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Total No. of Pages : 02

Total No. of Questions : 18

B.Tech. (BT) (2018 Batch) (Sem.-3)

**BIOCHEMISTRY**

Subject Code : BTBT304-18

M.Code : 76948

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****Write briefly :**

1. What are ketone bodies?
2. Why is it essential for Glucose molecule to undergo phosphorylation to enter into metabolism?
3. What are the regulatory steps of Citric acid cycle?
4. What are Cot Curves? Highlight their relevance.
5. What is the difference between cyclic and non-cyclic phosphorylation?
6. Where does the conversion of pyruvate to Acetyl CoA occur? Which enzyme complex participates in this conversion?
7. Starch is made up of amylose and Amylopectin. Highlight the differences between amylose and amylopectin.
8. What are gluconeogenic amino acids?
9. What is a proteasome and how does it function?
10. Which step is known as the committed step of glycolysis and why?



**SECTION-B**

11. Write short notes on (300-400 words) :
  - a) Ketosis
  - b) F<sub>0</sub>-F<sub>1</sub> Particle.
12. Which molecule is the precursor of cholesterol? Discuss the metabolic fates of cholesterol.
13. Phosphorylation reactions are involved in transfer of energy and mediated by kinases. Differentiate between substrate level phosphorylation and oxidative phosphorylation giving suitable examples.
14. Discuss briefly the role of Acetyl CoA - citrate shuttle in fatty acid biosynthesis.
15. The regulatory step in Glycolysis is the formation of Fructose 1, 2-bisphosphate. Explain the role of enzymes PFK (phosphofructokinase) 1 and PFK2 (phosphofructokinase) in regulating glycolysis.

**SECTION-C**

16. Citric Acid Cycle is an anaplerotic cycle. Draw a well labelled diagram of Citric acid cycle giving name of all enzymes and cofactors and its connections to the amino acid metabolism and fat metabolism.
17. What is the difference in fixation of CO<sub>2</sub> in C<sub>3</sub> and C<sub>4</sub> plants? Why is it so that the photosynthetic pigments are arranged on chloroplast membranes and not in solution in the stroma?
18. Describe the role of Photosystem I and Photosystem II in the light reactions of Photosynthesis.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**