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B.Sc./5th Sem (H)/BOTA/23(CBCS)

2023

5th Semester Examination

BOTANY (Honours)

Paper : DSE 2-T

[CBCS]

Full Marks : 40

Time : Two 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]

Group - A

Answer any *five* of the following questions : $2 \times 5 = 10$

1. Comment on the utilities of plant breeding.
2. Define euploidy and aneuploidy.
3. How can distant hybridization contribute?
4. What steps are taken for the acclimatization of crop?
5. Explain a three-way cross.

P.T.O.

(2)

6. State the principles of two methods of cross pollinating plants.
7. Name some methods of vegetative propagation and mention the unique advantage of such propagation.
8. How is the expression of quantitative characters controlled?

Group - B

Answer any *four* of the following questions : $5 \times 4 = 20$

9. Write short note on : $2\frac{1}{2} + 2\frac{1}{2}$
 - (a) Centres of origin of crops
 - (b) Domestication of crop plants
10. How can genetic homozygosity be achieved in self pollinating species through breeding? 5
11. Briefly describe the role of biotechnology in crop improvements. 5
12. How does broad sense heritability differ from narrow sense heritability? 5
13. Write on the genetic basis of inbreeding depression. 5
14. What is backcross? How does it contribute to the plant breeding? 1+4

(3)

Group - C

Answer any *one* of the following questions : $10 \times 1 = 10$

15. Explain the skin colour inheritance of human beings. Write the role of mutations in crop improvement. 5+5
16. Define heterosis. How is transgressive inheritance related to it? Mention the hypotheses used for the explaining cause of heterosis. 2+2+6
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P.T.O.

(4)

OR

[Stress Biology]

Group - A

Answer any *five* of the following questions : $2 \times 5 = 10$

1. Define halophyte. Cite one example.
2. What is phospholipid signaling?
3. What is osmotic adjustment?
4. How changes happen in root-shoot ratio of plants during environmental stress?
5. Mention the differences between abiotic and biotic stresses.
6. What is cross-protection?
7. What are PR-proteins?
8. What is hypersensitive reaction?

Group - B

Answer any *four* of the following questions :

$5 \times 4 = 20$

9. Write a brief note on processes of salt resistance and cold resistance of higher plants. $2\frac{1}{2} + 2\frac{1}{2}$
10. Write a short note on jasmonates.

(5)

11. Discuss the calcium modulation on stress sensing mechanisms in plants.
12. What is reactive oxygen species? Write its scavenging mechanism. 2+3
13. Write different symptoms of salt stress.
14. Write down the aerenchyma development mechanism in response to hypoxia.

Group - C

Answer any *one* of the following questions : 10×1=10

15. What is pathogenesis? Write down the role of different proteins related to pathogenesis. 2+8
 16. Define ROS. Discuss ROS scavenging pathways to protect cells from oxidative stress. 2+8
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