[This question paper contains 4 printed pages.]

Sr. No. of Question Paper : 751 **E** **Your Roll No.....**

Unique Paper Code : 216401

Name of the Course : **B.Sc. (Hons.) Botany**

Name of the Paper : Plant Development and Anatomy : BTHT-405

Semester : IV

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all, including Q.No.1 which is compulsory.
3. All questions carry equal marks.
4. Attempt **all** parts of a question together.
5. Draw well labelled diagrams wherever necessary.

1. (a) Fill in the blanks:

   (i) Phloem wedges are present in the stem of ..... .

   (ii) Exudation from plants in liquid form is called .....

   (iii) Raphides are chemically composed of ..... .

   (iv) ..... in roots is responsible for the formation of lateral roots.

   (v) Presence of Casparian strips is a characteristics of .....

(1×5=5)

P.T.O.

(b) Match the following:

(a) Velamen	(i) Teak
(b) Kranz anatomy	(ii) Stomata
(c) Tylosis	(iii) Orchid
(d) Phelloderm	(iv) C_4 Plants
(e) Metcalf & Chalk	(v) Periderm

(1×5=5)

(c) Define the following:

(a) Dendrochronology

(b) Trichoblast

(c) Phellem

(d) Plastochrone

(e) Rhytidome (1×5=5)

2. (a) Draw well labelled diagrams of (any **four**) :

(i) T. S of *Nymphaea* petiole

(ii) Bordered pits

(iii) L. S. of Cystolith

(iv) T. S. of dicot root

(v) T. S. of Lenticel (2.5×4=10)

(b) Discuss the formation and function of periderm. (5)

3. Differentiate between any **five**:

(a) Schizogenous and lysigenous cavities

(b) Collenchyma and Sclerenchyma

(c) Fusiform initial and Ray initial

(d) Merocrine and Holocrine secretion

(e) Vessels and Tracheid

(f) Compression wood and Tension wood (3×5=15)

4. (a) Give an account of different theories explaining shoot apex organization in angiosperms. (6)

(b) Describe anatomical adaptations in hydrophytes with suitable examples. (6)

(c) What are lenticels? Draw a labelled diagram and list the functions. (3)

5. Write short notes on any **five** of the following:

(a) Pits

(b) Reaction wood

(c) Pharmacognosy

(d) Transfer cell

(e) p – proteins

(f) Salt glands (3×5=15)

6. (a) Describe the different types of stomata found in dicots with suitable examples and diagrams. (6)

(b) With the help of suitable diagrams, explain the different internal secretory structures in plants. (6)

(c) What is root cap? Draw a labelled diagram and Comment briefly on its function. (3)

7. Answer the following questions in brief (any **five**):

(a) Why phloem is called dynamic tissue?

(b) Why removing a complete ring of bark around the trunk kills a tree?

(c) What do you understand by cambial zone?

(d) Explain the role of trichomes in plant defense.

(e) Enumerate various functions of parenchyma.

(f) Discuss plasmodesmata in relation to cell to cell communication. (3×5=15)