Seat No. : _____

N13-114

November-2014

B.Sc., Sem.-V

BIC-301 : Biochemistry (Metabolism)

Biochemistry Theory

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

1. (A) (i) Describe the fate of pyruvate in detail. **7**

   (ii) Describe the non-oxidative phase of PPP and its significance. **7**

   OR

   (B) (i) Describe glycogen degradation in detail. Explain its regulation. **7**

   (ii) Give an overall design on how galactose enters in glycolytic pathway. **7**

2. (A) Explain γ-glutamyl cycle and its significance. **14**

   OR

   (B) (i) Explain the role of amino acid oxidases, GDH, glutaminase and decarboxylase with examples. **7**

   (ii) Explain and give significance of glucose alanine shuttle. **7**

3. (A) Describe the breakdown of Palmitic acid. Write the stoichiometry. **14**

   OR

   (B) (i) Describe the role of Acetyl CoA Carboxylase in detail. **7**

   (ii) Explain elongation and desaturation of fatty acids. **7**

4. (A) (i) Explain the role of vitamins in TCA cycle. **7**

   (ii) Draw and explain the binding change hypothesis. **7**

   OR

   (B) (i) Describe glyoxalate cycle. **7**

   (ii) Explain Malate-Aspartate shuttle. What is its significance in energy metabolism ? **7**

5. Each question carries **1** mark : **14**

State true or false. If false explain why.

(i) Glycerol phosphate shuttle generates $FADH_2$.

(ii) Carnitine is synthesized from Arginine and Cystine.

(iii) Vitamin B_{12} is required for the oxidation of odd chain fatty acids.

Fill in the blanks :

(iv) Define Intermediary metabolism.

(v) Give the structure of ceramide.

(vi) Glycogen storage disease-I is caused due to deficiency of which enzyme ?

(vii) List two symptoms of lactose intolerance.

(viii) Draw an outline to explain how uric acid is formed in birds.

(ix) Albinism is caused due to deficiency of which enzyme ?

(x) Give any one anapleurotic reaction.

(xi) What is P/O ratio ?

(xii) Name an uncoupler of Complex IV.

(xiii) Glucose-1-P is not an energy rich compound. Why ?

(xiv) Give the structure of Acetoacetyl CoA.

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