

CHE-9

**BACHELOR OF SCIENCE (B.Sc.)**

**Term-End Examination**

**December, 2005**

**CHEMISTRY**

**CHE-9 : BIOCHEMISTRY**

*Time : 2 hours*

*Maximum Marks : 50*

**Note :** Answer any **five** questions. All questions carry equal marks.

1. (a) TCA cycle is considered as amphibolic pathway. Explain giving example. 3
- (b) What is the main cause of tumour development? Explain briefly the two types of tumours. 3
- (c) Give two structural differences between DNA and RNA. What are the forces that account for the stability of double helix? 4
2. (a) Differentiate between the following :  $2\frac{1}{2} \times 2$ 
  - (i) Humoral immunity and Cellular immunity
  - (ii) Substrate level phosphorylation and Oxidative phosphorylation.

CHE-9

1

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- (b) What is isoelectric point ? Write the structure of glycine at following pH : 5
- (i) 3.0
- (ii) 9.0
- (iii) Isoelectric point
3. (a) Describe the differential centrifugation method for the isolation of subcellular organelles. 3
- (b) Name various ways of regulating enzyme activity. Describe any one way taking an example. 4
- (c) Draw the oxygen binding curves of myoglobin and haemoglobin. Justify the curves. 3
4. (a) What is genetic engineering ? Describe the steps involved in the production of somatostatin by genetic engineering. 5
- (b) ATP is considered the energy currency of cell. Justify this statement. 3
- (c) Draw a diagram of plasma membrane and label its various components. 2
5. (a) Give the contribution of Hershey and Chase in providing evidence for DNA as genetic material. 3
- (b) Discuss briefly the significance of ketone bodies. 3
- (c) What is the significance of  $V_{\max}$  and  $K_m$  of enzymatic reaction ? 4

6. (a) Write short notes on the following : 4×2
- (i) Biological role of folic acid and ascorbic acid
  - (ii) Metabolic fate of pyruvate
- (b) What is the product of digestion of cellulose by enzyme cellulase ? Draw the structure of the product. 2
7. (a) Define the following terms : 1×2
- (i) Isoenzyme
  - (ii) DNA denaturation
- (b) What are the physiological roles of calcium and iron ? 3
- (c) Give three similarities between DNA replication and RNA transcription. 3
- (d) What is the biochemical basis of galactosemia ? 2