This question paper contains **4** printed pages]

Roll No. | | | | | | | | | | | |

S. No. of Question Paper : **1906**

Unique Paper Code : **42164301** **GC-3**

Name of the Paper : **Plant Anatomy and Embryology**

Name of the Course : **B.Sc. (Programme) Life Science CBCS**

Semester : **III**

Duration : **3 Hours** Maximum Marks : **75**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *five* questions in all, including

question number *one* which is compulsory.

All parts of a question must be answered together.

1. (*a*) Fill in the blanks : 1×5=5

(*i*) Filiform apparatus is present in ..... cells of embryo sac.

(*ii*) *Areca catechu* has ..... type of endosperm.

(*iii*) The edible third integument in Litchi is called ..... .

(*iv*) Scattered and closed bundles are present in ..... stem.

(*v*) ..... in roots gives rise to lateral roots.

P.T.O.

(*b*) Give well labelled diagrams of any *two* of the following : 2.5×2=5

(*i*) V.S. of *Nerium leaf*

(*ii*) L.S. of anatropous, bitegmic, crassinucellate ovule showing Polygonum type of embryo sac.

(*iii*) T.S. of tetrasporangiate anther showing pollen tetrads.

(*iv*) T.S. of *Helianthus* root

(*c*) Give *one* word answer for the following : 1×5=5

(*i*) The wall layer that brings about anther dehiscence

(*ii*) Outermost layer of endosperm in cereals

(*iii*) Persistent nucellus in black pepper

(*iv*) Vascular bundle with phloem on either side of xylem

(*v*) The bundles of needle like crystals of calcium oxalate in some plants.

2. Write short notes on any *five* : 3×5=15

(*i*) Bulliform cells

(*ii*) Caruncle

(*iii*) Apical meristems

(*iv*) Transfer cells

(*v*) Cambium

(*vi*) Somatic embryogenesis

3. Explain any *five* of the following : 3×5=15

(*i*) Anatomical features of xerophytes

(*ii*) Functions of parenchyma tissue

(*iii*) Relationship between sieve elements and companion cells

(*iv*) Application of apomixis

(*v*) Artificial seeds

(*vi*) Porogamy.

4. (*a*) Describe different types of stomata with well-labelled diagrams. 6

(*b*) Explain cross pollination due to heterostyly with the help of suitable diagrams. 6

(*c*) What is the role of callose in sporogenesis ? 3

5. Differentiate between any *five* : 3×5=15

(*i*) Amoeboid and secretory tapetum

(*ii*) Bisporic and tetrasporic embryo sacs

(*iii*) Nuclear and cellular endosperm

(*iv*) Collenchyma and sclerenchyma

(*v*) Sapwood and heartwood

(*vi*) Cork and vascular cambium.

6. (*a*) What is entomophily ? Explain with at least *two* suitable examples. 4

(*b*) Define polyembryony and give its classification. Write a note on its applications. 7

(*c*) Justify the statement that phloem is a dynamic tissue. 4

7. (*a*) Explain Tunica Corpus theory in detail. 5

(*b*) Describe pollen wall structure with well labelled diagrams. 5

(*c*) Discuss the formation and functions of periderm. 5