3 (Sem–1/CBCS) BOT HC 2

2020

(Held in 2021)

BOTANY

(Honours)

Paper : BOT–HC–1026

(Biomolecules and Cell Biology)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions : 1×7=7

   (a) What are enzyme inhibitors ?

   (b) Name the group of algae which is prokaryotic in nature.

   (c) Who proposed the "Fluid Mosaic Model" of plasma membrane ?

(d) Mention the main role of protein kinase.

(e) _____ is known as suicidal bag.
(Fill in the blank)

(f) What are the three layers of cell wall ?

(g) Endosymbiotic theory is related with the origin of _____ cell.
(Fill in the blank)

2. Give brief answers of the following : 2×4=8

(a) Explain the second law of thermodynamics.

(b) Explain the process of endocytosis in the active transport of materials across cell membrane.

(c) Mention *four* differences between mitosis and meiosis.

(d) What are redox reactions, explain with an example ?

3. Answer [*(a), (b)* and *(c)*] **or** [*(a), (d)* and *(e)*] : 5×3=15

(a) Write the differences between microtubules and microfilaments.

(b) Explain the lock and key hypothesis of enzyme action.

(c) Explain the phases of eukaryotic cell cycle.

(d) Write a note on Michaelis-Menten equation.

(e) Write a note on importance of cell cycle checkpoints and regulation.

4. Answer the following questions : 10×3=30

(a) Write a note on the classification of carbohydrates with suitable examples. 10

Or

What are the main components of a nucleotide of DNA ? Explain the structure of different types of DNA. 2+8=10

(b) Discuss the different levels of protein structure. Mention the biological roles of protein. 6+4=10

Or

Discuss the major classes of storage and structural lipids and their functions. 10

(c) Describe the ultrastructure of nucleus with suitable diagram. 10

Or

Write notes on : ***(any two)*** 5×2=10

(i) Mitochondria

(ii) Golgi apparatus

(iii) Chloroplast.
