

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086

(For candidates admitted during the academic year 2010 – 11)

SUBJECT CODE: BT/MC/PP64

B. Sc. DEGREE EXAMINATION, APRIL 2013

**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 Water potential of pure water is
a) 100 b) 0 c) - 1 d) 1
- 2 Plant hormone which initiates and promotes cell division is
a) Gibberellic acid b) Ethylene
c) Abscisic acid d) Auxin
- 3 Principal organs of transpiration are
a) Roots b) Stem
c) Leaves d) Stem and Roots
- 4 The enzyme which catalyzes the conversion of Nitrogen to Ammonia is called
a) Nitrogenase b) Nitrate Reductase
c) Nitrite Reductase d) Transaminase
- 5 First stable Product of Photosynthesis is
a) 3 Phosphoglyceric Acid b) 1,3 Diphosphoglyceric Acid
c) 3 phosphoglyceraldehyde d) Dihydroxyacetone phosphate

II. Fill in the blanks:

(5 MARKS)

- 6 The terminal Electron acceptor in aerobic respiration is _____
- 7 Upward movement of water takes place through _____
- 8 In C4 plants, Photorespiration is _____
- 9 The response of plants to relative length of day and night is called _____
- 10 Breakdown of nitrates and ammonium compounds to molecular nitrogen is called _____

III. State Whether True or False:

(4 MARKS)

- 11 Sulphur is one of the most important micronutrients in a plant cell
- 12 The plant cell is turgid when placed in an hypotonic solution
- 13 Respiration in plants is resistant to cyanide
- 14 Oxidative phosphorylation takes place in Photosynthesis

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

- | | | |
|----|----------------------|-----------|
| 15 | Chlorophyll | Phloem |
| 16 | Active transport | Ethylene |
| 17 | Upward Translocation | Magnesium |
| 18 | Fruit ripening | ATP |

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

- 19 Vernalization
- 20 Photophosphorylation
- 21 Bioassay of Auxins
- 22 Importance of any **ONE** micronutrient
- 23 Any **ONE** reaction involved in ammonia assimilation
- 24 Turgid cell
- 25 Long day plants
- 26 Respiratory quotient
- 27 CAM plants

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

- 28 Mention the importance of any **TWO** factors on Photosynthesis
- 29 Discuss the relation of water potential in an idealized and a flaccid cell
- 30 Write short notes on Donnan equilibrium
- 31 List out any **THREE** differences between C3 and C4 plants .
- 32 Highlight the Importance of Biological nitrogen fixation .
- 33 what is the importance of carrier concept in the mineral salt absorption

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

- 34 Define transpiration. Explain the mechanism of stomatal transpiration .
- 35 Explain the major steps involved in the Reduction of carbon dioxide in a C3 plant
- 36 Write an essay on the Aerobic oxidation of Pyruvic acid .
- 37 Discuss the physiological role and applications of any **TWO** Plant Growth hormones.
