

DIRECTORATE OF GOVERNMENT EXAMINATIONS, CHENNAI-6.
HIGHER SECONDARY FIRST YEAR PUBLIC EXAMINATION
MARCH- 2025 BOTANY KEY ANSWER

MAXIMUM MARKS: 70

NOTE:

1. Answer written with Blue or Black ink only to be evaluated.
2. Choose the correct answer and write the option code.

PART – I

Answer all the questions.

15×1=15

TYPE A			TYPE B		
Q No	Option	Answer	Q No	Option	Answer
1	d	(i) is not correct but (ii) and (iii) are correct	1	a	(1)-(iv), (2)-(iii), (3)-(i), (4)-(ii)
2	c	presence of DNA	2	a	(1)-(iii), (2)-(i), (3)-(ii), (4)-(iv)
3	d	before fertilization	3		Mere attempt
4	b	Artificial system of classification	4	d	(i) is not correct but (ii) and (iii) are correct
5	d	All the above	5	d	4
6	a	(1)-(iii), (2)-(i), (3)-(ii), (4)-(iv)	6	c	β -(1,4) glycosidic linkage
7	d	DPD=0atm, OP=10atm, TP=10atm	7	b	Artificial system of classification
8	a	two homologous chromosomes	8	d	before fertilization
9	c	β -(1,4) glycosidic Linkage	9	a	two homologous chromosomes
10	d	4	10	d	DPD=0atm; OP=10atm, TP=10atm
11	a	(1)-(iv), (2)-(iii), (3)-(i), (4)-(ii)	11	b	only ovary of the flower develops into fruits
12	b	lack of motile structure	12	d	Collenchyma
13	d	Collenchyma	13	c	presence of DNA
14		Mere attempt	14	d	All the above
15	b	only ovary of the flower develops into fruits	15	b	Lack of motile structure

PART-II

Note: Answer Any 6 Questions. (Question No 24 is Compulsory)

6×2=12

Q No	Answer		Marks						
16	1)Primary mycelium 2) Secondary mycelium 3) Tertiary mycelium (OR) Monokaryotic mycelium,Dikaryotic mycelium,Basidiocarp.		2						
17	Compact with narrow medullary rays.		2						
18	In xerophytes, the stem is modified in to flat and green that perform the function of photosynthesis . (e.g) Opuntia,Phyllocactus,Casuarina,Muehlenbeckia,Euphorbia <div>(Any one)</div>		1 1						
19	Any two differences between plant cell and animal cell.		2						
20	Any two Significance of mitosis.		2						
21	<table><tr><th>Pinus</th><th>Morus</th></tr><tr><td>Common in gymnosperms</td><td>Common in angiosperms</td></tr><tr><td>Non porous because does not contain Vessels</td><td>Porous because it contain Vessels</td></tr></table>	Pinus	Morus	Common in gymnosperms	Common in angiosperms	Non porous because does not contain Vessels	Porous because it contain Vessels		2
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22	Br, Eb ^l , [♂] <u>K₅</u> , <u>C₅</u> A, <u>G</u>		2						
23	1) t-RNA (transfer RNA) 2) r- RNA (Ribosomal RNA) 3) m- RNA (messenger RNA)		2						
24	<ul style="list-style-type: none">Antitranspirants reduce the enormous loss of water by transpiration in crop plants.Useful for seedling transplantations in nurseries.		2						

PART– III

Note: Answer Any 6 Questions. Question No.33 is Compulsory)

