(iv) Trafficking through the endomembrane system

(v) Cell cycle checkpoints

4. Draw well-labelled diagrams of the following **(any three)** : (5×3=15)

(i) Ultrastructure of Mitochondria

(ii) Plant Cell

(iii) Double helical structure of DNA

(iv) Ultrastructure of Nucleus

5. (a) Give a brief account on lipids. Describe in detail the major classes of storage and structural lipids, and their roles in living system. (8)

(b) What are Intermediate filaments? Explain its structure and functions. (7)

6. (a) What do you mean by glycosylation. Discuss the role of Golgi apparatus in processing, packaging and sorting of proteins. (8)

(b) Give a detailed account of different phases in Eukaryotic cell cycle with the help of suitable diagram. (7)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5821 **K**

Unique Paper Code : 2162011102

Name of the Paper : Cell Biology: Organelles and Biomolecules

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

Semester : I

Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **four** questions in all.
3. Question **1** is compulsory.
4. Attempt all parts of every question together.
5. Illustrate your answer wherever possible.

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

(i) Nuclear lamina

(ii) Saturated fatty acids

(iii) Euchromatin

(iv) Peptide bond

(v) Thylakoid

(vi) Cristae

(vii) Myosin motors

(b) Fill in the blanks **(any five)** : (1×5=5)

(i) _____ is the most abundant protein on earth.

(ii) _____ is a marker enzyme for mitochondria.

(iii) Cytoplasmic streaming phenomenon is mediated by _____

(iv) Endoplasmic Reticulum is a _____ membrane bound organelle.

(v) Nucleolus is a site for _____ synthesis.

(vi) Disulphide bonds are formed in _____

(vii) Mitochondria term was coined by _____

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

(i) hnRNA

(ii) ADP

(iii) NPC

(iv) NADH

(v) cAMP

(vi) NOR

(vii) TAG

2. Differentiate between the following **(any three)** : (5×3=15)

(i) Mitosis and Meiosis

(ii) Primary and Secondary cell wall

(iii) DNA and RNA

(iv) Microtubules and Microfilaments

(v) Peroxisomes and Lysosomes

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

(i) Biological significance of Hydrogen bonds

(ii) Membrane proteins and their roles

(iii) Signal peptide and its role in Protein transport