U.G. 1st Semester Examination - 2020
BOTANY
[HONOURS]
Course Code : BOT-H-CC-T-01

Full Marks : 40   Time : $2\frac{1}{2}$ 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** of the following: 2×5=10

    a) Name two sulphur containing amino acids.

    b) What is Gibbs free energy?

    c) What is Km?

    d) State the proposals of endosymbiotic theory.

    e) What do you mean by a transmembrane protein?

    f) Name the subunit proteins of microtubule and microfilament.

    g) Distinguish between N-linked and O-linked glycosylation of proteins.

    h) What do you mean by spindle assembly checkpoint?

2. Answer any **two** of the following: 5×2=10

    a) Classify carbohydrates with examples.

    b) What is enthalpy and entropy? The free energy change for ATP hydrolysis is large and negative – explain.   2+3

    c) Distinguish between a typical prokaryotic and eukaryotic cell.

    d) What is middle lamella? Describe the chemical composition of a typical plant cell wall.   1+4

3. Answer any **two** of the following: 10×2=20

    a) Define pH and buffer. Write a short note on fatty acid structure on the basis of chain length and saturation. Distinguish between DNA and RNA.
                                 2+6+2

    b) What do you mean by holoenzyme, apoenzyme and coenzyme? What is prosthetic group? Describe the mechanism of enzyme action.
                                 3+1+6

    c) Mention four bacterial features of mitochondria. Describe the organization of the membranes of chloroplast of higher plants. Briefly describe the structure and composition of bacterial and eukaryotic cytosolic ribosomes.   2+3+5

d) Name the different stages of cell cycle. In which phase of cell cycle does DNA replication occur? Describe the role of MPF, CAK, Wee1 and Cdc25 during G2 to M transition in fission yeast cell. 3+1+6

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