

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2018

(CUCBCSS-UG)

Complementary Course

BOT 4C 04—PLANT PHYSIOLOGY, ECOLOGY AND GENETICS

Time : Three Hours

Maximum : 64 Marks

Part A*Answer all questions.*

1. The symbol of water potential is _____.
2. Salting of mango is an example for _____.
3. Name a dicot plant with C4 cycle.
4. The most abundant protein on earth is _____.
5. The term photoperiodism was coined by _____.
6. Name a gaseous plant hormone.
7. Name the three levels of life that ecology deals with.
8. Vivipary is present in _____ type of plants.
9. Name the scientists who rediscovered Mendelism.
10. The law of purity of gametes was formulated by _____.

(10 × 1 = 10 marks)

Part B (Short Answer Questions)*Answer any seven questions.*

11. Describe the functions of Endoplasmic reticulum.
12. Differentiate between semi permeable and selectively permeable membrane.
13. Explain the techniques used by Calvin and his co workers to reveal the secret of dark phase of photosynthesis.
14. Briefly explain how C4 plants can avoid photorespiration?
15. Write an account on the role of oxygen in terminal oxidation.
16. Write an account on the application of synthetic hormones in agriculture.
17. Explain the scope of Ecology.
18. Explain climax community. What is its significance?

Turn over

19. What is meant by the term heredity?
 20. Explain the reasons for Mendel's success in the experiments with garden pea.
- (7 × 2 = 14 marks)

Part C (Short Essay Questions)

Answer any six questions.

21. Explain the passive mechanism of water absorption in plants.
22. "Transpiration is a necessary evil." Discuss the statement.
23. Explain 'red drop' and Emerson's enhancement effect. What is its significance?
24. Describe the structure of chloroplast and explain the organization of photosynthetic pigments in it.
25. Briefly describe the three stages of reductive pentose phosphate pathway.
26. Write an account on the advantages and disadvantages of photorespiration.
27. Explain the hydrophytic adaptations exhibited by *Hydrilla*.
28. Incomplete dominance in *Mirabilis jalapa* is a modification of Mendalian ratio. Explain.

(6 × 4 = 24 marks)

Part D (Essay Questions)

Answer any two questions.

29. Explain the adaptations of chloroplast to carry out the light and dark phases of photosynthesis.
30. Explain the process of ecological succession with reference to hydrosere.
31. Describe the law of independent assortment. Explain how independent assortment leads to genetic variability.

(2 × 8 = 16 marks)