Exam Date & Time: 03-Dec-2018 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.
Specialization: Pharmaceutical Biotechnology
Date: 03-12-2018
Microbial and Cellular Biology [PBT-MPB102T]

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

SECTION - A

Answer all the questions.

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

1) With the help of a neat labelled diagram, explain the lysogenic cycle of bacteriophage. Mention its consequences. (10)

2) Elaborate on the normal microbial flora of human gut. (10)

3) What are biofilms? What is its structure? Explain the chemistry and functions of the biofilm matrix. (10)

4) Enlist with specific examples the major targets of antibacterial chemotherapy. Discuss the mechanism of action, selective toxicity and mechanism of resistance to aminoglycosides. (10)

5) Explain the process of transcription in prokaryotes. (10)

SECTION - B

Answer all the questions.

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

6) Tetracyclines are not suitable for treating bacterial infections in a patient undergoing chemotherapy for leukaemia. Explain. (5)

7) Briefly outline different types of frameshift mutations. (5)

8) Explain the structure and types of bacterial flagella. (5)

9) Write a note on the role of probiotics in the prevention and treatment of diseases. (5)

10) Briefly describe the portals of entry and the role of colonization in the progression of a disease. (5)

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e & Time: 05-Dec-2018 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.
Specialization: Pharmaceutical Biotechnology
Date: 05-12-2018
Bioprocess Engineering and Technology [PBT-MPB103T]

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

SECTION - A

Answer all the questions.

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

1) Enumerate the basic functions of an Industrial fermenter (any four) and discuss aeration-agitation system, emphasizing on spargers and impellers (10)

2) Discuss the production of Penicillin by fermentation process and its recovery (10)

3) Enlist the methods for sterilizing air. Discuss the Humphrey-Gaden approach in the design of depth filters. Add a note on testing standards for air purity. (10)

4) What are the difficulties in scale up of fermentation processes? How are these overcome by scale down approach? (10)

5) Enlist different techniques for immobilization of enzymes. Describe the technique, application and limitation for any two methods. (10)

SECTION - B

Answer all the questions.

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

6) Fermentation broth undergoes different rheological changes during a typical fermentation. Explain these changes, citing examples. (5)

7) How is reverse osmosis different from dialysis? Explain. (5)

8) Give an account of Gate valves and globe valves (5)

9) Classify sensors and enumerate any four parameters for their evaluation (5)

10) Why are homofermentative organisms preferred over heterofermentative organisms for the production of Lactic acid? Briefly outline its production by fermentative process. (5)

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ate & Time: 07-Dec-2018 (02:00 PM - 05:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Manipal Academy of Higher Education, Manipal MPharm Theory End-Semester Examinations.
Specialization: Pharmaceutical Biotechnology
Date: 07-12-2018
Advanced Pharmaceutical Biotechnology [PBT-MPB104T]

Duration: 180 mins.

Marks: 75

SECTION - A

Answer all the questions.

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

1) Develop a protocol with proper justification to prepare and isolate a recombinant microorganism with 12.38 Kb insert that codes for a simple linear protein. (10)

2) Elaborate on any two methods of physical and chemical gene delivery. Write the advantages, disadvantages and ethical considerations of gene therapy. (10)

3) Explain the growth requirements of animal cell cultures. Add a note on steps involved in preparation of a plant tissue culture. (10)

4) Describe the concept and applications of tissue engineering. Differentiate embryonic and adult stem cells. (10)

5) Enlist any four types of DNA sequencing methods. Explain the principle and application of 'sequencing by synthesis' method. (10)

SECTION - B

Answer all the questions.

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

6) Explain the methods employed for preparing transgenic animals. (5)

7) Write briefly on personalized medicine. (5)

8) Citing suitable examples, differentiate primary and established cell cultures. (5)

9) Mention the basic requirements, advantages and applications of PCR. (5)

10) Write briefly on 16s rRNA sequencing. (5)

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