2019

B.Sc. (Honours)

5th Semester Examination

BOTANY

Paper - DSE-2T

Full Marks : 40 Time : 2 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

(Plant Breeding)

1. Answer any *five* questions from the following. 2×5=10

(a) What is ideotype ?

(b) What is clonal propagation ?

(c) Expand the term GMO and NBPGR.

[Turn Over]

(d) Give example of two polyploid crops.

(e) What is gametocide ? Give an example.

(f) What is pure line ?

(g) Write any two applications of plant breeding.

(h) Define Distant hybridization.

2. Answer any *four* questions from the following. 5×4=20

(a) Discuss additive interaction of genes with example. 5

(b) Write a short note on centre of origin of any two crops. What is domestication ? 4+1

(c) What is emasculation ? Discuss any one of the method during the emasculation. 1+4

(d) What are haploids ? Write a note on role of plant biotechnology in plant breeding for crop improvement. 1+4

(e) Differentiate between the following (any two) : 2½+2½

(i) Introduction and Domestication.

(ii) Primary introduction and secondary introduction.

(iii) Mass selection and pure line selection.

(iv) Monogenic vs polygenic inheritance.

(f) What is mutation breeding ? Give the advantages and disadvantages of mutation breeding. 2+3

3. Answer any *one* question from the following. 1×10=10

(a) What is hybrid vigour ? What is the correlations of the concept of inbreeding depression and heterosis ? How the hybrid vigour has been explained by over-dominance hypothesis. Give an example on applications of hybrid vigour. 1+3+5+1

[Turn Over]

(b) What is selection ? Describe any one method of selection. Add a note on the merits and demerits of this method. Give examples of any two crop variety produced via selection method.

2+3+3+2

(Stress Biology)

1. Answer any *five* questions from the following. 2×5=10

(a) What is ROS ? Give example.

(b) Differentiate stress and strain.

(c) Name two natural antioxidants found in plant.

(d) Write two characters of aerenchyma development of plants against environmental stress.

(e) What are PR-Proteins ?

(f) What is hyper sensitive reaction ?

(g) What is scavenging mechanism ?

(h) Write two high temperature stress effects on plants.

[Turn Over]

2. Answer any *four* questions from the following. 5×4=20

(a) Write short note on Salinity stress in plants.

(b) Explain the plant's water acclimation mechanism.

(c) Briefly discuss the calcium modulation of stress sensing mechanism in plants.

(d) Discuss the phospholipid signalling mechanism of plants in stress condition.

(e) Describe in brief about systematic acquired resistance.

(f) The physiology of drought and cold resistance of plants is essentially similar — Discuss the statement.

3. Answer any *one* question from the following. 1×10=10

(a) What is temperature resistance ? What are the physiological alterations influenced by the temperature and high light intensity ? 2+4+4

(b) How the plants adapt themselves against insects and microbial diseases ? Write the osmotic adjustment that protect plants against environmental stress. 3+3+4

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