

Mid-West University  
**Examinations Management Office**

Chance Examinations -2080

Bachelor level/ B.Sc. / 8<sup>th</sup> Semester

Time: 3hrs

**Subject: Applied Chemistry-III (CHEM481)**

Full Marks: 100

Pass Marks: 50

*Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.*

**GROUP-A**

**1. Very short answer questions (any fifteen). [15x2=30]**

- a) Define biochemistry. Write the importance of biochemistry.
- b) Classify amino acids.
- c) What are cell organelles? Write the function of any two cell organelles.
- d) What is dipeptide?
- e) Mention about the denaturation of protein molecule.
- f) What are co-enzymes? Write their uses in enzyme catalyzed reactions.
- g) Write the functions of enzyme inhibitors with examples.
- h) Define prosthetic group. Write the significance of ATP.
- i) Mention the applications of prostaglandins in metabolism.
- j) Differentiate between hydrolysis and hydrogenation of fatty acids.
- k) What is acid number? Write its use.
- l) Define auto oxidation of fat. Write its bad effects.
- m) Draw the more stable chair conformation of  $\alpha$ -D-(+)-glucose.
- n) What is mutarotation?
- o) Draw the structure of cellulose.
- p) Differentiate between DNA and RNA
- q) Write about DNA polymorphism.
- r) Define mutation.

**GROUP-B**

**Short answer questions (any eight). [8x5=40]**

2. Define iso-electric point. How can lysine and glycine be separated from each other according to their different  $p^H$  values? (1+4)
3. How is amino acid sequence in a peptide chain determined by terminal residue analysis?
4. Define protein. Describe the various structures of proteins. (1+4)
5. What is iodine value? Write the reactions related to find the iodine value. Write the applications of iodine value. (1+3+1)
6. Explain the mechanisms of oxidation of glycerol.
7. Derive Michaelis-Menten equation. Write the significance of  $K_m$ . (4+1)
8. Describe citric acid cycle.
9. Write about pentose phosphate pathways with necessary reactions. Write the significance of this pathway. (4+1)
10. Explain about the electron transport chain.
11. Write about the genetic code.

**GROUP-C**

**Long answer questions (any two). [2x15=30]**

12. Describe the followings. (2x7.5)
  - a) Biosynthesis of mRNA.
  - b) Mechanism of enzyme catalysis.
13. Explain about biosynthesis of bile salts and steroids from cholesterol. (15)
14. Draw and explain about the double helix structure of DNA. How the DNA is biosynthesized? Discuss. (5+10)

**The End**