



**B.TECH DEGREE EXAMINATIONS: DEC 2014**

(Regulation 2009)

Third Semester

**BIOTECHNOLOGY**

BTY102: Biochemistry

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

- Beta pleated sheets are examples of protein
  - Primary structure
  - Secondary structure
  - Tertiary structure
  - Quaternary structure
- The 3-D structure of protein can be determined by
  - Nuclear magnetic resonance
  - X-ray Crystallography
  - Both a and b
  - Spectroscopy
- The coupling of ATP synthesis to electron transport chain is known as
  - Oxidative phosphorylation
  - Chemiosmosis
  - ATP synthesis
  - Proton motive force
- For each molecule of glucose that undergoes aerobic respiration, how many carbon dioxide molecules are released?
  - One
  - Three
  - Four
  - Six
- Histidine is degraded to  $\alpha$ -ketoglutarate and is described as a
  - Glucogenic amino acid
  - Glucogenic amino acid
  - ketogenic amino acid
  - Ketoglucogenic amino acid
- A person with phenylketonuria cannot convert
  - Phenylalanine to tyrosine
  - Phenylalanine to isoleucine
  - Phenol into ketones
  - Phenylalanine to lysine
- The end product of  $\beta$ -oxidation of fatty acids is \_\_\_\_\_
  - ATP
  - NAD<sup>+</sup>
  - FADH<sub>2</sub>
  - Acetyl CoA



(ii) Write the reaction catalyzed by the pyruvate dehydrogenase complex. (4)

23. a) Describe urea cycle and its interrelationship with common metabolic pathways.

**(OR)**

b) (i) Explain in detail about the biosynthetic pathway of serine and cysteine. (10)

(ii) Discuss about the metabolic disorders associated with aromatic amino acid degradation. (4)

24. a) (i) Describe in detail the biosynthesis of cholesterol with regulation. (10)

(ii) Explain the advantages and disadvantages of using triacylglycerol as energy source. (4)

**(OR)**

b) (i) Elaborate the activation steps involved in fatty acid synthesis and oxidation. (10)

(ii) How phospholipids are degraded? (4)

25. a) (i) Explain the denovo synthesis of pyrimidines with structures. (7)

(ii) Write down the degradative pathway of purine nucleotides. (7)

**(OR)**

b) Elaborate the denovo biosynthesis of purine nucleotides and their regulatory mechanism.

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