Exam Date & Time: 19-Dec-2022 (10:00 AM - 01:00 PM)

# MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.

**Advanced Pharmaceutical Biotechnology [PBT-MPB104T - S3]**

**Marks: 75** **Duration: 180 mins.**

## SECTION - A

**Answer all the questions.**

Answer the following (10 marks x 5 = 50 marks)

1) Discuss in detail the production of a recombinant sub-unit viral vaccine. (10)

2) Explain in detail the benefits of Pharmacogenomics. Discuss the goals and issues of concern with respect to Human Genome Project. (10)

3) Citing suitable examples, differentiate primary and established animal cell cultures. Write a note on preparation of callus culture. (10)

4) What are biosensors? Give an account of microbial biosensors based on transducers. Mention the advantages of using microorganisms as biosensing element. Enlist any four characteristics of an ideal biosensor. (10)

5) 'The entire drug development process usually takes about 10 - 15 years before an approved drug comes into the market'. Justify the given statement and elaborate the challenges faced by Pharmaceutical companies during the whole process. (10)

## SECTION - B

**Answer all the questions.**

Answer the following (5 marks x 5 = 25 marks)

6) Describe the features and types of DNA ligases and host cells used in rDNA technology. (5)

7) What is Single Nucleotide Polymorphism? Enlist their advantages, disadvantages and applications. (5)

8) Citing suitable examples, describe the use of cell cultures in the preparation of viral vaccines. (5)

9) Explain the principle and applications of stem cell markers. (5)

10) What is DNA microarray technique? Sketch the steps involved in cDNA based microarray. (5)

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