LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**

FIRST SEMESTER – **APRIL 2024**

UPB 1502 – PLANT ANATOMY AND EMBRYOLOGY

Date:22-04-2024 Dept. No. Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

Draw diagrams / flowcharts wherever necessary.

	SECTION A - K1 (CO1)	
	Answer ALL the Questions	**(10 x 1 = 10)**
1.	**Fill in the blanks**	
a)	The meristem found at the apices and brings about increase in length of plant is known as _____.	
b)	Conjoint, collateral and open vascular bundle is seen in _____.	
c)	Casparian strips are found in _____ .	
d)	Inner most wall layer of anther is _____.	
e)	Development of embryo from nucellus or integument is known as _____ .	
2.	**Match the following**	
a)	Mechanical Tissue - Synergids	
b)	Cork cambium - Isobilateral	
c)	NPC - Phellogen	
d)	Monocot leaf - Pollen morphology	
e)	Filiform apparatus - Sclerenchyma	
	SECTION A - K2 (CO1)	
	Answer ALL the Questions	**(10 x 1 = 10)**
3.	**True or False**	
a)	Tunica-Corpus theory is proposed by Nageli.	
b)	The age of the tree can be calculated by measuring the sap wood.	
c)	Shedding of plant organs such as leaves, flowers and fruits is called as abscission.	
d)	Tetrasporic embryo sac is seen in *Peperomia.*	
e)	Endosperm which develops after double fertilization and triple fusion is triploid.	
4.	**Choose the correct answers**	
a)	Xylem and phloem are _____ a) simple tissues b) complex tissue c) secretory tissue d) compound tissue	
b)	Highly specialized parenchyma accompanying the sieve tube in angiosperms is a) companion cells b) albuminous cells c) lenticels d) aerenchyma cells	
c)	A pair of subsidiary cells that lie parallel to guard cells is known as _____ stomata a) diacytic b) paracytic c) anomycytic d) tetracytic	
d)	Entry of pollen tube through integuments is known as _____ a) Chalazogamy b) Porogamy c) Mesogamy d) Apogamy	
e)	Coconut water is an example for _____ endosperm a) Cellular b) Helobial c) Nuclear d) Ruminate	
	SECTION B - K3 (CO2)	
Answer any TWO of the following each in about 500 words.		**(2 x 10 = 20)**
5.	Write an account on histogen theory and Tunica – Corpus theory.	
6.	Interpret the anomalous secondary growth in *Bignonia* and *Aristolochia.*	
7.	Analyze the structure of dicot leaf.	
8.	Relate the structure of different types of ovules.	

SECTION C – K4 (CO3)	
Answer any TWO of the following each in about 500 words.	**(2 x 10 = 20)**
9.	List the characteristic features and the functions of parenchyma and collenchyma tissues.
10.	Illustrate the types of vascular bundles in plants.
11.	Explain the structure of mature anther.
12.	Elaborate on the types and significances of apomixis.
SECTION D – K5 (CO4)	
Answer any ONE of the following in about 1000 words.	**(1 x 20 = 20)**
13.	Elucidate the structure and functions of xylem and their components.
14.	Summarize the process of fertilization adding a note on post-fertilization changes in a dicot plant.
SECTION E – K6 (CO5)	
Answer any ONE of the following in about 1000 words.	**(1 x 20 = 20)**
15.	Compare the anatomy of monocot stem and dicot stem.
16.	Compile the development of the female gametophytes of *Polygonum, Allium* and *Peperomia*.

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