

U.G. 2nd Semester Examination - 2025**BOTANY****[MAJOR]****Course Code : BOT-MJ-T-02****(Biomolecules and Cell Biology)****[NEP-2020]**

Full Marks : 40

Time : 2½ Hours

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

1. Answer any five questions : 2×5=10
- i) Mention two distinguishing features between A-DNA and B-DNA.
 - ii) What is Zwitterion?
 - iii) Define prosthetic group with one example.
 - iv) What are phosphoglycerides? Give an example.
 - v) State two functions of peroxisomes.
 - vi) Name two differences between rough and smooth endoplasmic reticulum.
 - vii) What is an active site of an enzyme?

[Turn over].

viii) What are non-essential fatty acids? Give an example.

2. Answer any **two** questions : $5 \times 2 = 10$

- i) Describe the structure of t-RNA with a neat diagram.
- ii) How are competitive and non-competitive inhibitors similar and dissimilar from one another.
- iii) Describe the structure and function of ribosomes.
- iv) Write short note on denaturation of protein and biological roles of protein.

3. Answer any **two** questions : $10 \times 2 = 20$

- i) Classify carbohydrates giving suitable examples. Explain the structure and biological importance of polysaccharides. $4+6=10$
- ii) Describe the secondary structure of DNA as proposed in Watson-Creek model. 10
- iii) Discuss the Michaelis-Menten equation in detail. Add a note on allosteric regulation of enzymes. $6+4=10$
- iv) Describe meiosis with their significance. How are cell cycle checkpoints involved in their regulation? $(6+2)+2=10$