

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2004-05 & thereafter)

SUBJECT CODE: BT/MC/PP64

B. Sc. DEGREE EXAMINATION, APRIL 2008
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
SIXTH SEMESTER

COURSE : MAJOR – CORE
PAPER : PLANT PHYSIOLOGY
TIME : 3 HOURS **MAX. MARKS : 100**

SECTION – A

ANSWER ALL QUESTIONS

I CHOOSE THE CORRECT ANSWER: (6 marks)

1. Mass flow hypothesis was proposed by
a) Dixon b) Munch c) Donnan d) Darwin.
2. The ultimate donor of electron in photosynthesis is,
a) Oxygen b) Water c) Carbon-di-oxide d) Hydrogen.
3. Glycolysis takes place in the
a) Cytoplasm b) Mitochondria c) Glyoxysome d) Glycogen.
4. Chlorosis of older leaves with production of other pigments is due to the deficiency of
a) Sulfur b) Potassium c) Phosphorous d) Nitrogen.
5. Phenocopy is the effect of
a) Auxin b) Gibberellin c) Abscisic acid d) Cytokinin.
6. The reaction centre molecule of PS I is
a) 703 b) 682 c) 673 d) 683.

II FILL IN THE BLANKS: (6 marks)

7. _____ is a selective weedicide.
8. The insect _____ is used to demonstrate that phloem is the channel for translocation.
9. Distorted leaves and rosette appearance is due to the deficiency of _____.
10. _____ process involves the organelles chloroplast, mitochondria and peroxisomes.
11. _____ hormone is associated with bud dormancy.
12. Photolysis of water is also known as _____.

III STATE TRUE OR FALSE: (6 marks)

13. In a fully turgid cell the turgor pressure is zero.
14. RUBP carboxylase is the key enzyme in cyanide resistant respiration.
15. IBA is rooting hormone.
16. Guttation is an evidence for root pressure.
17. Flowering is the only response of photoperiodism.
18. Glycolysis is also known as EMP pathway.

IV ANSWER ANY SIX OF THE FOLLOWING. EACH ANSWER NOT TO EXCEED 50 WORDS: (6 x 3 = 18)

19. Phloem loading.
20. Biological clock.
21. Electro-osmosis.
22. Action and absorption spectrum.
23. Assimilation of ammonia.
24. 'Florigen'.
25. Anaerobic respiration.
26. Fruit ripening.
27. Growth curve.

SECTION – B

ANSWER ANY FOUR OF THE FOLLOWING. EACH ANSWER NOT TO EXCEED 200 WORDS: (4 x 6 = 24)

28. Explain the cycle by which reserve food substances are broken down during germination in oil seeds.
29. Describe the H⁺ and K⁺ exchange pump theory to explain stomatal movement.
30. Explain the importance of vernalization in preparing the plants for flowering.
31. What is bioassay? Write down any one bioassay for auxin.
32. Explain any one concept of active absorption of mineral ions.
33. Write notes on Phytochrome.

SECTION – C

ANSWER ANY TWO OF THE FOLLOWING. EACH ANSWER NOT TO EXCEED 1000 WORDS: (2 x 20 = 40)

34. Explain how CO₂ is fixed in a C₃ plant. Bring out the differences between C₃ and C₄ plants.
35. Discuss the role of the plant hormones in
 - a) Abscission
 - b) Apical control
 - c) Parthenocarpy and
 - d) Micropropagation.
36. Explain how a molecule of glucose is completely oxidized during aerobic respiration.
37. Write an essay on biological nitrogen fixation.
