3/21

# 1411E1180

Candidate's Seat No : _____

M.Sc. Sem.-3 Examination

502

CB

Time : 2-30 Hours] November-2025 [Max. Marks : 70

**Instructions:**

**All Questions are compulsory**
**Draw neat and labeled diagram wherever necessary**

| | | | |
|---|---|---|---|
| Q-1 | | **Write the following** | **14** |
| | (i) | Describe the characteristics of an ideal tumor antigen. | 7 |
| | (ii) | Explain briefly the relation between immune system and cancer. | 7 |
| | | **OR** | |
| | (i) | Explain the role of integrin and cadherin in cell adhesion and cell signalling mechanism. | 7 |
| | (ii) | Explain the role of IL-10 and TGF-Beta with respect to tumor microenvironment. | 7 |
| Q-2 | | **Write the following** | **14** |
| | (i) | Write a short note on the concept of immune surveillance including both supporting and opposing evidences. | 7 |
| | (ii) | Define cancer antigens. Explain any two of them in detail. | 7 |
| | | **OR** | |
| | (i) | Write a short note on viral antigen presentation. | 7 |
| | (ii) | What is lipid glycosylation and explain how altered glycosylation plays a role in malignancy? | 7 |
| Q-3 | | **Write the following** | **14** |
| | (i) | What is cell-free DNA? Describe potential applications of cell-free DNA in cancer management. | 7 |
| | (ii) | Who first discovered the hybridoma technique? Describe hybridoma technology in detail. | 7 |
| | | **OR** | |
| | (i) | Write a short note on role of proliferative biomarkers in cancer. | 7 |
| | (ii) | How therapeutic monoclonal antibody mediates direct tumor cell killing? | 7 |
| Q-4 | | **Write the following** | **14** |
| | (i) | Describe predictive biomarkers of breast cancer. | 7 |
| | (ii) | How does CTLA-4 inhibit T cell activation? Which therapeutic antibody inhibit CTLA-4? | 7 |
| | | **OR** | |

P.T.O

(i) Define tumor marker. Explain clinical significance of PSA, CEA, CA-15.3 and AFP for cancer patients. 7

(ii) Describe cancer preventive vaccine in detail. 7

Q-5 14

**MCQs/ Short Questions (Any seven out of twelve)**

1 **A tumor marker often elevated in pancreatic carcinoma and it is a sialylated form of the Lewis blood group antigen.**

a CA19-9 b CA125

c CA15-3 d CEA

2 **For class I MHC molecules, degradation of proteins carried out by _____ in the antigen processing mechanism.**

a Lysosomes b Proteasome

c Golgi apparatus d Endosomes

3 **What type of immune response is triggered by vaccination?**

a Innate Immune Response b Active Immune Response

c Passive Immune Response d None of the above

4 **Which cells can recognize HLA class I molecules through the inhibitory Killer Immunoglobulin like Receptors (KIR).**

a NK cells b Dendritic cells

c Red blood cells d Plasmacytoid cells

5 **It is generally assumed that HLA-G expression in malignant lesions is likely to have a _____ impact on the clinical course of the disease.**

a Positive b Negative

c None d Positive and Negative

6 **The process of immunoediting is divided into _____ phases.**

a Five b Two

c Three d Four

7 **EpiProcolonSEPT9 is a FDA approved test, useful for _____for patients with colorectal cancer.**

a Disease monitoring b Screening of disease

c Prognosis of disease d To predict response to therapy

8 **What is false positive?**

a The person has the disease and the test is positive

b The person does not have the disease and the test is positive

c The person has the disease and the test is negative

d The person does not have the disease and the test is negative

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9 **In validation of laboratory assay, the limit of detection indicates _____.**

a Sensitivity of the assay
b Specificity of the assay
c Accuracy of the assay
d Precision of the assay

10 **Mice do not express _____ CD1 molecules.**

a Group 1 and 2
b Group 2 and 3
c Group 1 and 3
d Group 2

11 **Which therapeutic antibody is work against VEGF?**

a Gefitinib
b Herceptin
c Bevacizumab
d Rituximab

12 **How do NK cells kill cancer cells?**

a By release of ER
b By release of FAP
c By release of perforin and granzyme
d By release of CD-28

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