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Seat no.....

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SARDAR PATEL UNIVERSITY
Bachelor of Science (Semester 5) Examination February 2025
US05CMIC22
Microbial Metabolism

Date: 6/10/25

Time: 10:00 AM to 1:00 PM

Marks: 70



Q:1 Select appropriate answer:

10

1. Entropy of the universeduring all chemical and physical reactions/processes.
a) decreases b) remain constant c) becomes zero d) increases
2.is the free energy change during a biochemical reaction.
a) ΔG^0 value b) ΔE_0 value c) Redox potential d) both b and c
3.is/are energy rich compound .
a) ATP b) GTP c) Phospho Enol Pyruvate d) all of these
4.is the proteinic portion of the enzyme molecule.
a) Coenzyme b) Prosthetic group c) Apoenzyme d) Holoenzyme
5. EC no. is aboutnumber in the field of biochemistry.
a) Elective commission b) Elected biochemist
c) Enzyme commission d) all of these
6. Regulatory molecule binds to site other than catalytic site of the enzyme in.....
a) Coenzymes b) isoenzymes c) allosteric enzymes d) zymogen
7. Phosphofructokinase is one of the regulatory enzyme of
a) HMP pathway b) ED pathway c) TCA cycle d) EMP pathway
8.is/are oxidative pathway.
a) HMP pathway b) c) TCA cycle c) EMP pathway d) all of these
9.is for synthesis of glucose from non carbohydrate precursors .
a) Gluconeogenesis b) Glycogenolysis
c) Glycolysis d) both a & b
10. Biosynthesis ofoccur from Malonyl COA
a) Palmitic acid b) stearic acid c) fatty acid d) all of these

Q:2 Answer in brief: (any ten)

20

1. Define :Uniport and symport
2. Define: Plasmolysis and Plasmolysis.
3. Draw biochemical structure of ATP.
4. Define: Enzyme.
5. Write properties of an enzyme.
6. Mention factors affecting on enzyme action.
7. Mention energetics of EMP pathway.
8. Define : Metabolism
9. Define ω oxidation of fatty acid and mention its products.
10. Draw reductive TCA cycle with proper labeling.
11. Explain in brief: Pulse labeling technique and its application.
12. What is ACP? Mention its role.



[P. T. O.]

(1)

- Q:3 Draw bacterial ETC and explain oxidative phosphorylation 10
- OR 10
- Q:3 Explain: i) Na^+/K^+ pump ii) Group translocation
- Q:4 Derive M.M.equation and mention importance of K_m and V_{max} 10
- OR
- Q:4 Explain Allosteric enzyme regulation. 10
- Q:5 Explain TCA cycle. 10
- OR
- Q:5 Explain β oxidation of Palmitic acid and energy output. 10
- Q:6 Explain aromatic amino acid biosynthesis. 10
- OR
- Q:6 A) Explain Calvin Benson cycle with its Stoichiometry. 05
B) Explain Peptidoglycan biosynthesis. 05



(2)