BACHELOR OF SCIENCE (CBCS-2018 COURSE)
S. Y. B. Sc. Sem-III : WINTER :- 2021
SUBJECT: MICROBIOLOGY : MICROBIAL METABOLISM

Day : Thursday
Date 20-01-2022

W-18359-2021

Time : 10:00 AM-01:00 PM
Max. Marks: 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labeled diagram **WHEREVER** necessary.

Q.1 Attempt **ANY TWO** of the following: **[12]**

a) Describe Tricarboxylic acid cycle in prokaryotic microorganism.
b) Define the term enzyme and explain any two theories of enzyme catalysis.
c) Giving suitable examples explain enzyme specificity.

Q.2 Attempt **ANY TWO** of the following: **[12]**

a) With the help of suitable diagram explain 'Lock and Key Hypothesis'.
b) Discuss electron carriers involved in the electron transport chain of bacteria.
c) Explain the use of substrate analogue for investigation of active site in enzymes.

Q.3 Attempt **ANY TWO** of the following: **[12]**

a) Justify the statement that, 'Allosteric enzymes are rate regulatory enzymes'.
b) Explain the characteristics of ATP which justifies preferred energy source by bacteria.
c) Comment on cyanobacterial photosynthesis.

Q.4 Write short notes on **ANY THREE** of the following: **[12]**

a) Effect of temperature on enzyme activity
b) Hydrogen carriers
c) Active transport
d) Reducing power

Q.5 Attempt **ANY FOUR** of the following: **[12]**

a) Explain the use of reducing agent for investigation of active site.
b) What is turn over number of enzymes? Explain the concept giving suitable example.
c) Give merits and demerits of 'Induced Fit Hypothesis'.
d) What is facilitated diffusion for transport of nutrition in bacteria?
e) Give any two reactions which justifies generation of high energy bonds during substrate level phosphorylation.
f) Explain the importance of purple membrane in *Halobacterium*.

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