



SHRI VIDHYABHARATHI MATRIC HR.SEC.SCHOOL

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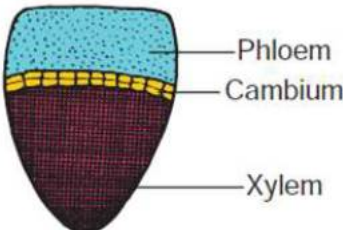
STD: XI

16.05.2022

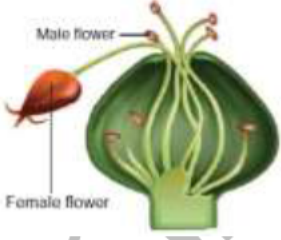
SUBJECT: BIO-BOTANY

TENTATIVE ANSWER KEY

MARKS : 35

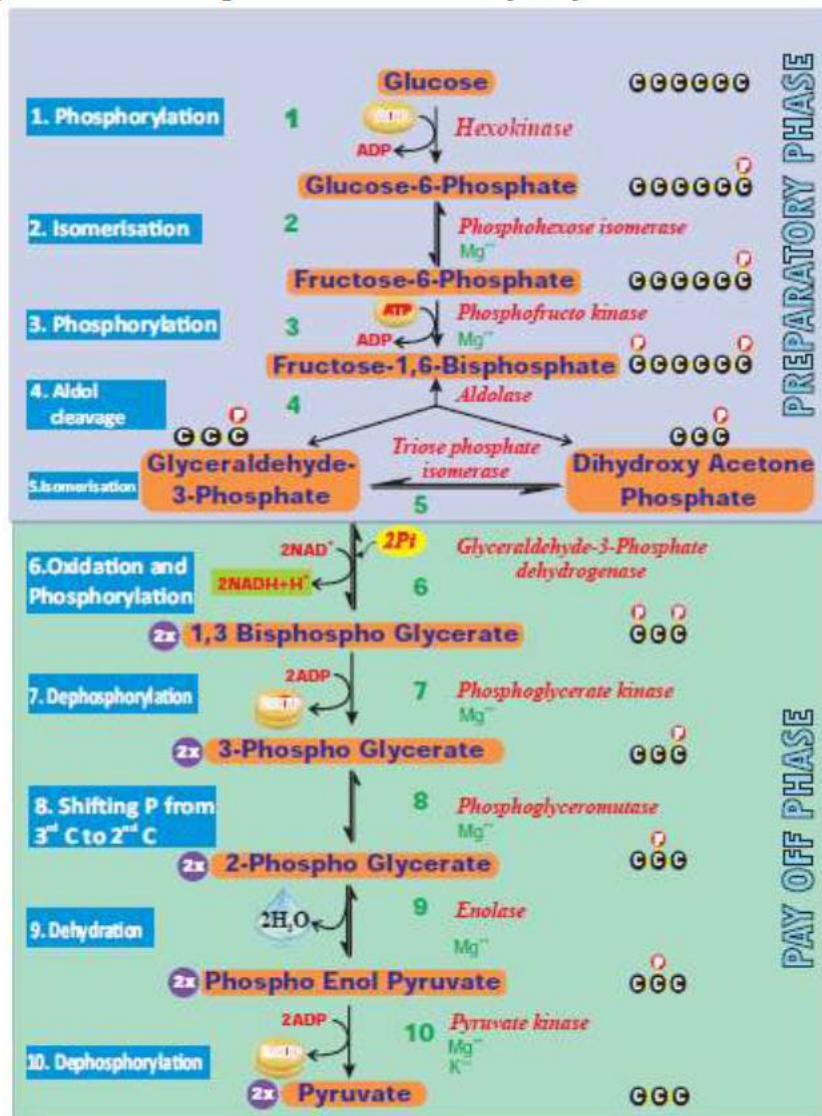
Q. NO			MARKS
	SECTION - I		8x1=8
	TYPE - A	TYPE - B	
1.	a) While lipids can rarely flip-flop, proteins cannot	d) (ii) and (iii) only	1(BB)
2.	b) Denitrification	a) (i) and (iii) only	1 (Interior)
3.	c) Methanobacterium	b) Denitrification	1(BB)
4.	b) Mn prevents the uptake of Fe, Mg, but not Ca.	a) While lipids can rarely flip-flop, proteins cannot	1(BB)
5.	c) Amphoteric	c) G ₀ Phase	1 (Interior)
6.	c) G ₀ Phase	c) Amphoteric	1(BB)
7.	d) (ii) and (iii) only	c) Methanobacterium	1 (Interior)
8.	a) (i) and (iii) only	b) Mn prevents the uptake of Fe, Mg, but not Ca.	1(BB)
	SECTION - B		4X2=8
	II. ANSWER ANY FOUR QUESTIONS FROM THE FOLLOWING		
9.	Virion : Virion is an intact infective virus particle which is non-replicating outside a host cell.		2
10.	Functions of stem : <ul style="list-style-type: none">❖ Provides support and bears leaves, flowers and fruits.❖ It transports water and mineral nutrients to the other parts from the root.❖ It transports food prepared by leaves to other parts of the plant body.		1 1
11.	Open Vascular bundle : 		1+1

