



A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE

(AUTONOMOUS) (Grant-in-Aid)
Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120



Bachelor of Science (Semester 5) Internal Examination - 2025
US05MAMIC02: Microbial Metabolism

Date: 23/09/2025, Tuesday

Time: 10:45 AM to 12:15 PM

Total marks :30

Q-1 Attempt all following multiple-choice question.

(06)

1. F1 component of ATPase enzyme has _____ number of subunits
(a) Eight (b) Twelve (c) Nine (d) Ten
2. The energy actually available to do work is known as _____
(a) Enthalpy (b) Entropy (c) Free energy (d) None of these
3. Chemical reactions are independent of the concentration of any reactant are called _____
(a) Zero order reaction (b) First order reaction (c) Second order reaction (d) None of these
4. The Last five reaction of glycolysis is known as _____
(a) Preparatory phase (b) Payoff phase (c) Secondary phase (d) None of these
5. TCA cycle has _____ steps.
(a) Five (b) Three (c) Eight (d) Seven
6. Carbon dioxide fixation occurs in _____ cycle.
(a) Calvin Cycle (b) Gluconeogenesis (c) TCA cycle (d) None of these



Q-3 Describe Complexes involve in oxidative phosphorylation.

(06)

OR

Q-3 Write a note on ATP synthase.

(06)

Q-4 Derive equation showing relationship between initial velocity & substrate concentration on the basis of steady state assumption

(06)

OR

Q-4 Explain Double Reciprocal Plot.

(06)

Q-5 Write Salient feature of Transamination reaction.

(06)

OR

Q-5 The Preparative phase of Glycolysis.

(06)

Q-6 Write a Note on: Gluconeogenesis.

(06)

OR

Q-6 Write synthesis of Phenyl alanine and tyrosine amino acid from Chorismate intermediate

(06)



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Quiz

Fill in the blank

- (1) Metabolic process in which organic compounds serve both as $\bar{e}$ donor and $\bar{e}$ acceptor (Substrate level Phosphorylation, oxidative phosphorylation)
- (2) Photosynthetic structure in bacteria found in _____ (Chloroplast, chromatophore)
- (3) Inhibitor binds at a site distinct from the substrate active site is known as _____
(Uncompetitive inhibition, Competitive Inhibition)
- (4) The same reaction catalysed by two or more different molecular forms of an enzyme is known as _____ (Haloenzyme, Isozymes)
- (5) Esters of fatty acids with alcohol is known as _____ (Simple lipid, Derived lipid)
- (6) Oxidative deamination is the liberation of free ammonia from the amino group of amino acids coupled with oxidation. (Non oxidative deamination, Oxidative deamination)
- (7) _____ is the principal substrate in biosynthesis, but play no role in β - Oxidation.
(Malonyl – CoA , Acetyl CoA)
- (8) _____ require growth factors that the parental strain can synthesize.
(Auxotrophic, Antibiotic resistant)

True or ~~False~~ False

- (1) Biochemical process that release chemical energy is known as Anabolism.
- (2) Enthalpy (ΔH) is a measure of the change in heat content of the reactants, compared to products.
- (3) Chemical reactions are dependent on the concentration of one reactant is known as first order reaction.
- (4) An inactive precursor of some enzyme is called a zymogen.
- (5) Urea is synthesized in kidneys.
- (6) The removal of one carbon unit at a time by the oxidation of α -carbon atom of fatty acid is known as α -Oxidation.
- (7) Phosphoenol pyruvate and Ribose 5 phosphate serve as beginning substrates for the shikimate pathway.