



SHRI VIDHYABHARATHI MATRIC HR.SEC.SCHOOL
SAKKARAMPALAYAM , AGARAM (PO) ELACHIPALAYAM
TIRUCHENGODE(TK), NAMAKKAL (DT) PIN-637202

Cell :99655-31727, 94432-31727

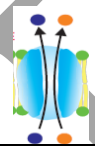
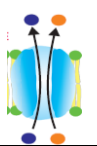
PUBLIC TENTATIVE ANSWER KEY- MAR - 2019

STD: XI

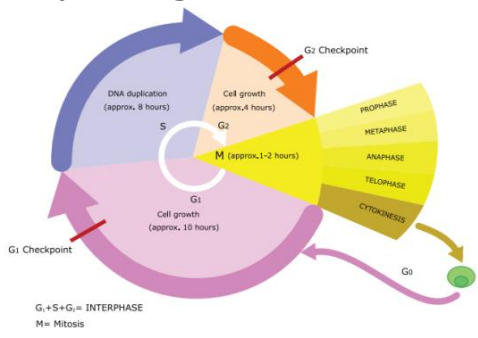
DATE: 18.03.2019


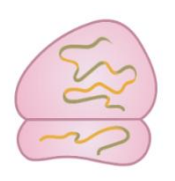
SUBJECT: BIO-BOTANY

MARKS :35

Q. NO	SECTION -I		MARKS												
	TYPE - A	TYPE - B													
1.	c) Fabaceae	a) 3ATP +2NADPH	1												
2.	a)1-iii, 2-iv, 3-ii, 4-i	a) 42	1												
3.	a) 3ATP +2NADPH	c) Fabaceae	1												
4.	b) Tinospora	d) 	1												
5.	d) Synapsis	d) Nucleotide	1												
6.	a) 42	d) Synapsis	1												
7.	d) 	b) Tinospora	1												
8.	d) Nucleotide	a)1-iii, 2-iv, 3-ii, 4-i	1												
	SECTION -II ANSWER ANY FOUR QUESTIONS		Marks												
9.	<p>a) Plectostele : Xylem plates alternates with phloem plates. Example: Lycopodium clavatum</p> <p>b) Gymnosperms and angiosperms : (Any 1 point)</p> <table border="1"> <thead> <tr> <th>S.No</th> <th>Gymnosperms</th> <th>angiosperms</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Vessels are absent (except Gnetales)</td> <td>Vessels are present</td> </tr> <tr> <td>2</td> <td>Phloem lacks companion cells</td> <td>Companion cells are present</td> </tr> <tr> <td>3</td> <td>Ovules are naked.</td> <td>Ovules are enclosed within the ovary</td> </tr> </tbody> </table>		S.No	Gymnosperms	angiosperms	1	Vessels are absent (except Gnetales)	Vessels are present	2	Phloem lacks companion cells	Companion cells are present	3	Ovules are naked.	Ovules are enclosed within the ovary	1
S.No	Gymnosperms	angiosperms													
1	Vessels are absent (except Gnetales)	Vessels are present													
2	Phloem lacks companion cells	Companion cells are present													
3	Ovules are naked.	Ovules are enclosed within the ovary													

10.	Primary functions of Leaf : 1. Photosynthesis 2. Transpiration 3. Gaseous exchange 4. Protection of buds 5. Conduction of water and dissolved solutes	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$
-----	---	--

11.	Cell Cycle diagram: 	2
-----	---	---

12.	a) tRNA  Transfer RNA (tRNA)	1
	b) rRNA  Ribosomal RNA (rRNA)	1

13.	Types of plasmolysis seen in plant cells: 1. Incipient plasmolysis 2. Evident plasmolysis 3. Final plasmolysis	$\frac{1}{2}$ $\frac{1}{2}$ 1
-----	--	-------------------------------------

14.	Two differences between Cyclic and Non cyclic photophosphorylation : (any two points)																			
	<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 10%;">S.N</th> <th style="width: 45%;">Cyclic photophosphorylation</th> <th style="width: 45%;">Non cyclic photophosphorylation</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>PS I only involved</td> <td>PS I and PS II involved</td> </tr> <tr> <td>2</td> <td>Reaction centre is P700</td> <td>Reaction centre is P680</td> </tr> <tr> <td>3</td> <td>Electrons released are cycled back</td> <td>Electrons released are not cycled back</td> </tr> <tr> <td>4</td> <td>Photolysis of water does not take place</td> <td>Photolysis of water take place</td> </tr> <tr> <td>5</td> <td>Phosphorylation takes place at two places</td> <td>Phosphorylation takes place at one place</td> </tr> </tbody> </table>	S.N	Cyclic photophosphorylation	Non cyclic photophosphorylation	1	PS I only involved	PS I and PS II involved	2	Reaction centre is P700	Reaction centre is P680	3	Electrons released are cycled back	Electrons released are not cycled back	4	Photolysis of water does not take place	Photolysis of water take place	5	Phosphorylation takes place at two places	Phosphorylation takes place at one place	2
S.N	Cyclic photophosphorylation	Non cyclic photophosphorylation																		
1	PS I only involved	PS I and PS II involved																		
2	Reaction centre is P700	Reaction centre is P680																		
3	Electrons released are cycled back	Electrons released are not cycled back																		
4	Photolysis of water does not take place	Photolysis of water take place																		
5	Phosphorylation takes place at two places	Phosphorylation takes place at one place																		

