

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086**  
**(For candidates admitted from the academic year 2023 – 2024 & thereafter)**

**B.Sc. DEGREE EXAMINATION, APRIL 2026**  
**BRANCH V(a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**  
**FOURTH SEMESTER**

**COURSE : MAJOR – CORE**

**PAPER : ANATOMY AND EMBRYOLOGY OF ANGIOSPERMS**

**SUBJECT CODE : 23BT/MC/AE44**

**TIME : 3 HOURS**

**MAX. MARKS: 100**

Q. No.	SECTION A CHOOSE THE CORRECT ANSWER (5 X 1 =5)	CO	KL
1.	Small openings in the bark that allow gaseous exchange are a) Stomata      b) Pneumatophores      c) Lenticels      (d) Mucilage duct	1	1
2.	Hydathode in vascular plants is responsible for a) Respiration      b) Photosynthesis      c) Signalling      d) Guttation	1	1
3.	The innermost layer of the cortex of root is a) Stele      b) Sclerenchyma      c) Endodermis      d) Pericycle	1	1
4.	Entry of pollen tube through the micropyle at the time of fertilization is known as a) Chalazogamy      b) Porogamy      c) Mesogamy      d) Apogamy	1	1
5.	Endosperm of Angiosperm is a) Haploid      b) Diploid      c) Triploid      d) Tetraploid	1	1
6.	<b>FILL IN THE BLANKS.</b> (5 X 1 =5) The endodermis contains bands of suberin known as _____.	<b>CO</b> 1	<b>KL</b> 1
7.	The science that deals with the study of annual rings is known as _____.	1	1
8.	In monocot leaf, guard cells are _____ shaped.	1	1
9.	The stalk attaching the ovule to the placenta is referred as _____.	1	1
10.	The occurrence of more than one embryo in the seed is known as _____.	1	1
11.	<b>STATE WHETHER TRUE OR FALSE.</b> (5 X 1 = 5) Parenchyma cells are thin-walled and living.	<b>CO</b> 1	<b>KL</b> 1
12.	In Monocot leaf mesophyll is differentiated into spongy and palisade tissue.	1	1
13.	Successive cambium is observed in the stem of <i>Bougainvillea</i> .	1	1
14.	Nucellus is the diploid tissue containing reserve food material.	1	1
15.	Production of fruits by fertilisation of ovules is called parthenocarpy.	1	1
16.	<b>MATCH THE FOLLOWING.</b> (5 X 1 =5) Exarch xylem      -      Bulliform cells	<b>CO</b> 1	<b>KL</b> 1
17.	Monocot leaf      -      Cortical bundle	1	1
18.	<i>Nyctanthes</i> -      Duramen	1	1
19.	Heart wood      -      Embryo sac	1	1
20.	Synergids      -      Root	1	1

<b>SECTION B</b>		<b>(8 X 2 =16)</b>	
<b>Q. No.</b>	<b>ANSWER ANY EIGHT OF THE FOLLOWING IN 50 WORDS.</b>	<b>CO</b>	<b>KL</b>
21.	Define an apical meristem.	2	2
22.	Differentiate dicot and monocot root.	2	2
23.	What are Tyloses?	2	2
24.	Distinguish Palisade and spongy parenchyma.	2	2
25.	List the various types of secretory tissues in plants.	2	2
26.	Illustrate a mature pollen grain.		
27.	What is an anatropous ovule?	2	2
28.	Indicate the position of subsidiary cell in diacytic stomata.	2	2
29.	Outline the significance of apomixis.	2	2
30.	What is a ruminant endosperm?	2	2
<b>SECTION C</b>		<b>(4 X 6 =24)</b>	
<b>Q. No</b>	<b>ANSWER THE FOLLOWING IN 200 WORDS.</b>	<b>CO</b>	<b>KL</b>
31.	Classify the structure of various simple tissues in plants (or)	3	3
32.	Enumerate the different theories put forward on root apex organization.	3	3
33.	Justify the role of vascular cambium and cork cambium in bringing about secondary growth. (or)	3	3
34.	Compare and contrast monocot and dicot stem.	3	3
35.	Elucidate the structure of a mature anther. (or)	4	4
36.	Assess all the elements that are associated with secondary xylem.	4	4
37.	Analyse the process of double fertilization in angiosperms. (or)	4	4
38.	Discuss the types of endosperms in angiosperms.	4	4
<b>SECTION D</b>		<b>(2 x 20 = 40)</b>	
<b>Q. No.</b>	<b>ANSWER THE FOLLOWING IN 1000 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY.</b>	<b>CO</b>	<b>KL</b>
39.	Evaluate the structural organization of phloem in angiosperms. (or)	5	5
40.	Explicate the anomalous growth observed in <i>Nyctanthes</i> and <i>Boerhaavia</i> .	5	5
41.	Substantiate the various stages of megasporogenesis in angiosperms. (or)	5	5
42.	Elucidate the development of dicot embryo in <i>Capsella bursa-pastoris</i> .	5	5

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