

M. Sc. DEGREE EXAMINATION, NOVEMBER 2011
BIOTECHNOLOGY
THIRD SEMESTER

COURSE : CORE
PAPER : BIOPROCESS TECHNOLOGY AND ENZYME TECHNOLOGY
TIME : 3 HOURS MAX. MARKS: 100

SECTION – A

ANSWER ALL QUESTIONS. (20 x 1 = 20)

1. Write a note on media composition.
2. Define aerobic and anaerobic processes.
3. What are enzymes?
4. Mention the types of inhibition.
5. Give the Monod equation for cell growth.
6. What are bioreactors?
7. Define thermal death kinetics.
8. What are the packing materials used in a packed – bed reactor?
9. Define immobilised enzymes.
10. Define oxygen transfer rate.
11. Define mass transfer coefficient.
12. Mention the uses of amylase.
13. Define centrifugal force.
14. Mention any three techniques used for cell disruption.
15. What is the principle of ion- exchange chromatography?
16. What is microfiltration?
17. Give the names of any two enzymes of diagnostic importance.
18. Define artificial enzymes.
19. What are biosensors?
20. Explain the term unnatural enzymes.

SECTION – B

ANSWER ANY FOUR QUESTIONS, EACH WITHIN 600 WORDS. (4 x 10 = 40)

21. What are the steps involved in optimizing a process? Explain.
22. Give an account on the application of computers in fermentation technology.
23. What are impellers? Mention their types and explain their uses.
24. How is the purification of bio products carried out using microfiltration and ultrafiltration techniques?
25. Explain the role of enzymes in the food and pharmaceutical industries?
26. What are the physical and chemical techniques used to immobilise enzymes? Explain.

SECTION – C

ANSWER ANY TWO QUESTIONS, EACH WITHIN 1500 WORDS. (2 x 20 = 40)

27. Derive the Michaelis- Menten equation. What are its advantages and disadvantages?
28. List out the types of bioreactors and explain.
29. Explain the applications of immobilised enzymes in industries and in medicine.
30. Write short notes on:
 - a) Reverse osmosis.
 - b) Enzyme mimicking.
 - c) Molecular sieving.
 - d) Affinity Chromatography.