Section - III

Answer any 3 questions:(Question No. 19 is Compulsory)

3x3=9

15. **Different types of placentation :**

1. Marginal placentation:

It is with the placentae along the margin of a unilocular ovary.

Example :Fabaceae.

1

2. Axile placentation:

The placentae arises from the column in a compound ovary with septa.

Example :Hibiscus, tomato, lemon

1

3. Superficial placentation:

Ovules arise from the surface of the septa.

Example : Nymphaeaceae

1

4. Parietal placentation:

It is the placentae on the ovary walls or upon intruding partitions of a unilocular, compound ovary.

Example:Mustard, Argemone, Cucumber

5. Free-central placentation:

It is with the placentae along the column in a compound ovary without septa.

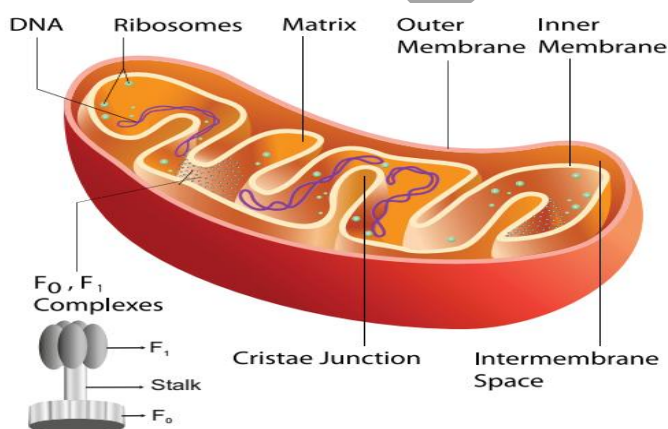
Example :Caryophyllaceae, Dianthus, Primrose

6. Basal placentation:

It is the placenta at the base of the ovary.

Example : Sunflower (asteraceae) Marigold

16. **a) Structure of Mitochondria :**



1

1

b) Mitochondria is called as 'The power house of a cell' :

Since huge amount of energy is generated in mitochondria in the form of ATP molecules they are called 'power house of the cell'.

1

17.	Significance of growth rings: <ol style="list-style-type: none"> Age of wood can be calculated The quality of timber can be ascertained Radio-Carbon dating can be verified Past climate and archaeological dating can be made. Provides evidence in forensic investigation 	 1 1 1
18.	a) Respiratory Quotient formula: $RQ = \frac{\text{Volume of } CO_2 \text{ liberated}}{\text{Volume of } O_2 \text{ consumed}}$ b) Significance of Pentose Phosphate Pathway : (Any 2 points) <ol style="list-style-type: none"> HMP shunt is associated with the generation of two important products NADPH and pentose sugars, which play a vital role in anabolic reactions. Coenzyme NADPH generated is used for reductive biosynthesis and counter damaging the effects of oxygen free radicals Ribose-5-phosphate and its derivatives are used in the synthesis of DNA, RNA, ATP, NAD⁺, FAD and Coenzyme A. Erythrose is used for synthesis of anthocyanin, lignin and other aromatic compounds 	 1 2
19.	a) Different stages of Nitrogen cycle: <ol style="list-style-type: none"> Nitrosomonas Nitrobacter Pseudomonas b) Denitrification : Nitrates in the soil are converted back into atmospheric nitrogen by a process called denitrification. Bacteria involved in this process are Pseudomonas, Thiobacillus and Bacillus subtilis. Nitrate <u>Pseudomonas</u> → Molecular Nitrogen	 1 1 1
SECTION -IV Answer the following questions		2x5=10
20.	a) i) Gram staining Techniques : <ol style="list-style-type: none"> Prepare a smear of bacterial culture Stain with crystal violet for 30 seconds Rinse in distilled water for 2 seconds Grams Iodine for 1 minute Rinse in distilled water Wash in 95% ethanol or acetone for 10 to 30 seconds Rinse in distilled water Safranin for 30-60seconds Rinse in distilled water and blot Observe under microscope 	 3

ii) Distinguish between Dexoy viruses and Ribo viruses :

Dexoy viruses	Ribo viruses
The viruses possessing DNA	Viruses possessing RNA
Ex: Majority of animal viruses	Ex: Majority Plant viruses
(OR) Cauliflower Mosaic virus	(OR) HIV viruses

1
1

(OR)

b) Floral Characters of *Allium cepa*:

Flower :Small,white, bracteate, ebrcteolate, pedicellate, complete, trimerous, actinomorphic and hypogynous. Flower are protandrous.

