STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2011 – 12)
SUBJECT CODE: 11BT/MC/PP64

B. Sc. DEGREE EXAMINATION, APRIL 2015
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. When a plant cell is placed in a medium containing pure water it will
   (a) Lose water (b) Shrink (c) Swell
2. The enzyme nitrogenase contains
   (a) Molybdenum (b) Copper (c) Zinc
3. The Cytochrome pump theory was proposed by
   (a) Robert Brown (b) Steward (c) Lundegardh
4. The Hatch-Slack pathway is seen in
   (a) *Bryophyllum* (b) *Saccharum* (c) *Hibiscus*
5. The hormone responsible for the Richmond –Lang effect is
   (a) Ethylene (b) Cytokinin (c) Auxin

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

6. The hormone involved in the closure of stomata is ---------.
7. The mineral involved in the association and dissociation of ribosomal sub-units is -------.
8. Photophosphorylation takes place in the ---------- of the chloroplast.
9. The respiratory quotient for glucose is ----------.
10. The exposure of seeds to low temperature is called ----------.

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

11. Water moves from a region of higher water potential to a region of lower water potential.
12. Phloem loading takes place at the sink.
13. Photorespiration is seen in C4 plants.
14. Glycolysis takes place in the cytoplasm.

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

15. Apical dominance	-	Oxidative phosphorylation
16. Boron	-	Auxin
17. RUBISCO	-	Pollen germination
18. ATP synthesis	-	Dual nature

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

Define the Following **(6 x 3 = 18)**

19. Active absorption.
20. Donnan Equilibrium.
21. Bacteroids.
22. Substrate level phosphorylation.
23. Pigment system I.
24. Fermentation.
25. Cyclic photophosphorylation.
26. Vernalin.
27. Ethylene.

SECTION – B

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

28. Write notes on water potential and its components.
29. Explain the Biochemistry of nitrogen fixation.
30. Describe the reactions of CAM in plants.
31. Write notes on Oxidative phosphorylation.
32. Explain the Glyoxylate pathway.
33. Describe the stages of growth in plants.

SECTION – C

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

(2 x 20 = 40)

34. Compare and contrast the C3 and C4 cycles in plants.
35. Describe the transport of organic solutes.
36. Write an essay on the Krebs' Cycle.
37. Describe the chemical nature, bioassay, physiological effects and practical applications of Gibberellins.

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