

B.Sc. Semester - 3 (CBCS) Examination
Nov/Dec. -2021 [NEW COURSE]
BioTechnology-BT301(Core)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

Q-1 A Answer the following (Any one out of two) (07)

- (i) Derive Michaelis-Menten equation for one substrate-one enzyme reaction.
- (ii) Discuss: Role of various coenzymes.

Q-1 B Attempt any One (Out of two) (04)

- (i) Write on: Orientation and proximity effect during enzyme catalyzed reaction.
- (ii) Write on: Covalent modification of enzymes.

Q-1 C Attempt any Three (Out of five) (03)

- (i) Define: Enzyme.
- (ii) Define: Prosthetic group.
- (iii) What are isoenzymes?
- (iv) What is transition state analog?
- (v) Which one is more important – enzyme regulation or enzyme inhibition?

Q-2 A Answer the following (Any one out of two) (07)

- (i) Discuss: Glycolytic cycle.
- (ii) Discuss: TCA cycle.

Q-2 B Attempt any One (Out of two) (04)

- (i) Write on: Anabolic nature of TCA cycle.
- (ii) Write a note on: Anaplerotic reactions.

Q-2 C Attempt any Three (Out of five) (03)

- (i) What is the net ATP production in glycolysis?
- (ii) What is chemiosmotic gradient?
- (iii) How many ATPs are liberated upon oxidation of one molecule of fat?
- (iv) Which enzyme is responsible to convert pyruvate into acetyl co-A?
- (v) Which enzymes are required to form PEP from pyruvate?

Q-3 A Answer the following (Any one out of two) (07)

- (i) Discuss: Urea cycle.
- (ii) Discuss: Photosynthesis in cyanobacteria.

Q-3 B Attempt any One (Out of two) (04)

- (i) Write a note on: Biosynthesis of purines.
- (ii) Write a note on: Biosynthesis of pyrimidines.

Q-3 C Attempt any Three (Out of five) (03)

- (i) What is LHC?
- (ii) Which pigment is considered as primary pigments?
- (iii) What is terminal electron acceptor in non cyclic photosynthesis?
- (iv) What is meant by dark reactions?
- (v) What happens when urea cycle fails to work properly?

- Q-4 A Answer the following (Any one out of two) (07)**
- (i) Discuss roles of gibberellins and ethylene on plants.
 - (ii) Discuss: Role of male steroid hormones.
- Q-4 B Attempt any One (Out of two) (04)**
- (i) Write on: Exocrine system.
 - (ii) Write on: IAA.
- Q-4 C Attempt any Three (Out of five) (03)**
- (i) Enlist any two disorders caused by hormonal imbalance in humans.
 - (ii) What is anabolic steroid? What is its function?
 - (iii) How many types of animal hormones are there?
 - (iv) Name any one peptide hormone of humans.
 - (v) What is meant by intracrine?
- Q-5 A Answer the following (Any one out of two) (07)**
- (i) Discuss: Signal transduction mechanism.
 - (ii) Write a note on: Regulation of cell cycle and role of kinases.
- Q-5 B Attempt any One (Out of two) (04)**
- (i) Write on the role of hormones in signaling.
 - (ii) Write on: Solute transport.
- Q-5 C Attempt any Three (Out of five) (03)**
- (i) What is facilitated transport?
 - (ii) Define: Uniport.
 - (iii) What is the function of gated ion channels?
 - (iv) What is the general meaning of cascade?
 - (v) What is the role of cyclin in cell cycle regulation?
