

(3 hours)

(Total Marks : 100)

Instructions to the candidates, if any:-

- 1) All the questions are compulsory. Choice is internal.
- 2) Figures to the right indicate full marks.
- 3) All questions carry equal marks.
- 4) Draw flowcharts /diagrams wherever necessary.

Q1A) Fill in the blanks: (any three)

- i) Adaptive immunity is _____ line of defence.
- ii) _____ cells are responsible for cell mediated immune response.
- iii) _____ is a primary lymphoid organ.
- iv) Kuffer cells are a type of _____.

Q1B) Define and explain any one of the following:

- i) Effector Cells
- ii) Passive immunity

Q1C) Write a detailed note on any one :

- i) Cells of immune system
- ii) Cytokines

Q1D) Attempt any one:

- i) Elaborate on barriers of innate immune response.
- ii) Discuss the different secondary lymphoid organs.

Q2A) Fill in the blanks: (any three)

- i) Antibodies are _____ in nature.
- ii) There are _____ types of heavy chains.
- iii) Kappa is a type of _____ chain.
- iv) The first secreted antibody is _____.

Q2B) In an antibody molecule explain the role of any one of the following:

- i) Disulphide linkages
- ii) Hinge region

Q2C) Write a detailed note on any one :

- i) Types of peptide chains in an antibody
- ii) Factors affecting antigenicity

Q2D) Answer any one of the following:

- i) Discuss the mechanism of VDJ gene rearrangement
- ii) Explain in detail with the aid of a labelled diagram the structure of an antibody.

Q3A) Fill in the blanks: (any three)

- i) Glycogen Storage I disorder is inherited as an autosomal _____ trait
- ii) Thalassemia is a defect in _____ protein
- iii) Patients with Tay Sachs disease generally die by _____ years of age.
- iv) In ferritin, iron is in _____ oxidation state.

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Q3B) Define and explain any one term:

- i) Von Gierke disease (ii) Inborn error of metabolism

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Q3C) Write a short note on any one:

- i) Thalassemia (ii) Tay Sach's disease

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Q3D) In detail answer any one:

- i) Discuss the causes, biochemical changes and symptoms of atherosclerosis.
- ii) Write an informative note of sickle cell anaemia.

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Q4A) Fill in the blanks: (any three)

- i) Cancer cells show _____ nuclear-cytoplasmic ratio.
- ii) _____ are cancers of epithelial cells.
- iii) The shape of cells which have lost control of cell division is generally _____.
- iv) _____ radiations are carcinogenic.

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Q4B) Define any one:

- i) Sarcoma
- ii) Tumour

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Q4C) Write detailed notes on any one:

- i) Ames Test (ii) Oncogenes

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Q4D) Answer in detail any one:

- i) Discuss the treatment modalities that can be used for controlling cancer.
- ii) Describe the causes of cancer.

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Q5 A) Write notes on:

- i) Clonal selection theory
- OR
- i) Phagocytes.
- OR
- ii) Biological functions mediated by antibodies.
- OR
- ii) Digestion of antibody by pepsin
- OR
- iii) Albinism
- OR
- iii) Iron deficiency anaemia
- OR
- iv) Cellular changes occurring in a cancer cell
- OR
- iv) Malignant and benign tumours

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Q5B) State true or false: (any four)

- i) NK cells are a type of granulocytes.
- ii) Innate immunity takes around a week to develop.
- iii) Effector B-Cells are called CTL
- iv) In sickle cell anaemia, Glutamic acid at 16th position is replaced by valine.
- v) UV light is used for cancer therapy.
- vi) Na⁺ ions play a role in pathophysiology of hypertension

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