

Seat No.	
----------	--

Set P

B.Sc.(Semester - IV) (CBCS) Examination Oct/Nov-2019
Biotechnology
METABOLISM

Day & Date: Friday, 25-10-2019
 Time: 11:30 AM To 02:00 PM

Max. Marks: 70

Instructions: 1) All questions are compulsory.
 2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

- 1) _____ enzyme catalyzes the transfer of two carbon fragment from a ketose donor to an aldose acceptor.

a) Transaldolase	b) Transketolase
c) Epimerase	d) Isomerase
- 2) The sugar nucleotide _____ Donates glucose for glycogen synthesis.

a) UMP glucose	b) UDP glucose
c) UTP glucose	d) ADP glucose
- 3) All transaminases require _____ prosthetic group for activity.

a) pyridoxal phosphate	b) TPP
c) NAD	d) Biotin
- 4) The light absorbing pigments of thylakoid arranged in functional arrays are called _____.

a) photosystem	b) Reaction centre
c) antenna molecules	d) LHC
- 5) The first committed step in glycolysis is formation of _____.

a) formation of glucose 6 phosphate
b) formation of fructose 6 phosphate
c) formation of fructose 1,6 bisphosphate
d) Pyruvate
- 6) _____ Amino acid is synthesized from 3- phosphoglycerate.

a) Glutamate	b) Glutamine
c) Serine	d) Lysine
- 7) _____ Is the precursor for de novo purine nucleotide biosynthesis.

a) aspartate	b) orate
c) PRPP	d) ribose1 phosphate
- 8) Conversion of ADP to dADP is carried out by enzyme _____.

a) ribonucleotide synthase	b) ribonucleotide reductase
c) kinase.	d) Phosphatase
- 9) The immediate precursor of thymidylate (dTMP) is _____.

a) dUMP	b) dATP
c) dAMP	d) dCMP
- 10) The double bond is introduced into the fatty acid chain by an oxidative reaction catalyzed by _____.

a) Mixed function reductase	b) Epimerase
c) Mixed function oxidase	d) Thioxidase

- 11) The formation of malonyl-CoA from acetyl-CoA is an irreversible process, catalyzed by _____.
 a) acetyl-CoA carboxylase b) decarboxylase
 c) dehydrogenase d) Acetylase
- 12) During non cyclic photophosphorylation electrons are carried between the two photosystems by the soluble protein _____.
 a) plastoquinone b) pheophytin
 c) cyt b6f complex d) plastocyanin
- 13) The active site of E1 of pyruvate dehydrogenase multiple enzyme system has bound _____.
 a) TPP b) FAD
 c) NAD d) biotin
- 14) In one pass through the β -oxidation sequence, one molecule of acetyl-CoA, and _____ protons (H) are removed from the long-chain fatty acyl-CoA.
 a) 2 b) 3
 c) 4 d) 5

Q.2 A) Answer the following questions. (Any Four) 08

- 1) Give the physiological significance of pentose phosphate pathway.
- 2) Write a note on ketogenic amino acids.
- 3) Draw neat labeled diagram of ATP synthase enzyme.
- 4) Define photosystem I and II.
- 5) Write a note on hydrolysis of triacylglycerols.

B) Write short notes.(Any Two) 06

- 1) lactic acid fermentation.
- 2) Components of electron transport chain
- 3) Sources of atoms in purine.

Q.3 A) Answer the following questions. (Any Two) 08

- 1) Write a note on transport of fatty acids in mitochondria
- 2) Explain in detail glycogen synthesis pathway.
- 3) Write a note on deamination and decarboxylation reaction of amino acid metabolism.

B) Answer the following questions. (Any One) 06

- 1) Write a note on inhibitors of electron transport chain.
- 2) Describe in detail CO_2 fixation in C_3 plants.

Q.4 A) Answer the following questions. (Any Two) 10

- 1) Describe in detail urea cycle
- 2) Write a note on β oxidation of saturated fatty acids.
- 3) Explain in detail non-cyclic photophosphorylation

B) Answer the following questions. (Any One) 04

- 1) Explain cyclic photophosphorylation
- 2) Write a note on uncouplers of oxidative phosphorylation.

Q.5 Answer the following questions. (Any Two) 14

- 1) Explain in detail biosynthetic pathway for unsaturated fatty acids.
- 2) Describe biosynthesis of purines.
- 3) Write a note on glycolysis.