

(d) What is fermentation? Write briefly the mechanism of alcoholic fermentation. Mention the relation between fermentation and anaerobic respiration. $1+7+2=10$

(e) What are enzymes? Describe the classification and nomenclature of enzymes with appropriate examples. $2+8=10$

(f) What are phospholipids and glycolipids? Name some of the important phospholipids in plants. How the phospholipids are synthesized? $2+3+5=10$

6. **Answer the following questions:** (a) What is the mechanism of alcoholic fermentation? Mention the relation between fermentation and anaerobic respiration. $1+7+2=10$

(b) What are enzymes? Describe the classification and nomenclature of enzymes with appropriate examples. $2+8=10$

(c) What are phospholipids and glycolipids? Name some of the important phospholipids in plants. How the phospholipids are synthesized? $2+3+5=10$

Total number of printed pages—4
3 (Sem-6/CBCS) BOT HC 1
2025

BOTANY
(Honours Core)

Paper : BOT-HC-6016
(**Plant Metabolism**)

Full Marks : 60
Time : Three hours

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

1. **Answer the following questions:** $1\times 7=7$

(a) What is the light wavelength for conversion of physiologically active form of phytochrome to inactive form?
(b) Name the metal present in the chlorophyll molecule associated with photosynthesis.
(c) What is the name of the protein part of enzyme?

(d) Which molecule acts as reaction centres in photosynthesis ?

(e) In which part of the mitochondria ATP synthesis occurs ?

(f) Name of a coenzyme which is a carrier of acyl group.

(g) Write the name of the micronutrient which is the constituent of nitrate reductase ?

2. Answer the following questions shortly : $2 \times 4 = 8$

(a) Differentiate between C₄ and C₃ pathways.

(b) Explain quantum and photon of light energy.

(c) Define oxidative phosphorylation.

(d) Significance of Photorespiration.

3. Answer the following questions briefly : $5 \times 3 = 15$

(any three)

(a) Describe the Chemiosmotic theory of ATP synthesis.

(b) List the three phases of photosynthesis. Briefly discuss the chemical steps in these phases.

(c) Explain briefly the cyanide-resistant respiration.

(d) What are coenzymes and isoenzymes ? Give an account of two important coenzymes involved in respiration.

(e) How blue-green algae fix atmospheric nitrogen ? Describe the mechanism of nitrogen fixation by BGA.

4. Answer the following questions as instructed : (any three) $10 \times 3 = 30$

(a) What is a CAM ? Discuss the CAM pathway. Write about the significance of CAM. $2+6+2=10$

(b) Elaborate the process of biological nitrogen fixation in legumes and non-legumes, with special reference to biochemistry of the process.

(c) What are lipids ? Describe the role in Mobilization of Lipids during oily seed germination. $2+8=10$