

**BIOPHARMACEUTICAL
(BIOT 6132)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.*

Candidates are required to give answer in their own words as far as practicable.

**Group – A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) Translation of mRNA into proteins takes place in the _____
(a) host cell nucleus (b) host cell cytoplasm
(c) viral nucleus (d) viral cytoplasm
 - (ii) Partial Agonist have efficacies when compared to that of Full Agonist
(a) Zero (b) Greater than Full Agonist
(c) Lesser than Full Agonist (d) None of the Above
 - (iii) Vaccination was invented by _____
(a) Jenner (b) Pasteur
(c) Watson (d) Crick
 - (iv) Which of the following statement is not true about the Live attenuated vaccine?
(a) It is prepared using whole weakened living bacteria or virus
(b) It can generate a long-term immune response in an individual with a single dose of vaccine
(c) Measles, MMR and oral polio vaccine are live attenuated vaccines
(d) it is stable at normal room temperature
 - (v) Medicine associated with treatment of leukemia is
(a) Ribovirin (b) Roferon
(c) Betaseron (d) None of the above
 - (vi) Which of the following type of vaccine did the Moderna and Pfizer-BioNtech companies designed for COVID-19?
(a) mRNA vaccine (b) Subunit vaccine
(c) Toxoid vaccine (d) Vector borne vaccine

- (vii) Gout is prevented in presence of
(a) DNase (b) Urate oxidase
(c) Galactosidase (d) Asparaginase
- (viii) IL-4 acts to
(a) enhance T cell responses (b) activate macrophages
(c) suppress cytokine production (d) suppress antibody production.
- (ix) Blood clotting process is linked to
(a) Calcium (b) Magnesium
(c) Manganese (d) None of these
- (x) Hemophilia A is due to deficiency of clotting of clotting factor
(a) X (b) XIII
(c) XII (d) V.

Group – B

2. (a) What is Bioavailability? How bioavailability can be determined?
(b) Describe the various mechanism of action of antibodies. **(2 + 4) + 6 = 12**
3. (a) Distinguish between pharmacodynamics and pharmacokinetics.
(b) Discuss with the help of diagram the differences between tolerance and sensitization.
(c) What are the different types of drug-drug interactions? **4 + 4 + 4 = 12**

Group – C

4. (a) Discuss how cytokine participate in signal transduction pathway.
(b) Write notes on tumor necrosis factor and nutrophic factor . **8 + 4 = 12**
5. (a) Briefly explain the mode of action of any one interferon.
(b) Write notes on IGF-1.
(c) What is interferon toxicity ? **4 + 4 + 4 = 12**

Group – D

6. (a) Discuss the therapeutic properties of Human Growth Hormone.

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(b) What is a Toxoid? Give one example.

(c) Give a brief description of the development of vaccine against Hepatitis B.

4 + 4 + 4 = 12

7. (a) How do cancer cells bypass the immune system?

(b) How can you use chimeric antibodies in cancer therapy?

(c) What do you mean by Humanized antibodies?

4 + 4 + 4 = 12

Group – E

8. (a) Write the mode of action of platelet in blood coagulation process.

(b) What are anticoagulants and write their mode of action.

6 + 6 = 12

9. (a) Briefly explain vascular spasm and platelet plug formation process.

(b) Write the mode of action of Asparaginase and urate oxidase.

6 + 6 = 12

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