

Code: 9A23806

B.Tech IV Year II Semester (R09) Regular Examinations, March/April 2013

**BIOPHARMACEUTICAL TECHNOLOGY**

(Biotechnology)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions.  
All questions carry equal marks.

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- 1 What are biopharmaceuticals? Describe in detail various sources from which biopharmaceutical are obtained.
- 2 Define pharmacodynamics. Discuss various mechanisms of drug action.
- 3 Describe in detail about various factors affecting drug absorption.
- 4 Explain the following:
  - (a) Current good manufacturing practices.
  - (b) Manufacturing facilities.
- 5 Describe in detail about production of biopharmaceuticals with suitable example.
- 6 Write a note on the following:
  - (a) Interleukins.
  - (b) Human growth hormones.
- 7 Enumerate hormones which are used in the treatment of breast cancer.
- 8 What are the different bio-materials required for sustained drug delivery and explain the requirements to meet specifications?

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- 1 Discuss in detail about the evolution of pharmacy.
- 2 Explain the targets of G-protein coupled receptor with suitable illustrations.
- 3 List the physiological factors that affect the drug distribution.
- 4 Discuss about the current good manufacturing practice regulation for bulk pharmaceutical chemicals.
- 5 Write in detail about the sources of raw materials for production of biopharmaceuticals.
- 6 Write short notes on production of the following biopharmaceuticals.
  - (a) Production of therapeutic proteins.
  - (b) Tumor Necrosis Factor (TNF).
- 7 Discuss the applications of cytokine therapy.
- 8 Give an account on the controlled and sustained delivery of drug.

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- 1 Define dosage form. Classify with examples different dosage forms.
- 2 What are physiological receptors? Classify receptors based on structure and function.
- 3 Describe in detail the process of biotransformation of biopharmaceuticals.
- 4 How will you address the process control of microbial contamination as per current good manufacturing practice standards?
- 5 Explain as to how the shelf life of the biopharmaceuticals are assessed.
- 6 Compare and contrast between interleukins I and II. Explain briefly their production of interleukins I.
- 7 Discuss about interferons and their types. How can you differentiate  $\alpha, \beta$  and interferons? For what type of disease treatment these are used.
- 8 Give an account on the liposomal mediated delivery of drug.

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- 1 What are different types of route of drug administration? Discuss the advantages and disadvantages of each route of drug administration.
- 2 (a) What is pharmacodynamics?  
(b) Define the following:
  - (i) Agonism.
  - (ii) Antagonism.
  - (iii) Potentiating.
  - (iv) Synergism.
- 3 What are the different pathways of drug absorption? How is the surface area available for absorption in the intestine can increased tremendously?
- 4 Describe the ICH guidelines on current GMP.
- 5 Explain the shelf life assignment for finished products.
- 6 Write a note on the following:
  - (a) Transgenic plant and animals.
  - (b) Gene therapy.
- 7 What are radioisotopes and give their application in treatment of thyroid and cancer?
- 8 Discuss in detail about the biocompatibility of biomaterials for drug delivery.

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