Perianth:Tepals 6, white, arranged in two whorls of three each, syntepalous showing valvate aestivation.

Androecium:Stamens 6, arranged in two whorls of three each, epitepalous, apostamenous/free and opposite to tepals, Anthers ditheous, basifixed, introse and dehiscing longitudinally

Gynoecium:Tricarpellary and syncarpous, Ovary superior, trilocular with two ovules in each locule on axile placentation. Style simple, slender with simple stigma

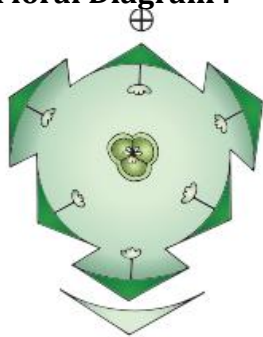
Fruit: A loculicidal capsule

Seed : Endospermous

FloralFormula :

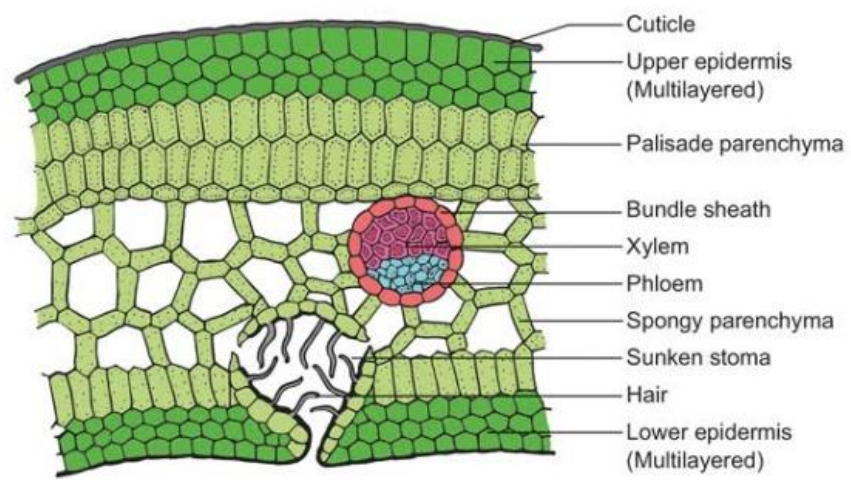
$$\text{Br., Ebrl., } \oplus, \text{ } \ominus, \text{ } \text{P}_{(3+3)} + \text{A}_{3+3}, \text{ } \text{G}_{(3)}$$

Floral Diagram :



3
1
1

21. a) i) Internal Structure of Nerium Leaf :



3

	ii) Vascular Bundle : A) Concentric Amphivasal vascular bundle B) Radial arrangement	1 1
	<p style="text-align: center;">(OR)</p> b) i) Physiological effects of cytokinins: (Any four points) <ol style="list-style-type: none"> 1. Cytokinin promotes cell division in the presence of auxin (IAA) 2. Induces cell enlargement associated with IAA and gibberellins 3. Cytokinin can break the dormancy of certain light-sensitive seeds like tobacco and induces seed germination 4. Cytokinin promotes the growth of lateral bud in the presence of apical bud 5. Application of cytokinin delays the process of aging by nutrient mobilization. It is known as Richmond Lang effect 6. Cytokinin (i) increases rate protein synthesis (ii) induces the formation of inter-fascicular cambium (iii) overcomes apical dominance (iv) induces formation of new leaves, chloroplast and lateral shoots. 7. Plants accumulate solutes very actively with the help of cytokinins. ii) Vernalization: Many species of biennials and perennials are induced to flower by low temperature exposure (0°C to 5°C). This process is called vernalization. The term vernalization was first used by T.D. Lysenko (1938).	3 1 1
	iii) P_r – Phytochrome red (660 nm) P _{fr} - Phytochrome far red(730 nm)	

Mrs. P.GEETHA M.SC.,B.Ed.,
DEPARTMENT OF BOTANY
SHRI VIDHYABHARATHI MATRIC HR.SEC.SCHOOL,
SAKKARAMPALAYAM , AGARAM (PO) ELACHIPALAYAM,
TIRUCHENGODE(TK), NAMAKKAL (DT). PIN-637202
Cell.No: 8428971051, 9786237982.
