STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2015 – 2016)

SUBJECT CODE: 15BT/MC/PP64

B. Sc. DEGREE EXAMINATION, APRIL 2018
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 the questions. **(18 MARKS)**

I. Choose the correct answer: **(5 x 1 = 5)**

1. ABA in guard cells induce----.
   a. Exosmosis b. Endosmosis c. Isotonic d. All
2. Ammonia is the product of enzymatic reactions of -------.
   a. NR & NiR b. N_2ase & NR c. N_2ase & NiR d. N_2ase alone
3. Predominant organic acid that accumulated in CAM pathway is ---------.
   a. Malic acid b. Maleic acid c. PGA d. OAA
4. RQ value of fatty acid is -------.
   a. One b. Less than one c. More than one d. Zero
5. The enzyme that induces fruit ripening by ethylene is --------
   a. Protease b. Pectinase c. Lipase d. Amylase

II. Fill in the blanks: **(5 x 1 = 5)**

6. The process of cold treatment in flowering is called ----------.
7. Ribosomes are held together by the macro nutrient ----------.
8. Onset of photorespiration is by the enzyme ----------.
9. Entner-Doudroff pathway observed in microbe ----------.
10. Temperature induced flowering / germination of seed is called ----------.

III. State Whether True or False: **(4 x 1 = 4)**

11. Transpiration helps the plants in absorption of minerals.
12. Phloem unloading does not require ATP.
13. Photolysis of water does not take place in cyclic photophosphorylation.
14. Glycolysis reaction happens in mitochondria.

IV. Match the following: **(4 x 1 = 4)**

15. Bennet-Clark	a. C_4 pathway
16. Hatch-Slack	b. Oxidative phosphorylation
17. Slater	c. Auxins
18. Went	d. Ion uptake

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V. Answer any SIX of the following. Each answer should not exceed 50 words:

(6 x 3 = 18)

19. Transpiration pull
20. Passage cells
21. Leg hemoglobin
22. Nitrate reductase
23. RUBISCO
24. Kranz anatomy
25. Cyanide respiration
26. Richmond-Lang effect
27. Florigen

SECTION – B

Answer any FOUR of the following. Each answers not exceeding 200 words. (4 x 6 = 24)

28. Explain the components of water potential by an experiment.
29. Tabulate the roles and deficiency symptoms of micronutrients.
30. Illustrate the CO_2 assimilation pathway in C_4 plants with enzymes.
31. Elucidate the biochemical reactions of anaerobic respiration.
32. Outline the citric acid cycle. Add note on energy budget for oxidation of 1 glucose molecule.
33. Briefly explain about light influence on flowering in plants.

SECTION – C

Answer any TWO of the following. Each answers not exceeding 1000 words.

(2 x 20 = 40)

34. With any two theories explain the mechanism of stomatal movements.
35. Describe the mechanism of mineral salt uptake by active means.
36. Give a detailed account of the light reaction in plants.
37. Discuss the physiological effects and practical applications of auxins and gibberellins.

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