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AG-525 Seat No. _____

B. Sc. (Sem. IV) Examination

March / April - 2019

Biotechnology : Paper - V

(Cellular Metabolism - II)

(Core Compulsory)

Time : **3** Hours] [Marks : **70**

1 Answer the following : **15**

(1) Which of the following molecules is a typical fatty acid ?

(a) A molecule that has an even number of carbon atoms in a branched chain.

(b) An amphipathic dicarboxylic acid with unconjugated double bonds.

(c) A molecule that has one cis double bond in a linear carbon chain.

(d) A polar hydrocarbon with that reacts with NaOH to form a salt.

(2) Which among the following is another name for vitamin B12 ?

(a) Niacin

(b) Pyridoxal phosphate

(c) Cobalamin

(d) Riboflavin

(3) The end product of uracil degradation is :

(a) Urea

(b) NH

(c) Allantoate

(d) alpha-alanine

(4) Choline is not required for the formation of:

(a) Lecithin

(b) Acetyl choline

(c) Sphingomyelin

(d) Cholic acid

(5) The enzymes of β-oxidation are found in :

(a) Mitochondria

(b) Cytosol

(c) Golgi apparatus

(d) Nucleus

(6) In β-oxidation of fatty acids, which of the following are utilized as coenzymes?

(a) NAD^+ and NADP+

(b) $FADH_2$ and $NADH^+H^+$

(c) FAD and FMN

(d) FAD and NAD

(7) Which enzyme is activated by direct binding of cAMP to a regulatory subunit?

(a) Adenylate cyclase

(b) Protein kinase A

(c) Phosphorylase kinase

(d) Protein phosphatase

(8) The acetyl CoA formed on β-oxidation of all long chain fatty acids is metabolized under normal circmstances to:

(a) CO_2 and water

(b) Cholesterol

(c) Fatty acids

(d) Ketone bodies

(9) Which molecule release during PSI and PSII light reaction ?
   (a) ADP
   (b) ACP
   (c) O_2
   (d) NAD

(10) Which Pigment used full to harvest light ?
   (a) Chlorophyll a
   (b) Chlorophyll d
   (c) Chlorophyll e
   (d) Chlorophyll c

(11) Sugarcan is belongs to which type of plant ?
   (a) C_3
   (b) C_4
   (c) CAM
   (d) None of these

(12) Which protein play significant role in signal transduction ?

(13) How many ATP require when C4 Cycle carried out in the plant cell ?

(14) Which organelles participated in photorespiration ?

(15) Give the name of an aerobic photosynthetic bacteria.

3 Answer the following : (any **five**) **25**

(1) Write a note on Epinephrine signal transduction.

(2) Write a note on cyclic photophosphorylation with diagram.

(3) Explain the Active transportation mechanism with example.

(4) Write a note on Bacterial Photosynthesis.

(5) Write a note on Urea cycle.

(6) Explain photorespiration.

(7) Explain UMP synthesis pathway.

4 Answer the following : (any **three**) **30**

(1) Write a note on Dart reaction of photosynthesis.

(2) Write a β-oxidation of Fatty acid metabolism.

(3) Write a note on cell membrane structure with its importance (Diagram require)

(4) Explain the ETC occur in Mitochondria.

(5) Explain the Amino acid metabolism.
