oncogenes based on the basis of their protein function.

SECTION "D"

5. Write short notes on (*ANY FOUR*): [4Q. × 3.5 = 14 marks]
 - a. Role of monoclonal antibodies in treatment of cancer.
 - b. Mechanism of action of phorbol esters.
 - c. Control points in cell cycle.
 - d. Role of cytochrome P450 in carcinogen activation.
 - e. Seed and soil hypothesis.
6. Write down **TWO** differences between (*ANY FOUR*): [4Q. × 2 = 8 marks]
 - a. Antimetabolites and Alkylating agents.
 - b. Schistosomiasis and Cholangiocarcinoma.
 - c. Physical sunscreen and Chemical sunscreen.
 - d. FOBT and PSA test.
 - e. Density-dependent inhibition of growth and Anchorage-independent
7. Give reasons why/ how? (*ANY FOUR*): [4 Q × 3 = 12 marks]
 - a. Antimetabolites disrupt DNA synthesis by substituting for molecules involved in normal metabolite pathways.
 - b. Combination chemotherapy helps in improving the effectiveness of chemotherapy.
 - c. Adoptive-cell-transfer (ACT) therapy can be used as an alternative to vaccination.
 - d. Activity of Ras protein is controlled.
 - e. Malaria has indirect role in causing Burkitt's lymphoma.