12.	<p>Types of Chromosomes :</p> <p>Based on the position of centromere, chromosomes are called</p> <ul style="list-style-type: none"> ➤ telocentric (terminal centromere) ➤ acrocentric (terminal centromere capped by telomere), ➤ sub metacentric (centromere subterminal) ➤ metacentric (centromere median). 	2
13.	<p>Water Potential :</p> <p>Water potential (Ψ) can be determined by,</p> <ol style="list-style-type: none"> 1. Solute concentration or Solute potential (Ψ_s) 2. Pressure potential (Ψ_p) <p>By correlating two factors, water potential is written as,</p> $\Psi_w = \Psi_s + \Psi_p$ <p>Water Potential = Solute potential + Pressure potential</p>	1 1
14.	<p>Apical Dominance :</p> <p>Suppression of growth in lateral bud by apical bud due to auxin produced by apical bud is termed as apical dominance.</p>	2
<p>Section - C</p> <p>III. Answer any 3 questions:(Question No. 19 is Compulsory)</p>		3x3=9
15.	<p>Importance of Mycorrhizae</p> <ul style="list-style-type: none"> ➤ Helps to derive nutrition in <i>Monotropa</i>, a saprophytic angiosperm, ➤ Improves the availability of minerals and water to the plants. ➤ Provides drought resistance to the plants ➤ Protects roots of higher plants from the attack of plant pathogens 	1 1 1
16.	<p>Types of Taxonomic Classification :</p> <ul style="list-style-type: none"> ➤ Artificial ➤ Natural ➤ Phylogenetic 	1 1 1
17.	<p>Functions of Epidermal Tissue System:</p> <ol style="list-style-type: none"> 1. This system in the shoot checks excessive loss of water due to the presence of cuticle. 2. Epidermis protects the underlying tissues. 3. Stomata is involved in transpiration and gaseous exchange. 4. Trichomes are also helpful in the dispersal of seeds and fruits, and provide protection against animals. 5. Prickles also provide protection against animals and they also check excessive transpiration 6. In some rose plants they also help in climbing. 7. Glandular hairs repel herbivorous animals. <p>(Any three points)</p>	3

18.	<p>Differences between sap wood and heart wood :</p> <table border="1" data-bbox="209 143 1257 573"> <thead> <tr> <th data-bbox="209 143 703 192">Sap Wood (Alburnum)</th> <th data-bbox="703 143 1257 192">Heart Wood (Duramen)</th> </tr> </thead> <tbody> <tr> <td data-bbox="209 192 703 241">Living part of the wood.</td> <td data-bbox="703 192 1257 241">Dead part of the wood.</td> </tr> <tr> <td data-bbox="209 241 703 331">It is situated on the outer side of wood</td> <td data-bbox="703 241 1257 331">It is situated in the centre part of wood</td> </tr> <tr> <td data-bbox="209 331 703 380">It is pale coloured</td> <td data-bbox="703 331 1257 380">It is dark coloured</td> </tr> <tr> <td data-bbox="209 380 703 430">Very soft in nature</td> <td data-bbox="703 380 1257 430">Hard in nature</td> </tr> <tr> <td data-bbox="209 430 703 479">Tyloses are absent</td> <td data-bbox="703 430 1257 479">Tyloses are present</td> </tr> <tr> <td data-bbox="209 479 703 573">It is not durable and not resistant to microorganisms</td> <td data-bbox="703 479 1257 573">It is more durable and resists microorganisms</td> </tr> </tbody> </table>	Sap Wood (Alburnum)	Heart Wood (Duramen)	Living part of the wood.	Dead part of the wood.	It is situated on the outer side of wood	It is situated in the centre part of wood	It is pale coloured	It is dark coloured	Very soft in nature	Hard in nature	Tyloses are absent	Tyloses are present	It is not durable and not resistant to microorganisms	It is more durable and resists microorganisms	3
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19.	<p>Cyathium inflorescence with neat diagram :</p> <p>Cyathium inflorescence consists of small unisexual flowers enclosed by a common involucre which mimics a single flower. Male flowers are organised in a scorpioid manner. Female flower is solitary and centrally located on a long pedicel. Male flower is represented only by stamens and female flower is represented only by a pistil. Cyathium may be actinomorphic (Example: <i>Euphorbia</i>) or zygomorphic (Example: <i>Pedilanthus</i>). Nectar is present in involucre.</p> 	2 1														
SECTION -D		2x5=10														
IV. Answer the following questions																
20.	<p>a) Physiological effect of Cytokinins:</p> <ul style="list-style-type: none"> ➤ Cytokinin promotes cell division in the presence of auxin (IAA). ➤ Cytokinin induces cell enlargement associated with IAA and gibberellins. ➤ Cytokinin can break the dormancy of certain light-sensitive seeds like tobacco and induces seed germination. ➤ Cytokinin promotes the growth of lateral bud in the presence of apical bud. ➤ Application of cytokinin delays the process of aging by nutrient mobilization. It is known as Richmond Lang effect. ➤ 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. ➤ Plants accumulate solutes very actively with the help of cytokinins. <p>(Any five points)</p>	1 1 1 1 1														

