



Register Number:

Date: 11-01-2021

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
B.Sc. Biotechnology - I SEMESTER
SEMESTER EXAMINATION: JANUARY 2021
BT 118 – BIOCHEMISTRY AND MICROBIOLOGY

Time- 2 1/2 hrs

Max Marks-70

This paper contains **TWO** printed pages and **THREE** parts

I. Answer any TEN of the following

2x10=20

1. What are the different kinds of chemical bonds found in biological systems?
2. What is inversion?
3. Mention 4 characteristics of protein denaturation.
4. What is saponification number? What is it indicative of?
5. State the deficiency symptoms of (a) Vit E (b) Vit A.
6. State the functions of (a) Glucagon (b) Testosterone
7. Discuss four contributions of Louis Pasteur.
8. What is a D-value in relation to control of microorganism?
9. Why is 'GC content' important in classification?
10. List the economic importance of fungi.
11. What is MPN? Describe its utility in bacteriology.
12. Draw the structure of a T-even phage.

II. Write short notes on any FIVE of the following

6x5=30

13. Explain Urey- Miller experiment with the help of a neat labelled diagram.
14. Describe the structure of starch. Mention its functions.
15. Explain competitive inhibition with suitable graphs.
16. Explain identification of isoelectric pH using titration curves.
17. Explain the physical method of using heat to control microorganisms.
18. Write a short note on the life cycle of the malarial parasite, along with a neat illustration.
19. Discuss the steps in lytic and lysogenic cycles of bacteriophage with neat illustrations.

III. Answer the following

10x2=20

20. a. A *Bacillus subtilis* log phase culture of 2000 cells was inoculated into LB broth and incubated at 37°C for 3 hours at the end of which the total cells were measured to be around 20 lakh. Assuming no cell death,
 - i. Calculate the number of generations the bacteria underwent in this time.
 - ii. Calculate its generation time in this media.
 - iii. Describe how you would maintain this culture in log phase for an additional two weeks.

OR

- b. With a neat labelled diagram, discuss the structure of a bacterial cell wall.

21. a. With a neat labelled diagram, discuss the structure of DNA.

OR

b. Explain the different levels of protein structure using neat labelled diagrams.

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