STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2008 – 09)

SUBJECT CODE: BY/PC/BP35

M. Sc. DEGREE EXAMINATION, NOVEMBER 2009
BIOTECHNOLOGY
THIRD SEMESTER

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

SECTION – A

Answer all questions: **20 x 1 = 20**

1. Define bioprocess technology.
2. What is optimization?
3. Define upstream.
4. List out the antifoaming agents.
5. What are bioreactors?
6. Define Head Space.
7. What are baffles?
8. What are impellers?
9. What is Residence Time?
10. Define and give the equation for Reynolds Number.
11. Explain the term Rheology.
12. Define mass transfer.
13. Define the coefficient of oxygen transfer.
14. Give the Monod equation.
15. Define thermal death coefficient.
16. What is reverse osmosis?
17. What is filtration? List the types.
18. Define molecular sieving.
19. What is downstream processing?
20. Give the principle of ion- exchange chromatography.

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SECTION – B

Answer any four questions in about 600 words : **4 x 10 = 40**

21. Explain upstream processing in a bioprocess technique.
22. What are continuous reactors? List their advantages.
23. Give an account on plug flow reactors.
24. What are rheological properties? Explain.
25. Write a note on computer aided control for parameters in bioprocesses.
26. Differentiate and explain ion- exchange and affinity chromatography.

SECTION – C

Answer any two questions in about 1500 words: **2 x 20 = 40**

27. Give an account on the types of bioreactors.
28. Explain continuous and fed batch kinetics of substrate utilization and product formation.
29. Write short notes on:
    a) Gas Liquid mass transfer.
    b) Theory of mixing.
30. Write short notes on
    a) Ultrafiltration.
    b) Reverse osmosis.
    c) Cell disruption technique.
    d) Molecular sieving.

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