

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2008 – 09 & thereafter)
SUBJECT CODE: BT/MC/PP64

B. Sc. DEGREE EXAMINATION, APRIL 2014
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 MARKS)**

- 1 Stomata open at night in
a) C₃ plants b) CAM plants c) C₄plants d) Hydrophytes

- 2 First step in absorption of mineral salts by plants is
a) Imbibition b) Diffusion
c) Ion-exchange d) None of the above

- 3 The chief form of N₂ taken up by majority of plants from soil is
a) Nitrate & Nitrite b) NH₃
c) Amino acids d) Molecular Nitrogen

- 4 Which of the following is not a CAM plant
a) *Bryophyllum* b) *Hydrilla*
c) *Crassula* d) *Kalanchoe*

- 5 Which is common in both Aerobic & Anaerobic respiration.
a) Glycolysis b) Kreb’s cycle
c) Alcoholic fermentation d) Presence of O₂

II. Fill in the blanks: **(5 MARKS)**

- 6 TCA cycle is also known as _____.
- 7 In cyanide resistant respiration, the P/O ratio is _____.
- 8 Dimorphic chloroplasts are found in leaves of _____ plants.
- 9 During daylight, soluble sugars are formed in the guard cells & decreases the water potential of G. cells. This results in stomatal _____.
- 10 The excess of water is lost from the aerial parts of the plants in the form of water vapour. This is called _____.

III. State Whether True or False: **(4 MARKS)**

- 11 Conversion of Nitrate into Ammonia is an Amination process.
- 12 There is accumulation of k⁺ions in the guard cells during daylight period.
- 13 Water potential can be expressed in Pressure units such as BARS (or) ATMOSPHERES.
- 14 Glycolysis occurs both in the presence or absence of O₂

IV. Match the following:**(4 MARKS)**

15	Ascent of sap	Anabolic process
16	Copper Deficiency	Supply of oxygen
17	Photosynthesis	Necrosis of leaves
18	Leghaemoglobin	Xylem

IV. Answer any SIX of the following. Each answer should not exceed 50 words:**Define the Following****(6 x 3 = 18)**

- 19 Respiratory Quotient.
- 20 Micronutrients.
- 21 Water potential.
- 22 C₃ plants.
- 23 Symbiotic bacteria.
- 24 What are the deficiency symptoms of Boron in plants?
- 25 Ascent of Sap.
- 26 Role of ABA in stomatal movements.
- 27 Donnan equilibrium.

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

- 28 Explain cyanide resistant pathway.
- 29 Describe Entner–Doudroff pathway.
- 30 What are the physiological effects and Applications of cytokinin?
- 31 Describe the mechanism of stomatal movement.
- 32 Explain cytochrome pump theory.
- 33 Explain Vernalization.

SECTION – C**Answer any TWO of the following. Each answers not exceeding 1000 words.****(2 x 20 = 40)**

- 34 Write about the chemical nature, Bioassay and the physiological effects of Auxin.
- 35 Describe the photophosphorylation reactions.
- 36 Explain Nitrate and Nitrite Reduction. Comment on the Biochemistry of Nitrogen fixation.
- 37 Describe Photoperiodism.
