647510 **BSc3BiTC0301** **Seat No :_____**

B.Sc. Semester - 3 (*CBCS*) Examination
December. -2020 [OLD COURSE]
BIO-TECHNOLOGY(CORE)

Time: 1:30 Hours **Marks: 42**

Instructions:

1. Figure to the right indicate marks.
2. There are five questions in the question paper.
3. Answer any three of the following questions.

Question 1:

a. Answer the following **(07)**

1. Describe the mechanism of enzyme action
2. What are coenzymes? Write briefly the role of coenzymes in enzyme action with suitable example.

b. Attempt any one (Any one out of two) **(04)**

1. Discuss Km value
2. Write a note on role of metals in enzyme action.

c. Attempt any three **(03)**

1. Define non-competitive inhibition.
2. Define cofactor.
3. Define activation energy.
4. Define isozyme with one example?
5. Write name of all classes of enzyme?

Question 2:

a. Answer the following **(07)**

1. Discuss the synthesis of glucose from non-carbohydrate source.
2. Describe the function and structure of phospholipids.

b. Attempt any one **(04)**

1. Write the energetics of TCA cycle.
2. Give an account of β-oxidation of fatty acid.

c. Attempt any three **(03)**

1. A low blood glucose level is more harmful than hyperglycemia. (True/False)
2. The rate of TCA cycle is reduced when the cell has a high level of ATP. (True/False)
3. Ribose cannot be synthesized in all tissues. (True/False)
4. Triacylglycerol stored in the body as cytoplasmic lipid droplets. (True/False)
5. What is lipolysis?

Question 3:

a. Answer the following **(07)**

1. Describe the fate of carbon skeleton of amino acid.
2. Discuss the synthesis of pyrimidines.

b. Attempt any one **(04)**

1. What is salvage and denovo pathway.
2. Write a note on transamination.

c. Attempt any three **(03)**

1. All deoxyribonucleotide is synthesized by the ribonucleotides (True/False)
2. Accessory pigments absorb light at more wavelengths as compared to chlorophyll. (True/False)
3. Name the mechanism which prevents photo-oxidative damage in plants?
4. phenylketonuria is an example of inborn error of metabolism. (True/False)

5. Group of adjacent nucleotides are joined by……bond.

Question 4:

a. Answer the following **(07)**

1. Enlist Pituitary hormones and their functions.
2. Enlist the endocrine hormones which are regulated by hypothalamus.

b. Attempt any one **(04)**

1. Compare exocrine and endocrine gland.
2. Enlist the hormones produced by adrenal gland.

c. Attempt any three **(03)**

1. Name the first naturally occurring cytokines.
2. Which gland is called mixed gland?
3. Write one example of steroid hormone?
4. Write down the roles of abscisic acid?
5. Name the stress hormone of the plant.

Question 5:

a. Answer the following **(07)**

1. Discuss the important factors affecting membrane fluidity.
2. Explain the primary and secondary active transport with suitable example.

b. Attempt any one **(04)**

1. Describe signal transduction cascade with one example?
2. Write a note on CDK.

c. Attempt any three **(03)**

1. HCO_3^- – Cl^- transporter is an example of Antiport. (True/False)
2. Steroid receptor is a nuclear receptor protein. (True/False)
3. Plasma membrane is impermeable to ATP, glucose and K^+ (True/False)
4. In which phase of cell cycle is DNA replicated?
5. At which cell cycle checkpoint, cell cycle is halted if cell's DNA is damaged?

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