

2015

M.Sc.

3rd Semester Examination

BOTANY

PAPER—BOT-301

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

UNIT—I (Marks : 20)

Answer Q. No. 1 & 2 and any one of the rest.

1. Answer any five of the following : 5×1
- (i) What is meant by redox potential ?
 - (ii) What do you mean by 'tripleresponse of ethylene' ?
 - (iii) What is nif gene ?

(Turn Over)

- (iv) Write the full form of NOXA.
 - (v) Why Calvin cycle is called autocatalytic?
 - (vi) Differentiate between orthodox seeds and recalcitrant seeds.
 - (vii) What is meant by CAM idling?
 - (viii) What is Kranz anatomy?
2. Write short notes any *two* of the following : $2 \times 2 \frac{1}{2}$
- (a) Bioassay of Gibberellin (GAs);
 - (b) Role of phytochrome in photomorphogenic response;
 - (c) Non symbiotic nitrogen fixation;
 - (d) Oxidative photophosphorylation.
3. (a) Briefly describe the mechanism of photorespiration and add a note on its significance.
- (b) Point out the chemical nature and function of Nod factor during nodule development in leguminous plants.

7+3

4. (a) Describe the physical and chemical methods of breaking seed dormancy.
- (b) Describe the role of auxin and ethylene in fruit ripening. 5+5

UNIT—II (Marks : 20)

Answer Q. No. 5 & 6 and any one of the rest.

5. Answer any *five* of the following : 5×1
- (a) Define turnover number of an enzyme.
- (b) What are buffers ?
- (c) Name two sulphur containing amino acids.
- (d) What are Zwitter ions ?
- (e) What are inducible enzymes ?
- (f) Calculate the pH of 0.001(N) NaOH.
- (g) What is the difference between starch and cellulose ?
- (h) What is phytochelatin?

6. Write short notes any *two* of the following : $2 \times 2 \frac{1}{2}$
- (a) Principle and major application of HPLC ;
 - (b) Lambert and Beer's law ;
 - (c) Classification of enzymes ;
 - (d) Properties of protein.
7. (a) Explain the types of enzyme inhibition with example.
- (b) Mention the salient structural features of open chain and ring forms of monosaccharides. $6+4$
8. (a) Mention the types of amino acids on the basis of R-group.
- (b) Distinguish between fats and oils.
- (c) What bonds are involved in the spatial structure of proteins ? $5+2+3$
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