20000748

**QP CODE: 20000748**

**Reg No :** .....

**Name :** .....

## MSc DEGREE (CSS) EXAMINATION , NOVEMBER 2020

### Second Semester

M Sc MICROBIOLOGY

### CORE - MG030204 - MICROBIAL PHYSIOLOGY AND METABOLISM

2019 Admission Onwards

65FCAB60

Time: 3 Hours Weightage: 30

**Part A (Short Answer Questions)**

*Answer any **eight** questions.*

*Weight **1** each.*

1. Compare bacterial cell mass and cell number.
2. Illustrate the role of efflux pumps in the drug transport systems.
3. What are sensor proteins? How do they function in regulons?
4. What are the genes involved in quorum sensing?
5. Why is Acetyl CoA important in microbes?
6. Write a note on reductive C4-carboxylic acid cycle in bacterial CO2 fixation?
7. What are hopanoids ?
8. List out the important properties of polyhydroxy alkanoate.
9. Write a short note on polyamine biosyntesis in bacteria.
10. Explain the role of glutamine synthetase in protein catabolism?

(8×1=8 weightage)

**Part B (Short Essay/Problems)**

*Answer any **six** questions.*

*Weight **2** each.*

11. Outline the methods used to determine the efficiency of microbial growth
12. Discuss transport of inorganic ions in bacteria.
13. What is heat shock response? How is heat shock response regulated in in bacteria.
14. List out the constituents of the electron transport chain with suitable figures?

15. Give an account on fermentative pathways in production of alcohol?

16. Mention the enzymes and coenzymes present in fatty acid synthetase system. Illustrate their functions.

17. Outline the catabolism of leucine and glutathione in microbes.

18. Recall in detail the regulatory mechanisms of purine biosynthesis in microbes.

(6×2=12 weightage)

**Part C (Essay Type Questions)**

*Answer any **two** questions.*

*Weight **5** each.*

19. Describe in detail on the mechanism of action and significance of the Nar regulons in microbial system.

20. Describe in detail the metabolism of complex polysaccharides in microbes?

21. Write an essay on synthesis of unsaturated fatty acids in bacteria.

22. Outline the biosynthesis of aromatic amino acids and its regulation .

(2×5=10 weightage)