SEAT NO._____ No of printed pages: 02

[73/A12]

SARDAR PATEL UNIVERSITY

B.Sc 5TH SEMESTER EXAMINATION 2019

15th November , 2019

SUBJECT: MICROBIOLOGY US05CMIC03

Microbial Physiology and Enzymology Total Marks: 70

Q-1 Attempt Multiple Choice Questions: Choose the Most Appropriate One. (10)

1. PTS involves phosphorylation of sugar by transferring PO4 group from which of the following as PO4 group donor?
   a) HPr b) Phospho enol pyruvate c) EI d) EII
2. Which of the following is siderophore encoded by virulence plasmid?
   a)aerobactin b) enterobactin c) transferring d) all of these
3. Which of the following is/are an example of semi-synthetic penicillin?

   a)Amphicillin b) Amoxycillin c)oxacillin d) All of above

4. Which of the following is antiviral drug used against AIDS?
   a) Acyclovir b) Amantadin c) AZT d) none of the above

5. Stator, rotar , mot A, mot B, Fli F, Fli G are associated with bacterial …
   a) sporulation b) drug resistance c) cell division d) flagella
6. Proteases /amylases are enzymes of which class?
   a)Oxidoreductase b) hydrolase c) isomerase d)transferase

7. All enzymes are proteinic in nature except.....
   a)amylase b) ribozyme c) invertase d) none of these
8. Random sequence, ordered sequence and ping pong reactions are related to
   a)Allosteric enzyme b)enzyme inhibition c) multi substrate reactions
   d) all of these
9. Enzymes enhance the rate of thermodynamically favorable reaction by lowering ____ energy.

   a) Activation b) Quantum c) Free d) All

10. Which of the following vitamin is required as coenzyme for the oxidation-reduction reaction?

    a) Biotin b) Riboflavin c) Pyridoxine d) Thiamine

Q-2 Attempt any ten (10) questions in short. (20)

1. What are PTS sugars?
2. What are signal peptides?
3. Mention any two applications of siderophores.
4. Mention the stages of bacterial germination .Write one/two line for each stage.
5. Mention the limitations of streptomycin.
6. Mention the mechanism of action of Acyclovir.
7. Induced What are isoenzymes? Give suitable example
8. Define active site. Enlist any four properties of enzymes.
9. Draw the structure of cell membrane explaining Fluid mosaic model of Sanger and Nicholson.
10. Explain ping pong mechanism?
11. What is first order and zero order enzyme substrate reaction?
12. Write characteristics of allosteric enzymes.

Q-3 (A)Write a note on :Na-K pump (05)

(B)Define factors affecting rate of diffusion and compare facilitated diffusion to passive diffusion. (05)

OR

Q-3 (A)Write a note on siderophores (05)

(B) Write a note on Group translocation (05)

Q-4 Enlist general mode of action of chemotherapeutic agents and explain penicillin, its mode of action and resistance to penicillin (10)

OR

Q-4 Draw labeled ultra structure of bacterial endospore and explain the process of sporulation (10)

Q-5 (A) Explain IUB system of classification of enzymes (05)

(B) Explain factors affecting enzyme action. (05)

OR

Q-5 (A)Explain enzyme specificity. (05)

(B)Enlist mechanisms of enzyme action and explain substrate strain theory and Lock and key theory. (05)

Q-6 Derive M.M.Equation using Brig Haldane assumption and mention significance of Km (10)

OR

Q:6 (A)Explain covalent modification as a type of enzyme regulation. (05)

(B)Explain reversible types of enzyme inhibition with labeled graphs. (05)