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PO-433 Seat No. _____

B. Sc. (Sem. IV) Examination

April / May – 2016

CCC-5 : Biotechnology

(Cellular Metabolism - II)

Time : 3 Hours] [Total Marks : 70

1 (a) Answer the following MCQ : 10

(1) Which of the following enzyme performs carboxylation during C3 cycle?
- (A) Ribose carboxylase
- (B) Rubisco
- (C) Pyruvate carboxylase
- (D) Malate decarboxylase

(2) Enzyme and machinery for dark reaction of photosynthesis are present at _____.
- (A) Thylakoid membrane
- (B) Membrane of chloroplast
- (C) Inter grana
- (D) stroma of chloroplast

(3) Which of the following is a secondary messenger ?
- (A) Ca^{++}
- (B) epinephrine
- (C) cAMP
- (D) (A) and (B) both

(4) Epinephrine acts via which of the following receptor ?
- (A) GPCR
- (B) Ion channel gated receptor
- (C) all of the above

(5) Ras is which kind of protein ?

(A) Jak

(B) Stat

(C) Monomeric G-protein

(D) None of these

(6) The first enzyme of beta oxidation is

(A) Acyl Co A dehydrogenase

(B) enoyl CoA hydratase

(C) None of these

(7) Complex II of ETC fetch the electrons from

(A) NADH (B) NADPH

(C) Succinate (D) All of above

(8) Which of the following enzyme is present in the matrix?

(A) Acyl Co A dehydrogenase

(B) Succinate dehydrogenase

(C) Thiolase

(D) all of these

(9) Complete oxidation of Palmitic acid require _____ cycle of beta oxidation.

(A) 8 (B) 7

(C) 9 (D) 6

(10) Conversion of ribosy form to deoxyribosy form is done by

(A) Reductase (B) Kinase

(C) Thiolase (D) None of these

(b) Fill in the blanks : 5

(1) _____ studied light reaction of photosynthesis using isotope of oxygen.

(2) _____ hormone signalling is responsible for breakdown of glycogen to release glucose in blood.

(3) _____ is the site of beta oxidation.

(4) _____ pathway require HGPRT for nucleotide synthesis.

(5) Urea excreting organisms are called _____.

2 Answer in short : (Any 5) 25

(1) Draw and explain non cyclic mode of photophosphorylation.

(2) Draw and explain C4 cycle in plants.

(3) Explain signalling of insulin.

(4) Fatty acid biosynthesis.

(5) Beta oxidation of fatty acid.

(6) Oxidative phosphorylation.

(7) Complexes of ETC.

3 Answer in detail : (any **three**) 30

(1) Define signal transduction. Explain generalised pathway for signal transduction in cell along with the labelled diagram

(2) Define photosynthesis . Explain in detail Calvin reaction along with labelled diagram.

(3) De novo synthesis of purine nucleotide.

(4) Urea Cycle.

(5) Amino acid catabolism.