

[Time: Three Hours]

[Marks: 100]

Please check whether you have got the right question paper.

- N.B:** i) **All questions are compulsory**
 ii) **Figures to the right indicate full marks**
 iii) **Draw neat and labeled diagrams whenever necessary**

Q.1 A. Choose the **correct option** from the following:

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- a) Cells surrounding the guard cell are called _____ cells.
 i) accessory ii) subsidiary iii) motor iii) bulliform
- b) _____ is a complex permanent tissue.
 i) Parenchyma ii) Xylem iii) Collenchyma iv) Sclerenchyma
- c) Cotton fibre is the part of _____ tissue system.
 i) Epidermal ii) Vascular iii) Ground iv) Meristematic
- d) _____ are unicellular structures present on epidermis.
 i) Glandular hairs ii) Scales iii) Ramentum iv) Dendroid hairs
- e) _____ is the essential pigment for photosynthesis.
 i) Anthocyanin ii) Carotene iii) Chlorophyll iv) Xanthophyll
- f) During photosynthesis the final product of Calvin cycle is _____ .
 i) Pyruvate ii) PGA iii) RuBP iv) Glyceraldehyde
- g) Plants during non-cyclic Photophosphorylation produce _____ .
 i) ATP ii) NADPH iii) NADPH and ATP iv) NADH and ATP
- h) _____ part of *Zingiber officinale* is of medicinal importance.
 i) Roots ii) Dried rhizome iii) Leaves iv) Entire plant
- i) _____ are the constituents of the basic molecular structure of the cell.
 i) Primary metabolites ii) Secondary metabolites
 iii) Alkaloids iv) Lectins
- j) Turmeric powder is prepared from _____ of *Curcuma longa*.
 i) Root ii) Leaf iii) Rhizome iv) Bark

Q 1. B. Answer the following in **one sentence**:

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- a) Write any two functions of parenchyma tissue.
 b) Write any two active constituents of *Aloe*.
 c) Name any two energy rich metabolites
 d) How many NADPH & ATP molecules are required to fix one CO₂ molecule in Calvin cycle?
 e) State the functions of medullary rays.

- Q.2 Answer **any two** from the following: 20
- Describe T.S. of young Dicot stem.
 - Explain the anatomy of monocot root.
 - Explain the structure and functions of simple permanent tissues.
 - Describe various epidermal appendages.
- Q.3 Answer **any two** from the following: 20
- Explain Calvin pathway in C_3 plants.
 - Describe the process of fixation of carbon dioxide in C_4 plants.
 - Describe the role of plant pigments involved in photosynthesis.
 - Describe the process of Non-cyclic photophosphorylation.
- Q.4 Answer **any two** from the following: 20
- What are secondary metabolites? Give types and functions of secondary metabolites?
 - What is medicinal botany? Add a note on active constituents & uses of Turmeric and Ginger.
 - Give an account of botanical name, family, active constituents and uses of Sandalwood and Tulsi.
 - What are the components of grandma's pouch? State the botanical name, family, source, active constituents and medicinal uses of Adulsa.
- Q.5 Write short notes on (**any four**): 20
- Structure of Vascular bundles in monocot stem
 - Phloem tissue
 - Schematic representation of CAM pathway
 - Active constituents of *Aloe*
 - Primary metabolites
 - Nature & role of light in photosynthesis

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