6×3=18

Q No	Answer		Marks										
25	Diagram Parts <div>(Any two)</div>		2 1										
26	<table><tr><td>Pinnately Reticulate Venation- Unicostate Venation</td><td>Palmately Reticulate Venation- Multicostate Venation</td></tr><tr><td>Only one midrib in the Centre which forms many lateral branches to form a network eg. Mangifera indica</td><td>Two or more principle Veins arising from a single point and they proceed outward or Upwards . eg. Carica Papaya (Papaya),Zizyphus(Indian plum), Cinnamomum (Bayleaf) (Any One Example)</td></tr><tr><td colspan="2">(OR)</td></tr><tr><td>Pinnately Parallel Venation- Unicostate Venation</td><td>Palmately Parallel Venation- Multicostate Venation</td></tr><tr><td>Prominent midrib in the Centre from which arise many veins perpendicularly any run parallel to each other eg. Musa, Ginger</td><td>Several Veins arise from the tip of petiole and they all run parallel to each other and unite at the apex eg. Borassus flabellifer, Rice, Bamboo, Water hyacinth (Any One Example)</td></tr></table>		Pinnately Reticulate Venation- Unicostate Venation	Palmately Reticulate Venation- Multicostate Venation	Only one midrib in the Centre which forms many lateral branches to form a network eg. Mangifera indica	Two or more principle Veins arising from a single point and they proceed outward or Upwards . eg. Carica Papaya (Papaya),Zizyphus(Indian plum), Cinnamomum (Bayleaf) (Any One Example)	(OR)		Pinnately Parallel Venation- Unicostate Venation	Palmately Parallel Venation- Multicostate Venation	Prominent midrib in the Centre from which arise many veins perpendicularly any run parallel to each other eg. Musa, Ginger	Several Veins arise from the tip of petiole and they all run parallel to each other and unite at the apex eg. Borassus flabellifer, Rice, Bamboo, Water hyacinth (Any One Example)	2 1
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27	Floral formula Floral Diagram		1 2										
28	<table><tr><td>Cytokinesis in Plant Cell</td><td>Cytokinesis in Animal Cells</td></tr><tr><td>1.Division of the cytoplasm often starts during telophase 2.Cell plate grows from centre towards lateral walls. 3.Phragmoplast contains microtubules, actin filaments and vesicles</td><td>1.It is a contractile process 2.The ring consists of a bundle of microfilaments assembled from actin and myosin. 3.This fibril generates a contractile force, that draws the ring inward forming a cleavage furrow in the cell</td></tr></table>	Cytokinesis in Plant Cell	Cytokinesis in Animal Cells	1.Division of the cytoplasm often starts during telophase 2.Cell plate grows from centre towards lateral walls. 3.Phragmoplast contains microtubules, actin filaments and vesicles	1.It is a contractile process 2.The ring consists of a bundle of microfilaments assembled from actin and myosin . 3.This fibril generates a contractile force, that draws the ring inward forming a cleavage furrow in the cell	3							
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29	In many dicot plants the lumen of the xylem vessels is blocked by many ballon like ingrowths from the neighbouring parenchymatous Cells		3										
30	Roots, tubers, flower and fruits <div>(Any Three)</div>		3										
31	Any 3 differences		3										

32	Phosphorylation enzymes – hexokinase , phospho fructo kinase, glyceraldehyde 3 phosphate dehydrogenase. De phosphorylation enzymes – Phosphoglycerate Kinase, Pyruvate Kinase	3
33	If the respiratory substrate is a Carbohydrate it will be incompletely oxidised when it goes through anaerobic respiration and RQ value will be infinity (OR) $\left. \begin{array}{l} \text{RQ of Glucose} \\ \text{anaerobically} \end{array} \right\} = \frac{2 \text{ molecules of CO}_2}{\text{Zero molecules of O}_2} = \infty \text{ (Infinity)}$	3

Part – IV

Answer all the questions

5 × 5 = 25

Q No	Answer	Marks
34 (a)	Table Merits and Demerits (OR)	4 1
34 (b)	Definition Each type with Diagram	1 4
35 (a)	Any 5 Economic Importance (OR)	5
35 (b)	Differences of Prokaryotes & Eukaryotes (Any Five)	5
36 (a)	Properties of Enzymes <ul style="list-style-type: none"> • All the globular proteins. • They act as catalysts and effective even in small quantity. • They remain unchanged at the end of the reaction. • They are highly Specific. • They have an active site where the reaction takes place. • Enzymes lower activation energy of the reaction they catalyse. (Any five) (OR)	5
36 (b)	Differences between Dicot Stem & Monocot Stem	5
37 (a)	Introduction – Insectivorous Plant Mode of Nutrition Explain with four Examples (OR)	1 4
37 (b)	Pentose Phosphate Pathway (or) Hexose monophosphate Pathway (or) Phospho gluconate Pathway (or) Direct Oxidative Pathway (or) Warbug-Dickens-Lipmann Pathway Explanation (OR) Flow Chart (Any one)	1 4
38 (a)	Krebs Cycle Flowchart (OR)	5
38 (b)	Ethylene Physiological Effects (Any Four)	1 4