2023

Time - 3 hours

Full Marks - 60

*Answer **all groups** as per instructions.*
Figures in the right hand margin indicate marks.
Candidates are required to answer
in their own words as far as practicable.
Draw labelled diagrams wherever necessary.

GROUP – A

1. Fill in the blanks. (all) [1 × 8

(a) Amphibolic pathway involves both _____ and _____.

(b) Cyclic GMP is a _____ messenger.

(c) For red drop in photosynthesis in known as _____.

(d) Reaction centre of pigment system-I is _____.

(e) Chemiosmotic theory was proposed by _____.

(f) Value of R.Q is less than one when respiratory substrates are _____.

(g) Oxidation of ammonia to nitrite is carried out by the bacterium _____.

(h) Triglycerides are hydrolysed to fatty acids and glycerol in the presence of the enzyme _____.

GROUP – B

2. Answer any eight of the following questions within two to three sentences each. [1½ × 8

(a) What are isozymes ?

(b) What is receptor ?

(c) What is redox signalling ?

(d) What is Emerson effect ?

(e) What are the products of TCA cycle ?

(f) What do you mean by NADH shuttle ?

(g) What is substrate level phosphorylation ?

(h) What are unsaturated fatty acids ? Give two examples.

(i) What is Ammonification ?

(j) What is nif gene ?

GROUP – C

3. Write notes on any eight of the following within 75 words each. [2 × 8

(a) Allosteric enzymes

(b) Calcium signalling

(c) Hill reaction

(d) CAM plant

(e) Fermentation

(f) Glyoxylate cycle

(g) Oxidation of glycerol

(h) Energetics of β-oxidation

(i) Significance of gluconeogenesis

(j) Nodule formation

GROUP – D

4. Answer any four of the following questions within 500 words each.

(a) What are metabolic pathways ? Describe various anabolic pathways. [6

(b) Describe different types of receptor in relation to signal transduction. [6

(c) Illustrate the 'z' scheme of photosynthesis. [6

(d) What is CAM ? Describe the CAM pathway of CO_2 fixation. [6

(e) Describe Kerb Cycle ? What is the fate of NADH produced in this cycle. [6

(f) Give an account of pentose phosphate pathway. [6

(g) Illustrate the process of α-oxidation and its significance. [6

(h) What is symbiosis ? Narrate the symbiotic nitrogen fixation in plants.