(6 pages) **Reg. No. :** .....

Code No. : 5432 **Sub. Code : ZBOM 23**

M.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2023.

Second Semester

Botany — Core

PLANT ANATOMY, EMBRYOLOGY AND MORPHOGENESIS

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1. A _____ is a group of cells with a common origin, structure and function.
   (a) Callus (b) Tissue
   (c) Cells (d) Organ

2. The cambial activity reaches peak in _____ month.
   (a) June (b) July
   (c) August (d) September

3. _____ cells are capable of forming new cells during secondary growth.
   (a) Xylem (b) Phloem
   (c) Cambium (d) Pith

4. The companion cells are present only in _____.
   (a) Bryophytes (b) Pteridophytes
   (c) Gymnosperms (d) Angiosperms

5. Generally, the dicotyledonous wood which has vessels is known as _____.
   (a) Porous wood (b) Non-porous wood
   (c) Heart wood (d) Sap wood

6. In any tree the outer part of the wood, which is pale in colour, is called _____.
   (a) Sap wood (b) Alburnum
   (c) Both (a) and (b) (d) None of these

7. Anther bears the pollen grains which represents _____.
   (a) Male gametophyte
   (b) Female gametophyte
   (c) Sporophyte
   (d) Megasporogenesis

8. All the microspores in a microsporangium remain held together called _____.

(a) Microsporogenesis

(b) Megasporogenesis

(c) Pollinium

(d) Nucellus

9. _____ is the process of shape acquisition initiated with a small reservoir of undifferentiated cells.

(a) Organ morphogenesis

(b) Embryogenesis

(c) Callogenesis

(d) Rhizogenesis

10. The accomplishment of organogenesis ends the period during which the developing organism is called an embryo and begins the period in which the organism is called a _____.

(a) Endosperm (b) Fetus

(c) Histogenesis (d) Nucellus

PART B — (5 × 5 = 25 marks)

Answer ALL the questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Write about Tunica-corpus and Histogen theory with diagram.

Or

(b) Describe the seasonal activity of the cambium.

12. (a) What is food and mineral conducting tissue? Explain its elements.

Or

(b) Describe the anomalous secondary growth in *Dracaena*.

13. (a) Explain porous and non-porous wood with its economic importance.

Or

(b) Write the functions of trichomes.

14. (a) Explain pollen morphology.

Or

(b) What is endosperm? Explain its types.

15. (a) Explain organogenesis and morphogenesis.

Or

(b) What are the factors controlling morphogenesis?

PART C — (5 × 8 = 40 marks)

Answer ALL the questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain root and shoot apical meristems.

Or

(b) What is vascular cambium? Explain its origin and structure.

17. (a) Explain the primary and secondary structures of water conducting tissues.

Or

(b) What are lenticels? Explain its development with suitable diagram.

18. (a) What are the physical, chemical and mechanical properties of wood anatomy?

Or

(b) Explain the development and types of stomata with diagram.

19. (a) Write about the development of megasporogenesis.

Or

(b) What is fertilization? Explain its process with diagram.

20. (a) Explain symmetry and its types.

Or

(b) Explain polarity as expressed in external structure.

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