

Question Paper

Exam Date & Time: 01-Dec-2017 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

**MANIPAL COLLEGE OF PHARMACEUTICAL SCIENCES
END SEMESTER THEORY EXAMINATIONS - NOVEMBER 2017**

PROGRAM : MPHARM SEMESTER I

DATE : 01-12-2017

TIME : 2:00PM - 5:00PM

Bioprocess Engineering and Technology [PBT-MPB103T]

Marks: 50

Duration: 180 mins.

a

Answer all the questions.

Answer the following (5 marks x 8 = 40 marks)

- 1) Give an account of Air lift fermenter. (5)
- 2) Define screening. Write briefly on isolation methods not utilizing selection of the desired characteristic. (5)
- 3) Compare batch culture with continuous culture as investigative tool. (5)
- 4) Enlist the methods of strain improvement. Compare natural variants with mutants for improving productivity (5)
- 5) Enlist the methods for determination of oxygen transfer rate. Explain any one method for testing air purity. (5)
- 6) Define the term 'immobilization'. Compare and contrast packed bed and fluidized bed enzyme reactors (5)
- 7) What are factors affecting extraction? Explain the working principle and application of a countercurrent extractor. (5)
- 8) Describe the production of citric acid. (5)

b

Answer the following with specific answers (2 marks x 5 = 10 marks)

- 9) What is a rheogram? (2)
 - A)
 - B) Briefly explain the process of bioautography. (2)

- C) Mention the steps involved in recovery of Penicillin. (2)
- D) Differentiate impellers from baffles. (2)
- E) Enlist any four properties of an ideal antifoam. (2)

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