(OR)

b) Schematic representation of Glycolysis:



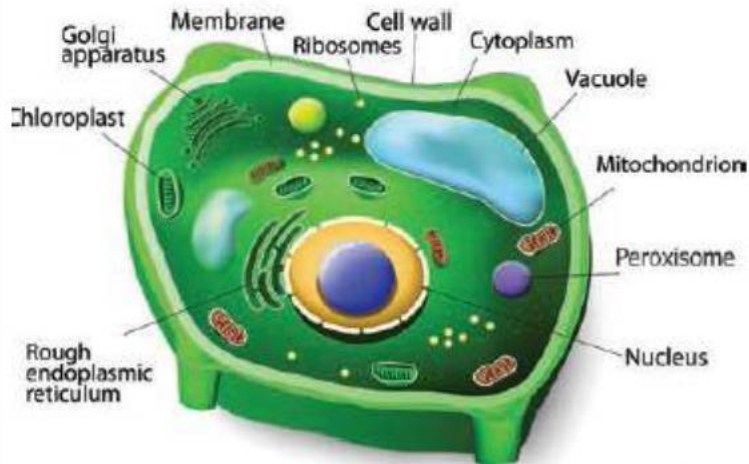
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21 a) Ultra structure of a plant cell:

- A typical plant cell has prominent cell wall, a large central vacuole and plastids in addition to other organelles present in animal cell.
- In eukaryotic cells, a well organised nucleus is present with nuclear membrane.
- Those organisms which have true nucleus are called Eukaryotes.
- The DNA is associated with histones.
- The cell size is comparatively larger than prokaryotic cell which is 10 - 100 μm
- Transcription occurs in the nucleus while translation takes place in cytoplasm
- Ribosomes are of 80S type.
- ER, mitochondria, golgi apparatus and lysosomes are present. Centrioles are usually present in animal cells.
- A eukaryotic cell has two envelope organization.

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- Eukaryotic cells are mostly found in algae, fungi, protozoa, all the higher plants and animals.
- The eukaryotic cells are of two types – plant cells and animal cells. Most of the organelles and other structures of cell are common to animals and plants.
- Both animal and plant cells have plasma membrane, nucleus, mitochondria, endoplasmic reticulum, etc. Only plant cells have a cell wall containing cellulose.

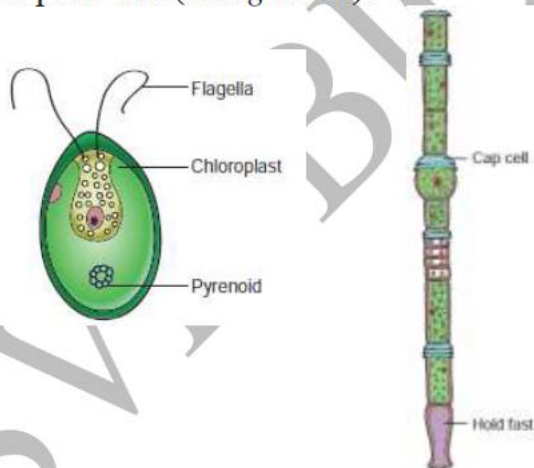


(OR)

b) Shape of chloroplast is unique for algae :

Yes. I agree.

Variation among the shape of the chloroplast is found in members of algae. It is cup shaped (*Chlamydomonas*), discoid (*Chara*), girdle shaped, (*Ulothrix*), reticulate (*Oedogonium*), spiral (*Spirogyra*), stellate (*Zygnema*) and plate like (*Mougeoutia*).



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MARK ANALYSIS (WITHOUT CHOICE)

PART	Questions	Total Questions	Book Back Questions	Interior Questions	Total Marks
I	1 Mark	8	5	3	8
II	2 Marks	6	1	5	12
III	3 Marks	5	-	5	15
IV	5 Marks	4	2	2	20
Total Marks		23	17	38	55
Percentage			20%	80%	100%

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