6|12|18 (E)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 965 **I**

Unique Paper Code : 32165301

Name of the Paper : Plant Physiology and Metabolism

Name of the Course : **Generic Elective – Botany**

Semester : III

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all, including Question No. **1** which is compulsory.

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

   (i) Short day plant

   (ii) Synthetic auxin

   (iii) Metal present in cytochrome oxidase

   (iv) Regulatory enzyme

P.T.O.

(v) Stress hormone

(vi) Anti-ageing hormone

(b) Give one contribution of the following **(any five)** (1×5=5)

(i) C.B. van Neil

(ii) E. Kurosawa

(iii) M. Chailakhyan

(iv) W. Arnold

(v) H.A. Krebs

(vi) P. Mitchell

(vii) D.I. Arnon and P.R. Stout

(c) Expand **any five** of the following : (1×5=5)

(i) ATP (ii) ABA

(iii) DCMU (iv) GOGAT

(v) TCA (vi) CAM

2. Differentiate **(any three)** (5×3=15)

(a) Action spectrum and absorption spectrum

(b) Free diffusion and facilitated diffusion

(c) C_3 and C_4 plants

(d) Competitive and non-competitive inhibition

(e) Pr and Pfr

3. Write short note : (3×5=15)

(a) Criteria of essentiality of elements

(b) Anaerobic respiration

(c) Apical dominance

(d) Vernalization

(e) Hydroponics

4. Explain **any three** of the following : (5×3=15)

(a) Mechanisms of opening and closing of stomata

(b) Pressure flow hypothesis of phloem translocation

(c) Oxidative pentose phosphate pathway

(d) Isoenzymes

5. (a) What do you understand by photoperiodism? How this concept is used for commercial benefits. (9)

P.T.O.

(b) Enumerate the role of following elements in plant metabolism : (2×3=6)

Copper

Phophorus

Iron

6. (a) Give a detailed account of physiological role of gibberellins. (8)

(b) Describe the mechanism of enzyme action. (7)

7. (a) What do you understand by photorespiration? Why is it called a necessary evil? (8)

(b) Explain the process of nodulation and role of dinitrogenase in symbiotic Nitrogen fixation. (7)