

**BACHELOR OF SCIENCE (CBCS-2018 COURSE)**  
**S. Y. B. Sc. Sem-III : WINTER- 2022**  
**SUBJECT : MICROBIOLOGY : MICROBIAL METABOLISM**

Day : Thursday

Time : 10:00 AM-01:00 PM

Date : 8/12/2022

**W-18359-2022**

Max. Marks : 60

---

**N.B.**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the right indicate **FULL** marks.
- 

- Q.1** Attempt **ANY TWO** of the following: (12)
- a) Describe the mechanism of enzyme action.
  - b) What are allosteric enzymes? Describe the structure of ATCase.
  - c) Explain the TCA cycle of energy production.
- Q.2** Attempt **ANY TWO** of the following: (12)
- a) Describe the following theories of enzyme catalysis:
    - i) Proximation effect
    - ii) Acid Base Catalysis
  - b) Explain in detail the role of ATP in bacterial metabolism.
  - c) Describe the various methods of investigation of active site.
- Q.3** Attempt **ANY TWO** of the following: (12)
- a) Explain the effect of pH and temperature on the activity of enzymes.
  - b) Comment on – “Biological role of enzymes”.
  - c) Discuss in detail the non-cyclic photophosphorylation.
- Q.4** Attempt **ANY THREE** of the following: (12)
- a) Discuss in detail Pentose phosphate pathway.
  - b) Describe in detail the generation of ATP through substrate level phosphorylation.
  - c) Write in detail on bio energetics.
  - d) What are flavoproteins? Discuss with an example.
- Q.5** Write short notes on **ANY FOUR** of the following: (12)
- a) Optical specificity
  - b) Group translocation
  - c) *Halobacterium* and its significance
  - d) Cytochromes
  - e) Algal photosynthesis

\* \* \* \*