ISLAMIAH MAT HR SEC SCHOOL, KILAKARAI, RAMANATHAPURAM DT.

XI COMMON PUBLIC EXAMINATION, MARCH -2025 (17-03-2025)

TENTATIVE ANSWER KEY
Question type A

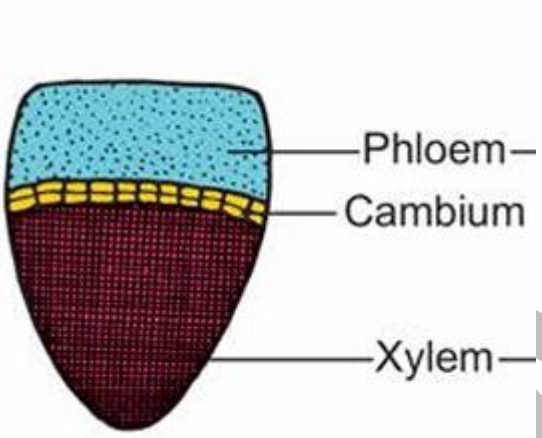
SUB: BIO-BOTANY MARKS: 35

Q.NO	CONTENT	MARKS	MODE OF QUESTION
I.	**PART -I** CHOOSE THE CORRECT ANSWER	8 X 1 = 8	BOOK BACK / BOOK INSIDE/ CREATIVE
1	**c. Pedilanthus**	1	BOOK INSIDE
2	**b. Cucurbitaceae**	1	BOOK BACK
3	**c. B**	1	BOOK INSIDE
4	**a. 0.7**	1	BOOK INSIDE
5	**a. Serotaxomnomy**	1	BOOK BACK
6	**a. Statement I is wrong but Statement II is correct**	1	BOOK INSIDE
7	**a. (1)- (iii), (2)- (i), (3)- (ii), (4)- (iv),**	1	BOOK BACK
8	**d. Bryophytes**	1	BOOK BACK

<table>
<tr><th>Q.NO</th><th>CONTENT</th><th>MARKS</th><th>MODE OF QUESTION</th></tr>
<tr><td>II.</td><td>PART -II
ANSWER ANY FOUR OF THE FOLLOWING</td><td>4 X 2 = 8</td><td>BOOK BACK / BOOK INSIDE/ CREATIVE</td></tr>
<tr><td>9</td><td>Special type of inflorescence
Cyathium
Hypanthodium
Coenanthium (any two type)</td><td>2</td><td>BOOK INSIDE</td></tr>
<tr><td>10</td><td>Differentiate Nucleoside and Nucleotide
<table>
<tr><th>Nucleoside</th><th>Nucleotide</th></tr>
<tr><td>It is a combination of base and sugar.</td><td>It is a combination of nucleoside and phosphoric acid.</td></tr>
<tr><td>Examples</td><td>Examples</td></tr>
<tr><td>Adenosine = Adenine + Ribose</td><td>Adenylic acid = Adenosine + Phosphoric acid</td></tr>
<tr><td>Guanosine = Guanine + Ribose</td><td>Guanylic acid = Guanosine + Phosphoric acid</td></tr>
<tr><td>Cytidine = Cytosine + Ribose</td><td>Cytidylic acid = Cytidine + Phosphoric acid</td></tr>
<tr><td>Deoxythymidine = Thymine + Deoxyribose</td><td>Uridylic acid = Uridine + Phosphoric acid</td></tr>
</table></td><td>2</td><td>BOOK INSIDE</td></tr>
<tr><td>11</td><td>Tyloses
In many dicot plants, the lumen of the xylem vessels is blocked by many balloon-like ingrowths from the neighbouring parenchymatous cells. These balloon-like structures are called tyloses.</td><td>2</td><td>BOOK INSIDE</td></tr>
</table>

12	**Types of Transpiration** 1. Stomatal transpiration 2. Lenticular transpiration 3. Cuticular transpiration	2	BOOK INSIDE
13	**Aeroponics** It is a system where roots are suspended in air and nutrients are sprayed over the roots by a motor driven rotor	2	BOOK INSIDE
14	**Enolation** a water molecule is removed by the enzyme enolase. As a result, enol group is formed within the molecule. This process is called Enolation	2	BOOK INSIDE

Q.NO	CONTENT	MARKS	MODE OF QUESTION
III.	**PART -III** ANSWER ANY THREE OF THE FOLLOWING **Question No 19 is compulsory**	3 X 3 = 9	BOOK BACK / BOOK INSIDE/ CREATIVE
15	**Plectostele** Xylem plates alternates with phloem plates. Example: Lycopodium clavatum.	3	BOOK BACK
16	**Pitcher plant** The leaf becomes modified into a pitcher in Nepenthes and Sarracenia. In Nepenthes the basal part of the leaf is laminar and the midrib continues as a coiled tendrillar structure. The apical part of the leaf as modified into a pitcher the mouth of the pitcher is closed by a lid which is the modification of leaf apex.	3	BOOK INSIDE
17	Differentiate Cytokinesis in plant and animal Karyokinesis | Cytokinesis Involves division of nucleus | Involves division of cytoplasm.	3	BOOK BACK

