2021
B.A./B.Sc. (General)-5th Semester
Botany
Paper-A: Plant Physiology-I

Time allowed: 3 Hours   Max. Marks: 36

NOTE: *Attempt <u>five</u> questions in all, including Question No. I which is compulsory and selecting one question from each Unit. Draw diagrams where necessary.*

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I.   (a)   MCQ -

    (i)   Water potential of osmotically active solution is:

        (a) High   (b) Lower

        (c) Zero   (d) Maximum

    (ii) Pulsation theory was demonstrated on which plant?

        (a) Pea   (b) Beans

        (c) Desmodium   (d) Hibiscus

    (iii) Calcium, magnesium and potassium minimize the toxic effect of elements and are called: -

        (a) Non toxic   (b) Balancing

        (c) Frame work   (d) Protoplasmic elements

    (iv) Contact exchange Hypothesis is a type of:

        (a) Active mineral absorption

        (b) Passive absorption

        (c) Ascent of sap

        (d) Transpiration mechanism

    (v) Waxes are a type of:

        (a) Simple liquids   (b) Compound lipids

        (c) Derived lipids   (d) None of these

    (vi) Fibronogen is a type of:

        (a) Antibody   (b) Blood clotting protein

        (c) Enzyme   (d) Sweetest protein   (6×1)

   (b)   Fill in the blanks: -

    (i) Storage protein of milk is ....

    (ii) Enzymes causing direct breakage of bonds are called ....

    (iii) Phospho lipid is a type of .... Lipid.

    (iv) Yellow spot disease of citrus is due to deficiency of ....

    (v) Which physiological process is called essential evil............

    (vi) The region just behind the root cap is ....   (6×1)

UNIT – I

II. (a) Define osmosis and osmotic potential. Demonstrate with thistle funnel experiment.

(b) Find the osmotic potential of one molar conc. solution of glucose at 27^0C.

(4+2)

III. (a) Explain how the structure of guard calls is stomata are helpful in stomatal movement.

(b) Write any four advantages of transpiration. (4+2)

UNIT – II

IV. What is hydroponics? Write its types and significance for Humans. (6)

V. Write short notes on: -

(a) Donnan's equilibrium

(b) Phases of absorption of minerals (3+3)

UNIT – III

VI. Describe the various steps in β –oxidation of fatty acids. (6)

VII. Write notes on: -

(a) Ammonia assimilation

(b) Nitrogenase enzyme

(c) Waxes (3×2)

UNIT – IV

VIII. Explain the following with example: -

(a) Turnover number

(b) Competitive inhibition

(c) Km value or Michaelis constant (3×2)

IX. (a) Describe the structure & organization of proteins.

(b) Name the two ends of a polypeptide chain. (5+1)

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