# 2014

## M.Sc.

#### 1st Semester Examination

#### **BIOCHEMISTRY**

PAPER-BIC-101

Full Marks: 40

Time: 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

# Answer all questions.

# Group-A

- 1. Answer any five from the following questions:  $5\times2$ 
  - (a) Write the difference between glycoproteins and mucoproteins.
  - (b) What are heteroglycans? Give two examples.
  - (c) What are emulsions?

- (d) Write the difference between anomers and epimers.
- (e) What is Bohr's effect?
- (f) Draw the structure of lecithin and cephalin.
- (g) What is isoprene rule?
- (h) What is informosome?

## Group-B

- 2. Answer any two from the following questions:  $2\times5$ 
  - (a) Name one disease for which two amino acids can be used for its treatment.
  - (b) How many functional groups are present in a protein molecule?
  - (c) What is isoelectric pH?

2+1+2

- (a) Draw the structure of Allopurinol and mention its one pharmacological application.
  - (b) What is the basic difference between Phosphoglycolipids and Sphingolipids?
  - (c) What is Z-DNA?

2+2+1

- 4. (a) What is Arachidonic acid?
  - (b) Mention its role in the living system.
  - (c) What is Non-Coding strand?

1+2+2

- (a) "Existence of living and non-living components is impossible without bounding" — Justify the statement.
  - (b) Name the biomolecules where the following bonds are present:
    - (i) C-N; (ii) C-S; (iii) C-O; (d) C-P.

3+2

## Group-C

Answer any two from the following questions:  $2 \times 10$ 

- **6.** (a) Mention the structural details of  $\alpha$ -helix.
  - (b) Discuss the structural peculiarities of collagen fibers.
  - (c) Which role the globular proteins play in biological system?

    3+4+3
- 7. Write down the chemical structures of purine and pyrimidine. How are they chemically stabilized into a double helix DNA molecule?

  5+5

- 8. (a) Differentiate among t-RNA, m-RNA and r-RNA. What is Si RNA?
  - (b) What is informosome?
  - (c) What type of chemical bondings are present in DNA tripple helix? (3+2)+2+3
- 9. (a) Draw the structures of Chondroitin sulphate and Hyaluronic acid. Discuss their biological role.
  - (b) Which one of the two gases: O<sub>2</sub> and CO<sub>2</sub> readily affects the pH of blood?
  - (c) "Change of pH affects the structure of Haemoglobin". Explain the statement.
  - (d) State the importance of TLC in the separation of protein. 5+1+2+2