	Nucleus develops a constriction at the center and becomes dumbell shaped.	Plasma membrane develops a constriction along nuclear constriction	
	Constriction deepens and divides the nucleus into two.	It deepens centripetally and finally divides the cell into two cells	
18	**Open vascular bundle**  		3 BOOK INSIDE
19	**PCD** Senescence is controlled by plants own genetic programme and death of the plant or plant part consequent to senescence is called Programmed Cell Death.		3 BOOK BACK

<table>
<tr><th>Q.NC</th><th>CONTENT</th><th>MARKS</th><th>MODE OF QUESTION</th></tr>
<tr><td>IV.</td><td>PART –IV

ANSWER ALL THE QUESTION</td><td>2 X 5 = 10</td><td>BOOK BACK / BOOK INSIDE/ CREATIVE</td></tr>
<tr><td>20 (a)</td><td>Difference between Gram positive and Gram negative bacteria
<table>
<tr><th colspan="4">Table 1.6: Difference between Gram Positive and Gram Negative Bacteria</th></tr>
<tr><th>S.No</th><th>Characteristics</th><th>Gram positive Bacteria</th><th>Gram negative Bacteria</th></tr>
<tr><td>1.</td><td>Cell wall</td><td>Single layered with 0.015µm-0.02µm</td><td>Triple layered with 0.0075µm–0.012µm thick</td></tr>
<tr><td>2.</td><td>Rigidity of cell wall</td><td>Rigid due to presence of Peptidoglycans</td><td>Elastic due to presence of lipoprotein-polysaccharide mixture</td></tr>
<tr><td>3.</td><td>Chemical composition</td><td>Peptidoglycans-80%
Polysaccharide-20%
Teichoic acid present</td><td>Peptidoglycans-3 to 12% rest is polysaccharides and lipoproteins. Teichoic acid absent</td></tr>
<tr><td>4.</td><td>Outer membrane</td><td>Absent</td><td>Present</td></tr>
<tr><td>5.</td><td>Periplasmic space</td><td>Absent</td><td>Present</td></tr>
<tr><td>6.</td><td>Susceptibility to penicillin</td><td>Highly susceptible</td><td>Low susceptible</td></tr>
<tr><td>7.</td><td>Nutritional requirements</td><td>Relatively complex</td><td>Relatively simple</td></tr>
<tr><td>8.</td><td>Flagella</td><td>Contain 2 basal body rings</td><td>Contain 4 basal body rings</td></tr>
<tr><td>9.</td><td>Lipid and lipoproteins</td><td>Low</td><td>High</td></tr>
<tr><td>10.</td><td>Lipopolysaccharides</td><td>Absent</td><td>Present</td></tr>
</table>
(Any 5 points)</td><td>5</td><td>BOOK BACK</td></tr>
<tr><td>20 (b)</td><td>Economic Importance of fabaceae
<table>
<tr><th>Economic importance</th><th>Binomial</th><th>Useful part</th><th>Uses</th></tr>
<tr><td>Pith Plant</td><td>Aeschynomene aspera</td><td>Stem pith</td><td>Used for packing, handicraft and fishin floats</td></tr>
<tr><td>Dye Plants</td><td>Indigofera tinctoria (Avuri)

Clitoria ternatea

Butea monosperma</td><td>Leaves

Flowers and seeds
Flowers</td><td>Indigo dye obtained from leaves is used to colour printing and in paints.

