

Exam Date & Time: 14-Mar-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]

Marks: 75

Duration: 180 mins.

SECTION - A

Answer all the questions.

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

- 1) Discuss types and features of restriction enzymes and cloning vectors used in rDNA technology. (10)
- 2) Sketch the parts of a biosensor and enlist their functions. Write briefly the characteristics of an ideal biosensor and mention their applications. (10)
- 3) Differentiate somatic cell line and germ line gene therapy. Elaborate on any two physical and chemical methods to achieve gene delivery. Add a note on the advantages and disadvantages of gene therapy. (10)
- 4) Discuss the features and applications of primary, secondary and transformed cell cultures. (10)
- 5) What are the control measures taken to achieve highest level of confidence in the validity of results during drug design and development? Sketch the drug discovery process timelines and elaborate on the ways to find a lead molecule. (10)

SECTION - B

Answer all the questions.

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

- 6) Explain the principle and applications of transgenic technology. (5)
- 7) Describe the steps involved in Sanger sequencing. (5)

- 8) Explain the concept of 'population bottleneck and founder effect' through suitable examples and draw a comparison between the two. (5)
- 9) Discuss the process of development of callus culture. (5)
- 10) Explain the process of development of embryonic stem cells. (5)

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