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

Subject Code : BTBT304-18

Max. Marks : 60

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.

1. Write briefly :

- What is an anomer? Which anomer of glucose gets phosphorylated at 6th Carbon position of glucose in glycolysis and why?
- Differentiate between substrate level and oxidative phosphorylation.
- Why ATP is called the energy currency of the cell?
- How is pyruvate utilized under different physiological conditions?
- Give the names of any two fat soluble and water soluble vitamins and one disease each caused by their deficiency.
- Write the three steps involved in gluconeogenesis that are different from glycolysis.
- "TCA has a central role in metabolism"*. Justify the statement.
- What are reducing and non-reducing sugars? Give one example of each of these.
- Differentiate between essential and non-essential amino acids.
- Why does glucose molecule exhibit more activity as a ring structure as compared to an open chain structure?

SECTION-B

2. Humans can covert glucose into fatty acids but cannot convert fatty acids into glucose. Explain Why?
3. What are the salient features of Watson and Crick Model of DNA?
4. Where does ω -oxidation of fatty acid occur? How is ω -oxidation different from β -oxidation of fatty acids?
5. What are ceramides and sphingolipids? Give their structural features and highlight their biological roles.
6. What are fat soluble vitamins? Briefly discuss their functional significance.

SECTION-C

7. Briefly discuss β -oxidation of fatty acids and the amount of energy generated by β -oxidation of one molecule of palmitic acid.
8. Chemiosmotic coupling hypothesis was given by Peter Mitchell while the concept of rotational catalysis for ATP synthesis was given by Paul Boyer. Explain how both the events are interlinked for the biosynthesis of energy within the cell.
9. Explain PS-I and PS-II photosystems. Write a note on ancillary pigments in 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.