SEAT No._____ No. of Printed Pages : 2

[103]

SARDAR PATEL UNIVERSITY
5th SEMESTER - B.Sc.
USO5CMIC03
MICROBIAL PHYSIOLOGY AND ENZYMOLOGY.

Date : 28/12//2020. Day: MONDAY.
Time : 02:00 P.M. to 04:00 P.M. Total marks :70

Q.1 Select the correct answer for each question from the options given below. [10]

1 Signal peptides are primarily composed of _____ amino acids.
(a) 18. (b) 20.
(c) 22. (d) None of these.

2 Facilitator proteins are invoved in _____.
(a) Osmosis. (b) Group translocation.
(c) Passive diffussion. (d) None of these.

3 _____ is an example of passive diffusion.
(a) Group translocation. (b) Active tramsport.
(c) Binding Protein transport. (d) None of these.

4 _____ is an example of antibiotic inhibiting cellwall synthesis.
(a) Penicillin. (b) Streptomycin.
(c) Both (a) and (b). (d) None of these.

5 Which of the following is an ideal characteristics of chemotherapeutic agent?
(a) Selective toxicity. (b) Broad antimicrobial spectrum.
(c) No resistance. (d) All of these.

6 Resistance of endospore is due to production of _____ in spore.
(a) Sodium dipicolinate. (b) Calcium-dipicolinate.
(c) Magnesium-dipicolinate. (d) None of these.

7 Enzymes enhances rate of the thermodynamically favourable reaction by lowering _____ energy.
(a) Activation. (b) Kinetic.
(c) Quantum. (d) Free.

8 Enzymes which catalyze same reaction but are having different properties are known as _____.
(a) Zymogen. (b) Isoenzyme.
(c) Apoenzyme. (d) None of these.

9 In competitive inhibition, value of Km is _____.
(a) Decreased.. (b) Increased.
(c) Remains constant. (d) None of these.

10 Which of the following is found as coenzyme in NAD^+ and $NADP^+$?
(a) Folic acid. (b) Ascorbic acid.
(c) Citric acid. (d) Nicotinic acid.

Q.2 [08]

A **State if the given statements are true or false**

1 In active transport,prokaryotic cell uses proton motive force as source of energy.
2 Signal peptides contains more positively charged aminoacids.
3 Temparature coefficient or Q_{10} is defined as increase in enzyme velocity when temperature is increased by 20 ^{0}C.
4 Double reciprocal plot is also known as Hanes plot.

B **Give appropriate answers for the given blanks.**

1 _____ is an example of passive nutrient transport process.
2 _____ antibiotic damages cell membrane of prokaryotes.
3 The region of enzyme which has binding and catalytic sites are termed as _____.
4 _____ scientist was involves in finding enzyme kinetics.

Q.3 [20]

Answer the following short questions:-(Attempt any ten)

1 What is facilitated diffusion? Write its characteristics.
2 What are signal peptides? Write its role.
3 Give example of permease protein involved in active transport of nutrient.
4 What are semi-synthetic penicillins ? Write its advantages.
5 Write few ideal characteristics of a chemotherapeutic agent.
6 Give examples of antibiotics which damages cell membranes of microorganisms.
7 What is prosthetic group of enzyme.
8 Define:- Coenzyme and Zymogen.
9 What is allosteric site ?
10 What is active site of enzyme ?
11 Draw the substrate saturation curve.
12 What is Km ?

Q.4 [32]

Answer the following long questions:-(Attempt any four)

1 Write on Binding protein transport as mechanism of nutrient transport.
2 What are siderophores? Write its mechanism.
3 Write in detail about antibiotics inhibiting protein synthesis of pathogens.
4 What is endospore? Explain various stages of sporulation.
5 Discuss the strategies for purification of enzymes.
6 Describe various factors affecting enzyme action.
7 Describe in detail M-M equation using steady state assumption.
8 Describe enzyme inhibition in detail.

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