13/12/19 M

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 7382 **J**

Unique Paper Code : 32161102 – OC

Name of the Paper : Biomolecules and Cell Biology

Name of the Course : **B.Sc. (H) Botany**

Semester : I

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. **All** questions carry equal marks.
3. Question No. **1** is compulsory.
4. Attempt **five** questions in all including Question No. **1.**

1. (a) Define the following **(any five)** : (1×5=5)

   (i) Buffer

   (ii) Hydrophobic interactions

   (iii) Glycosylation

P.T.O.

(iv) Activation energy

(v) Ketose

(vi) Kinetochore

(b) Expand the following **(any five)** : (1×5=5)

(i) MTOC

(ii) CGN

(iii) MPF

(iv) SER

(v) SnoRNA

(vi) NOR

(c) Match the following : (1×5=5)

(i) Emil Fischer	(a) Structure of insulin
(ii) Carl Benda	(b) Lysosomes
(iii) Frederick Sanger	(c) Endosymbiotic hypothesis
(iv) Christian de Duve	(d) Mitochondria
(v) Lynn Margulis	(e) Lock and Key model

2. Write short notes on the following **(any three)** : (5×3=15)

(i) Semiautonomous organelles

(ii) Triglycerides

(iii) GERL complex

(iv) Double helical structure of DNA

3. (a) Describe the relationship between nucleolar organizing region of chromosome and biogenesis of rRNA. (5)

(b) Discuss the role of carrier proteins in membrane transport. (5)

(c) Give a brief account on storage polysaccharides. (5)

4. Differentiate between the following **(any five)** : (3×5=15)

(i) Active and passive transport

(ii) Mitosis and Meiosis

(iii) Primary and secondary cell wall

(iv) Endergonic and exergonic reactions

P.T.O.

(v) Competitive and non-competitive enzyme inhibition

(vi) Peptide and glycosidic bonds

5. Comment on the following **(any three)** : (5×3=15)

(i) Cell secretion by Golgi Apparatus

(ii) Types of protein structure

(iii) Coated vesicles

(iv) Fluidity of plasma membrane

(v) Allosteric enzymes

6. (a) What is cell cycle? Discuss the role of check points in regulation of cell cycle with the help of suitable diagram. (7)

(b) Lysosomes are known as suicidal bags. Comment. (3)

(c) What properties of water makes it the most significant biomolecule? (5)