

U.G. 1st Semester Examination - 2019**BOTANY****[HONOURS]****Course Code : BOT(H)CC-I-T**

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.***Answer all the questions.**

1. Answer any **five** of the following: $2 \times 5 = 10$
- a) What is zwitter ions form of amino acid?
 - b) What are chaperones? Give an example.
 - c) Give an example of a right-handed and a left-handed DNA.
 - d) Why Hn RNA is called 'DNA like RNA'?
 - e) Why ATP is called an **energy** currency molecule?
 - f) What do you mean by the term 'facilitated diffusion'?

[Turn over]

- g) Which particles of mitochondrion are responsible for electron transport chain? Give the full form of $\text{NADH}+\text{H}^+$.
- h) What is MTOC? Give an example from plant cell.

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

- a) What do you mean by free energy? State the laws of thermodynamics. $2+3$
- b) Define lipid. Write about the major classes of storage and structural lipids. $1+2+2$
- c) Write with sketch diagram the fluid mosaic model of plasma membrane. 5
- d) What is cytoskeleton? Briefly describe the structure of cytoskeleton components. $1+4$

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

- a) What are proteins? Give an account of the different levels of protein structure. Draw the pictorial flow diagram of targeting and insertion of proteins in the endoplasmic reticulum. $1+6+3$
- b) What structural feature allows DNA to store genetic information? Write pointwise the structural features of A, B and Z type of DNA

with sketch diagram. Draw and label the clover leaf model of t RNA. 2+6+2

c) Write the main cellular structures of an eukaryotic cell with diagram. Mention the origin of eukaryotic cell according to endosymbiotic theory. 6+4

d) Define nucleus. Describe the nuclear envelope with special reference to nuclear pore complex with diagram. What is the importance of nucleolus? 1+7+2
