

Exam.Code:0005  
Sub. Code: 0454

2012  
B.A./B.Sc. (General) Fifth Semester  
Botany  
Paper - A: Plant Physiology - I

Time allowed: 3 Hours

Max. Marks: 36

**NOTE:** Attempt five questions in all, including Question No. 1 which is compulsory and selecting one question from each Unit.

x-x-x

I. A. Multiple Choice Questions (MCQ):

- i) Central vacuole is filled with fluid called
  - a) Sugar solution
  - b) Cell sap
  - c) Protoplasm
  - d) Vacuole plasm
- ii) Stomata are either absent or vestigial in
  - a) Apple type
  - b) Potato type
  - c) Oat type
  - d) Potamogeton type
- iii) Elements which give rise to cell walls and storage products are called
  - a) Cytoplasmic
  - b) Protoplasmic
  - c) Framework
  - d) Mechanical
- iv) Which amino acid is formed by reductive amination of  $\alpha$ -keto glutaric acid
  - a) Glycine
  - b) Aspartic acid
  - c) Glutamic acid
  - d) Proline

P.T.O.

(2)

- v) In a phospholipid molecule, the tails are
- a) Fatty acids
  - b) Protein
  - c) Phosphoric acid
  - d) Amino acids
- vi) Enzymes having catalytic role in RNA are called
- a) Allo enzymes
  - b) Ribozymes
  - c) Stero enzymes
  - d) Non enzymes

B. Fill in the blanks:-

- vii) Tea yellow disease is due to deficiency of \_\_\_\_\_.
- viii) Number of substrates converted into products/minute is \_\_\_\_\_.
- ix) Instrument used to find imbibition pressure is called \_\_\_\_\_.
- x) P is absorbed as \_\_\_\_\_ ion.
- xi) Plant imbibants are \_\_\_\_\_ colloids.
- xii) Synthesis of enzymes is under the control of \_\_\_\_\_. (12x1)

**UNIT – I**

- II. a) What are apoplastic and symplastic pathways of water movement? Show by diagram. (4,2)
- b) Prove by experiment that water rises through xylem. (6)
- III. Describe the  $k^+$  influx hypothesis of stomatal opening. (6)

(3)

**UNIT – II**

- IV. a) What is hydroponics? Write its types and importance.  
b) Write the role and deficiency symptoms of nitrogen. (4,2)
- V. a) How ions are absorbed by ionic exchange method?  
b) What is carrier hypothesis for mineral absorption? (4,2)

**UNIT – III**

- VI. a) Describe the various methods of amino acid synthesis.  
b) Write a note on enzyme nitrogenase. (4,2)
- VII. a) Describe the structure of true fats.  
b) Differentiate between fats and oils. (4,2)

**UNIT – IV**

- VIII. a) Describe the various categories of enzymes in the modern system.  
b) How are enzymes named in this system? (4,2)
- IX. Write notes on:-  
a) Competitive and non competitive inhibition  
b) Structure of proteins (4,2)

x-x-x