3. Write short notes on the following **(any three)** : (5×3=15)

   (a) Cyanide-resistant respiration

   (b) Induction of seed germination by gibberellin (molecular mechanism)

   (c) Root pressure theory

   (d) CAM-pathway

4. (a) Explain the general roles of essential elements. Describe the role of iron, molybdenum, manganese, and potassium. (3+4=7)

   (b) Define transpiration and describe its significance. Explain internal and external factors affecting transpiration. (1+3+4=8)

5. (a) Describe structure of enzyme. Explain the mechanism of enzyme action. (3+4=7)

   (b) Illustrate the basic structure of nitrate reductase (NR) and nitrite reductase (NiR), and explain their role in the assimilation of nitrate to ammonia. (4+4=8)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 7037 **K**

Unique Paper Code : 2162523502

Name of the Paper : Plant Physiology & Metabolism

Name of the Course : **B.Sc. (Prog.) Life Science**

Semester : V

Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **four** questions in all.
3. Question No. **1** is compulsory
4. **All** questions carry equal marks.
5. Answer all parts of a question together.

1. (a) Expand the following **(any five)** : (1×5=5)

(i) NADPH

(ii) ETS

(iii) ROS

(iv) Pfr

(v) LHC

(vi) GOGAT

(b) Define the following **(any five)** : (1×5=5)

(i) Oxidoreductases

(ii) Solute potential

(iii) Apical dominance

(iv) Bioassay

(v) Aquaporins

(vi) Rubisco

(c) Give one word for each of the following **(any five)** : (1×5=5)

(i) The metabolic pathway converting glucose to pyruvate.

(ii) The enzyme catalyzing biological nitrogen fixation.

(iii) Plant hormone inducing stomatal closure during water stress.

(iv) Process of chilling treatment for early flowering.

(v) An antioxidant enzyme.

(vi) An oxygen-scavenging protein present in the root nodule.

2. Differentiate between the following **(any five)** : (5×3=15)

(a) Photosystem I and II

(b) Apoplast and Symplast

(c) C3 and C4 cycle

(d) Macro- and micro nutrients

(e) SDP and LDP

(f) Phloem loading and unloading