

SUBJECT : FERMENTER DESIGN & MICROBIAL BIOTECHNOLOGY

Day : Thursday
Date : 25/04/2019

S-2019-1209

Time : 03.00 PM TO 06.00 PM
Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat and labeled diagrams **WHEREVER** necessary.
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Q.1 Describe commercial production of amino acids, steroids, enzymes. **[15]**

OR

Write in brief importance of valves and steam traps in maintaining aseptic conditions. State different methods used for sterilization of fermentor.

Q.2 a) Write note on scale-up and scale-down process. **[10]**

b) Describe batch and continuous fermentation process. **[05]**

Q.3 Attempt **ANY THREE** of the following: **[15]**

- a) State about fluid Rheology.
- b) Describe importance of sparger, baffles and impellor
- c) Mention microbial SCP production.
- d) Write note on Antifoam agents.

Q.4 Write short notes on **ANY THREE** of the following: **[15]**

- a) Factors affecting $K_L a$ value in fermentation vessels
- b) Air lift fermentor
- c) Deep jet fermentor
- d) Microbial production of nucleotides

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