

M.PHARM. (PHARMACEUTICAL BIOTECHNOLOGY) SEM.-I (CBCS-2019 COURSE) : WINTER - 2021  
SUBJECT : BIOPROCESS ENGINEERING AND TECHNOLOGY

Day : Tuesday  
Date : 16-11-2021

Time : 10:00 AM TO 1:00 PM  
Max. Marks : 75

W. 2021-20726

N.B.

- 1) Attempt ANY FIVE questions from the following.
- 2) Figures to the RIGHT indicate FULL marks.

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- Q.1 a) Discuss merits and demerits of different culture types. (10)  
b) Write a note on shake flask culture. (05)
- Q.2 a) Differentiate a fermentor and bioreactor. (10)  
b) Draw a labeled diagram of tubular-flow reactor. (05)
- Q.3 a) Discuss factors affecting enzyme activity. (07)  
b) Discuss enzyme inhibitors. (08)
- Q.4 a) Describe mutagenesis as methods of strain improvement. (07)  
b) Give details of site directed mutagenesis. (08)
- Q.5 Write a detail process of Alcohol Fermentation. (15)
- Q.6 Write short notes. (15)  
a) Application of cellulase  
b) Single-cell protein  
c) Fermentation media

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