

2015
(December)

Time : 2 hours

Full Marks : 40

The questions are of equal value.

*Answer any **four** questions.*

**(BIOPROCESS TECHNOLOGY AND
INDUSTRIAL BIOTECHNOLOGY)**

1. Enumerate the salient features of primary and secondary metabolites.
2. Write short notes on the following :
 - (a) Pulse bioreactors
 - (b) Fermentation economics

3. Describe the bioreactor design used for waste treatment.
4. Write short notes on the following :
 - (a) Microbial growth cycle
 - (b) Scale up and scale down process
5. Describe the use of microorganisms in mineral beneficiation and oilrecovery.
6. Write short notes on the following :
 - (a) Effluent treatment
 - (b) Product purification
7. Describe the process technology used for the production of ethanol.
8. Write short notes on the following :
 - (a) Penicillin
 - (b) Plagiarism

