

National Board of Examinations

Question Paper Name : DNB Biochemistry Paper3

Is this Group for Examiner? : No

Enable Mark as Answered Mark for Review and Clear Response : Yes

Question Number : 1 Question Type : SUBJECTIVE

- a) List the major events that occur in each steps of the cell-cycle and discuss the various check points regulating the cell cycle. [6]
- b) Explain the role of nucleoside analogues as chemotherapeutic agents. [4]

Question Number : 2 Question Type : SUBJECTIVE

Discuss the metabolic alterations that occur in cancer cells, their biochemical mechanism and purposes that they serve in cancer cells. [4+3+3]

Question Number : 3 Question Type : SUBJECTIVE

- a) List the proteins involved in DNA replication and write about their functions. [5]
- b) Enumerate different types of DNA repair mechanisms. Explain in detail the mechanism of and disease(s) associated with any one of them. [5]

Question Number : 4 Question Type : SUBJECTIVE

- a) Discuss the various post-transcriptional modifications in eukaryotes. [7]
- b) Add a short note on defects associated with post-transcriptional modifications. [3]

Question Number : 5 Question Type : SUBJECTIVE

Explain in detail the mechanism of regulation of eukaryotic gene expression by enhancer elements. Add a note on the various DNA binding motifs. [5+5]

Question Number : 6 Question Type : SUBJECTIVE

- a) Mechanism of affinity maturation of antibodies and diseases associated with its failure. [5]
- b) Antigen recognition and effector mechanism of NK-cells. [5]

Question Number : 7 Question Type : SUBJECTIVE

- a) With the help of a labelled schematic diagram of the quaternary structure of an IgG molecule, indicate the site of action of the enzymes papain and pepsin on IgG. Explain the effect of papain and pepsin digestion on agglutination reaction of IgG. [3+1]
- b) Explain the different mechanisms leading to antibody diversity. [6]

Question Number : 8 Question Type : SUBJECTIVE

- a) Discuss the role of major histocompatibility complex (MHC) in self and non-self discrimination? [6]
- b) Explain the principle of immunoelectrophoresis and its applications. [4]

Question Number : 9 Question Type : SUBJECTIVE

- a) Immune escape mechanism of cancer cells and cancer immunotherapy. [4+4]
- b) V-ras in oncogenesis. [2]

Question Number : 10 Question Type : SUBJECTIVE

Define and classify tumour markers. Explain with suitable examples how tumor markers are used in cancer care. [(2+3)+5]