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UG/5th Sem/Bot(H)/T/19

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]

(2)

- (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

(3)

(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]

(4)

- (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

(5)

(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]

(6)

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