

SEMESTER EXAMINATION-2021
CLASS – M.SC. SUBJECT MICROBIOLOGY
PAPER CODE: MMB-C103 PAPER TITLE Microbial Physiology
and Biochemistry

Time: 3 hour

Max. Marks: 70

Min. Pass: 40%

Note: Question Paper is divided into two sections: **A and B**. Attempt both the sections as per given instructions.

SECTION-A (SHORT ANSWER TYPE QUESTIONS)

Instructions: Answer any five questions in about 150 words (5 X 6 = 30 Marks) each. Each question carries six marks.

Question-1: Write some differences between anabolism and catabolism.

Question-2: Write the role of ATP as an intermediate in catabolic and anabolic reactions.

Question-3: List some differences between cofactor and coenzyme.

Question-4: Give a brief account of classification of enzymes.

Question-5: Write a short note on active transport and group translocation.

Question-6: Discuss transport of iron in brief.

Question-7: What are oxygenic and anoxygenic photosynthetic bacteria?

Question-8: Write a short note on photosynthetic pigments.

Question-9: Discuss structure and mechanism of action of nitrogenase in brief.

Question-10: Write the role and regulation of *nif* genes.

SECTION-B (LONG ANSWER TYPE QUESTIONS)

Instructions: Answer any FOUR questions in detail. Each (4 X 10 = 40 Marks) question carries 10 marks.

Question-11: Define metabolism. Describe generation of ATP in a bacterial cell.

Question-12: Explain the features of Pentose Phosphate Pathway and TCA cycle.

Question-13: Describe classification of enzyme along with mechanism of enzyme action.

Question-14: What are allosteric enzymes? Write their mechanism of action.

Question-15: Discuss uptake of solutes in bacterial cell.

Question-16: Give a detailed account of amino acid biosynthesis with reference to glutamate family.

Question-17: Describe mechanism of bacterial photosynthesis in detail.

Question-18: What is symbiotic nitrogen fixation? Write in detail the process of nodule formation by symbiotic bacteria in plants.

Paper Code: MMB-C103