

Higher Secondary Examination–March 2023

Botany - Answer Key

HSE I

Total marks – 30

Category	Question No:	Answer key / Value points	Split score	Total score
Part I		Answer any 3 questions from 1 - 5 Each carries 1 mark		
	1.	Phycobiont	1	1
	2	1	1	1
	3	Red algae	1	1
	4	Radial vascular bundle	1	1
	5	Stroma	1	1
Part II		Answer any 9 questions from 6 - 16. Each carries 2 mark		
	6	a. Pleuro Pneumonia Like Organism b. Smooth Endoplasmic Reticulum	1+1	2
	7	i. Funaria ii. A – Rhizoid, B – Seta, C - Capsule	$\frac{1}{2}$ $\frac{1}{2} \times 3$	2
	8	Amoeboid Protozoan - Entamoeba Flagellated Protozoan - Trypanosoma Ciliated Protozoan - Paramecium Sporozoans - Plasmodium	$\frac{1}{2} \times 4$	2
	9	A – Chloroplast B- Leucoplast C – Amyloplast , D – Aleuroplast	$\frac{1}{2} \times 4$	2
	10	Prophase , Metaphase , Anaphase , Telophase	$\frac{1}{2} \times 4$	2
	11	i. Arrangement of leaves on stem or branch ii. A – Alternate , B – Opposite or (Hint :- any one correct response – give 1 score – will be based on Scheme finalisation decision)	1 $\frac{1}{2} \times 2$	2

12	Hastens fruit ripening in tomatoes & apples /Promote abscission in flowers & fruits (thinning of cotton, cherry, walnut)/ Promote female flowers in cucumbers & thus increase the yield / Promote senescence & abscission of leaves /Enhance Respiratory climactic (Rise in rate of respiration during ripening of fruit) / Breaks seed & bud dormancy (initiate germination in peanut seeds, sprouting of potato tubers) / Initiate flowering & synchronise fruit set in pineapple /Induce flowering in mango / Promote root &root hair formation, thus helping plants to increase absorptive surface /Promote rapid internode /petiole elongation in deep water rice plants (any 2 uses)	1+1	2
13	A. Partial oxidation/ breakdown of glucose into 2 molecules of Pyruvic acid. B. Cytoplasm C. Hexokinase	1 $\frac{1}{2}$ $\frac{1}{2}$	2
14	A. Gibberellin /GA B. Auxin C. Ethylene D. Absciscic acid / ABA	$\frac{1}{2}$ *4	2
15	A. Pachytene B. Zygotene C. Diakinesis D. Diplotene	$\frac{1}{2}$ *4	2
16	C ₃ Plants – Kranz anatomy absent , First product of CO ₂ fixation is PGA C ₄ Plants – Lack Photorespiration , Primary CO ₂ acceptor is PEP	$\frac{1}{2}$ *4	2
Part III	Answer any 3 questions from 17- 20. Each carries 3 marks		
17	i. A – Hypogynous flower, B – Perigynous flower ii. Margin of thalamus grows upward enclosing the ovary completely & fused with ovary. other parts arise above the ovary / Inferior ovary.	1+1 1	3
18	<u>Internal factors</u> :- Number of leaf/ size of leaf/ age of leaf / orientation of leaves / Orientation of mesophyll cells / orientation of chloroplast / Internal CO ₂ concentration / amount of chlorophyll (any 3 internal factor) <u>External factors</u> :- Light / Carbon dioxide concentration / Temperature / Water (any 3 external factor)	$\frac{1}{2}$ *3 $\frac{1}{2}$ *3	3

19	Root – Exarch xylem , Endodermis with casparian strip Stem – Hypodermis present , Conjoint and Open vascular bundle Leaf – Spongy parenchyma , Large empty bulliform cells	$\frac{1}{2} * 6$	3
20	i. Krebs cycle / Citric acid cycle / TCA cycle / Tri Carboxylic Acid cycle ii. A - Oxalo acetic acid , B – Citric acid	1 1+1	3