Blue dye is obtained

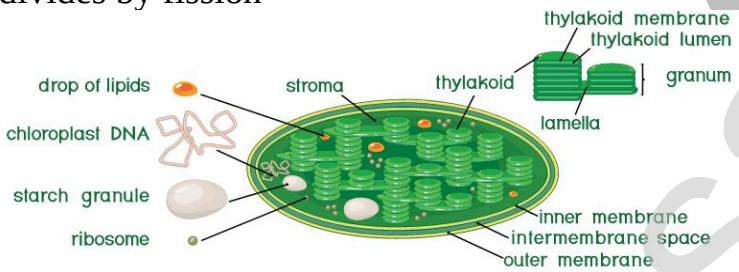
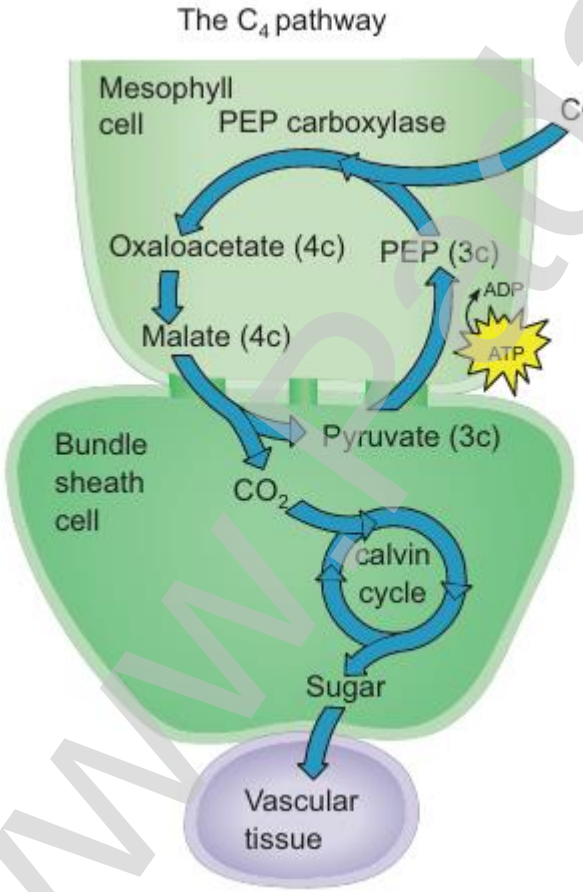
Natural dye</td></tr>
<tr><td>Green Manuring</td><td>Indigofera tinctoria
Tephrosea purpurea
Gliricidia sepium</td><td>Entire plant</td><td>Used as green manure because of the presence of nitrogen fixing bacteria in the lateral roots.</td></tr>
<tr><td>Ornamental Plants</td><td>Butea frondosa (Flame of the forest), Clitoria ternatea, Lathyrus odoratus (Sweet pea) and Lupinus hirsutus (Lupin)</td><td>Entire plant</td><td>Grown as ornamental plants.</td></tr>
</table></td><td>5</td><td>BOOK INSIDE</td></tr>
</table>

Economic importance	Binomial	Useful part	Uses
Pulses	*Cajanus cajan* (Pigeon Pea) *Phaseolus vulgaris* (French bean) *Cicer arietinum* (Chick pea / Channa / கொண்டைக்கடலை) *Vigna mungo* (black gram / உளுந்து) *Vigna radiata* (green gram / பாசிப்பயறு) *Vigna unguiculata* (cow pea / தட்டைப்பயறு) *Glycine max* (soya bean) *Macrotyloma uniflorum* (Horse gram / கொள்ளு)	Seeds	Sources of protein and starch of our food.
Food plants	*Lablab purpureus* (field bean) *Sesbania grandiflora* (agathi, vegetable humming bird) *Cyamopsis tetragonoloba* (cluster bean)	Tender fruits Leaves Tender fruits	Vegetable Greens Vegetable
Oil Plants	*Arachis hypogea* (Ground nut) *Pongamia pinnata* (Pungam)	Seeds Seeds	Oil extracted from the seeds is edible and used for cooking. Pongam oil has medicinal value and is used in the preparation of soap.
Timber Plants	*Dalbergia latifolia* (rose wood) *Pterocarpus santalinus* (red sandalwood) *P.dalbergioides* (Padauk) *P.marsupium* (வேங்கை)	Timber	Timber is used for making furniture, cabinet articles and as building materials.
Medicinal Plants	*Crotalaria albida* *Psoralea corylifolia* (கார்போக அரிசி) *Glycirrhiza glabra* (Licorice root / அதிமதுரம்) *Mucuna pruriens* (பூனைக்காலி)	Roots Seeds Roots Seeds	Used as purgative Used in leprosy and leucoderma Immuno modulater Neurological remedy
Fibre Plants	*Crotalaria juncea* (sunhemp / சணப்பை) *Sesbania* sesban *(aegyptiaca)*	Stem fibres (Bast)	Used for making ropes.

(Any 5 points)

21 (a) **Structure of Chloroplasts** 5 BOOK INSIDE

Chloroplasts are vital organelle found in green plants. Chloroplast has a double membrane the outer membrane
and the inner membrane separated by a space called periplastidial space. The space enclosed by the inner membrane of chloroplast is filled with gelatinous matrix, lipo-proteinaceous fluid called stroma. Inside the stroma there is flat interconnected sacs called thylakoid. The membrane of thylakoid enclose a space called thylakoid lumen. Grana (singular: Granum) are formed when many of these thylakoids are stacked together like pile of coins. Light is absorbed and converted into chemical energy in the granum, which is used in stroma to prepare

	carbohydrates. Thylakoid contain chlorophyll pigments. The chloroplast contains osmophilic granules, 70s ribosomes, DNA (circular and non histone) and RNA. These chloroplast genome encodes approximately 30 proteins involved in photosynthesis including the components of photosystem I & II, cytochrome bf complex and ATP synthase. One of the subunits of Rubisco is encoded by chloroplast DNA. It is the major protein component of chloroplast stroma, single most abundant protein on earth. The thylakoid contain small, rounded photosynthetic units called quantosomes. It is a semi-autonomous organelle and divides by fission  		
21 (b)	**C4 Cycle**  	5	BOOK INSIDE

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