2020/TDC/ODD/BOTDSE-502T/466

TDC ODD SEMESTER (CBCS) EXAM., 2020
held in April – 2021

BOTANY

5th Semester

COURSE NO. BOTDSE-502(T)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions
Candidates have to answer either from Option-A or Option-B

Option-A
(Stress Biology)

A. Answer any 15 questions : 1x15=15

1. What is Calcium modulation?
2. Define stress in plant.
3. Give an example of secondary messenger?
4. What are abiotic components of stress?
5. What is ROS?
6. What is oxidative stress in plant?
7. What is SAR?
8. Define adaptation in plant.
9. What is biotic stress in plant?
10. What is Calmudulin?
11. What is Osmotic potential in plant?

12. What is PR Protein?
13. What is Scavangers?
14. What is Pathogenesis?
15. What is hypersensistivity?
16. What is free radical?
17. What is signalling in plant?
18. What is Salinity stress in plant?
19. What is antioxidants?
20. Define acclimation.
21. Name one antioxidant enzyme?
22. What is Lipid peroxidation?
23. What is environmental stress?
24. Name one anti stress hormone?
25. Define signal transduction in plant.
26. What is Catalase?
27. What is the effect of H_2O_2 in plant?
28. What is primary stress signal receptor?
29. What is superoxide?
30. What is Osmotic stress?

B. Answer any 5 questions : **2x5=10**

1. How stress affect plant growth?
2. Write the function of calmudulin.
3. How ROS is produced?
4. Write the function of hypersensitive reaction in plant.
5. What does osmotic adjustment mean?

How ROS produce oxidative stress in plant?

Write the difference between acclimation and adaptation.

3. What is the main role of phospholipid in plant?

9. Is acclimation reversable? If yes explain.

10. What is heat shock protein?

C. Answer any 5 questions : 5x5=25

1. Explain the different types of plant adaptation in drought stress with examples.

2. Explain the various types of biotic and abiotic stress in plant.

3. Explain the role of calcium modulation in signal transduction in plant defense.

4. How phospholipid signalling pathways helps in plant defense from biotic stress?

5. Explain the process of calcium signalling.

6. What are the roles of Jasmonate response in plant defense from pathogen?

7. How ROS producer in plants?

8. Explain different ROS Scavangers mechanism in plants?

9. Explain the role of ROS in plant defense.

10. How calcium helps plant from cold stress defense?

Option-B
(Plant Breeding)

A. Answer any 15 questions : 1x15=15

1. What is the full form of ICAR?

. Where is the Sugarcane Breeding Institute located?

. Name an ornamental-Turned weed in India.

4. Name the country geographical area from where Late Blight of potato was introduced in India.

5. Lerma Rojo is a variety name of which crop?

6. Name an agronomic character of Rice.

7. Ethiopia and hill country of Eritrea belongs to which centre of origin.

8. What is the scientific name of Egyptian cotton?

9. What do you mean by Cleistogamy?

10. What is the full form of NBPGR?

12. Name the plant introduction agency / body in India meant for introduction of medicinal plants.

13. Who proposed the polygenic inheritance— 'Skin Colour in Man'?

14. What is the character of F, if a cross is being made betwee Negro and White?

15. What are the two kinds of phenotypic traits?

16. What is null alleles?

17. What is Kernel?

18. Who studied first the 'Kernel colour in what' is a quantitative trait?

19. Who proposed the term 'pure line first'?

20. Who coined the term heterosis?

21. Who proposed the over dominance hypothesis?

22. Who proposed the dominance hypothesis?

23. Write one manifestation of heterosis.

24. According to whom 'hybrid vigour denotes the manifest effects of hiterosis'?

25. Define mutation.
26. Who introduced the term mutation?
27. What the full form of 'EI'?
28. Give example of a base analogues.
29. Name two nonparticulate electromagnetic radiation.
30. Give example of a mutant variety of rice.

B. Answer any 5 questions : **2x5=10**

1. Define plant breeding.
2. Give examples of two underground stems.
3. State the 'Law of Homologous Series in Variation'.
4. What is quarantine?
5. Define acclimatisation.
6. Give examples of two self pollinated crops.
7. Write two characteristics of quantitative inheritance.
8. What do you mean by polygenic inheritance?
9. Define polyploidy?
10. What do you mean by distant hybridization? Give example.

C. Answer any 5 questions : **5x5=25**

1. Write a brief note on the scope and objectives of plant breeding. 5
2. Write an illustrated note on the major achivements of plant breeding. 5
3. Give an account of the crops originated in the Hindustan centre of origin. 5
4. Write the procedure of pure line selection for self-pollinated crops. 5

5. Explain the phenomenon of quantitative inheritance, taking the example of 'Kernel colour in wheat'. 5

6. Write the differences between monogenic inheritance and polygenic inheritance. 5

7. Describe the important hypothesis explaining the genetical basis of niterosis. 2½+2½=5

8. What do you mean by inbreeding depression? Write the practical applications and evalutionary significance of inbreeding depression. 1+2+2=5

9. Give an account of the achievements of mutation breeding. 5

10. Define distant hybridization. Describe any two methods for production of distant hybrids. 2+3+5

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