

Total No. of Printed Pages:2

B. Sc. (CBCS) (Semester -V)
EXAMINATION NOVEMBER 2022
Botany
Cell Biology & Plant Biochemistry

[Duration : 2 Hours]

[Total Marks :80]

Instructions :

- i) All questions are **compulsory**, however **internal choice** is available.
- ii) Answer sub-questions in Question 1 and Question 2, briefly.
- iii) Figures to the **right** indicate **maximum** marks to the questions.
- iv) **Draw** labelled diagrams **wherever** necessary.

1. Answer **any four** of the following: 16
 - a) Mention the biological role of lipids.
 - b) What are carbohydrates? Briefly classify monosaccharides.
 - c) Classify amino acids on the basis of structure of the side chain.
 - d) Write the principle and applications of fluorescence microscopy.
 - e) Explain the structure of the nucleolus.
 - f) Differentiate between:
 - i. Primary cell wall and secondary cell wall.
 - ii. Smooth endoplasmic reticulum and rough endoplasmic reticulum.
2. Write short notes on **any four** of the following. 16
 - i) Write a note on Vitamin D.
 - ii) Mention the function and properties of terpenoids.
 - iii) Briefly explain the role of mRNA.
 - iv) Write the significance of meiosis.
 - v) What are the different types of plastids found in plants?
 - vi) Distinguish between the 70s and 80s ribosomes.
3. A. Describe the process of translation of protein synthesis. 6

OR

A. Write a note on structure of proteins. 6

B. Discuss the biological role of carbohydrates. 6
4. A. Briefly describe the fluid mosaic model of the cell membranes. 6

OR

A. Briefly describe the structure of the mitochondria. 6

B. Explain the stages of mitosis. 6

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| 5. | A. Draw a neat labelled diagram and explain the structure of RNA. | 6 |
| | Or | |
| | A. Mention the functions of Vitamin B complex. | 6 |
| | B. Define secondary metabolites. Mention the properties and functions of alkaloids. | 6 |
| 6. | A. Write a note on polymorphism in lysosomes. | 6 |
| | Or | |
| | A. Explain the structure of prokaryotic cell. | 6 |
| | B. With the help of a diagram explain the working of the transmission electron microscope. | 6 |