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SSC-I NATIONAL BOOK FOUNDATION FBISE

BIOLOGY TEST - CHAPTER 8: PLANT PHYSIOLOGY

Name:		Roll No.		Section:

Total Time: 2:30 Hour
Time Allowed: 150 Minutes

Total Marks: 150

PAPER OBJECTIVE
SECTION-A (MARKS 150)

NOTE: Section-A is compulsory. All parts of this section are to be answered on these pages and handed over to the center superintendent. Deleting / overwriting is not allowed. Do not use lead pencil.

Q.1 Fill the relevant bubble for each part. All parts carry one mark.

Questions	A	B	C	D	A B C D
1. Which branch of botany deals with the functions of the plant body?	Plant physiology	Plant taxonomy	Plant morphology	Plant ecology	●○○○
2. A substance that provides necessary elements for growth and metabolism is called a	nutrient	hormone	pigment	enzyme	●○○○
3. The nutrients of plants are mainly	lipids only	organic	inorganic	proteins only	○○●○
4. The processes involved in utilization of nutrients in growth and metabolism are called	transpiration	nutrition	translocation	excretion	○●○○
5. Plants obtain inorganic nutrients and convert them into organic compounds; so they are	saprotrophs	parasites	heterotrophs	autotrophs	○○○●
6. How many elements are essential for plant growth according to the book?	7	9	16	12	○○●○
7. How many essential elements are macronutrients?	16	9	7	5	○●○○
8. How many essential elements are micronutrients?	4	7	16	9	○●○○
9. Macronutrients are needed in amounts greater than about	5% of dry weight	0.05% of dry weight	50% of dry weight	0.5% of fresh weight	○●○○
10. Micronutrients are needed in amounts less than about	0.5% of dry weight	10% of dry weight	5% of dry weight	0.05% of dry weight	○○○●
11. Which of these is a macronutrient of plants?	Copper	Manganese	Zinc	Potassium	○○○●
12. Which of these is a micronutrient of plants?	Molybdenum	Calcium	Phosphorus	Sulphur	●○○○
13. Which group contains only macronutrients?	Iron, calcium, copper	Boron, chlorine, zinc	Carbon, hydrogen, oxygen	Zinc, copper, iron	○○●○
14. Nitrogen is mainly absorbed by plants from soil in the form of	ammonia gas	nitrates (NO_3^-)	nitrogen oxide gas	N_2 gas	○●○○

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Questions	A	B	C	D	A B C D
15. The major natural source of nitrates in soil is	decomposition of dead organic matter	weathering of rocks	rain water only	sunlight on soil	●○○○
16. In nitrogen-depleted soils, nitrogen can be added as	magnesium sulphate	nitrogen fertilizers	dolomitic limestone	sand	○●○○
17. Which compounds are made by plants using nitrogen?	Cellulose and starch	Fats and waxes	Sugars and glycerol	Amino acids and nucleotides	○○○●
18. Amino acids made from nitrogen are used in the synthesis of	starch	cellulose	proteins	suberin	○○●○
19. The most abundant organic constituent of the plant body is	fat	starch	protein	wax	○○●○
20. Severe growth retardation in plants results from deficiency of	water vapour	nitrogen	oxygen	light only	○●○○
21. Yellowing of leaves due to mineral deficiency is called	chlorosis	wilting	transpiration	plasmolysis	●○○○
22. Nitrogen deficiency causes chlorosis because it inhibits	stomatal opening	chlorophyll formation	cuticle formation	root hair growth	○●○○
23. Magnesium is absorbed by plants from soil as	MgO gas	Mg^{+} ions only	Mg gas	Mg^{2+} ions	○○○●
24. The major source of magnesium in soil is	animal bones only	rain water	decomposition of dead plant debris	atmospheric nitrogen	○○●○
25. Which is used to add magnesium to magnesium-depleted soils?	Sodium chloride	Nitrates	Dolomitic limestone	Urea	○○●○
26. A magnesium fertilizer mentioned in the chapter is	KNO_3	NaCl	$MgSO_4$	$CaCO_3$	○○●○
27. In the plant body, magnesium is used to make	chlorophyll	nucleotides	proteins	suberin	●○○○
28. Magnesium deficiency in plants can also lead to	chlorosis	excess protein	thicker cuticle	faster transpiration	●○○○
29. Movement of materials from outside to inside the plant is the	fourth level of transport	second level of transport	third level of transport	first level of transport	○○○●
30. Transport of minerals from roots to leaves is the	third level of transport	first level of transport	second level of transport	absorption only	○○●○
31. Removal of waste compounds out of the plant body is the	second level of transport	first level of transport	translocation	third level of transport	○○○●

Questions	A	B	C	D	A B C D
32. Why is transport needed at the second level in plants?	To absorb water from soil	To obtain CO_2 from air	To supply leaves for food-making	To remove waste outside	○○●○
33. The organ of uptake of water and minerals in plants is the	leaf	stem	flower	root	○○○●
34. Dicot plants possess which type of root system?	Aerial root	Adventitious root	Fibrous root	Tap root	○○○●
35. Monocot plants possess which type of root system?	Tap root	Fibrous adventitious roots	Primary root only	Prop roots only	○●○○
36. The outermost layer of a root is the	pericycle	epidermis	endodermis	cortex	○●○○
37. Extensions of root epidermal cells are called	Casparian strips	lenticels	stomata	root hairs	○○○●
38. Root hairs mainly serve to	store food	increase surface area for absorption	produce chlorophyll	reduce water loss	○●○○
39. The ground tissue just inner to the root epidermis is the	xylem	cortex	pith	pericycle	○●○○
40. The inner lining of the cortex is called the	epidermis	pericycle	phloem	endodermis	○○○●
41. Casparian strips are deposits in the endodermis of	cellulose	suberin	lignin only	chlorophyll	○●○○
42. Casparian strips are present in which walls of endodermal cells?	Radial walls	Outer tangential walls only	Cross walls of xylem	Walls of root hairs	●○○○
43. The layer inner to the endodermis is the	cortex	pericycle	epidermis	pith	○●○○
44. A vascular bundle consists of	xylem and phloem	xylem and cortex	cortex and pith	epidermis and cuticle	●○○○
45. Pith is present in the roots of	neither	both, in large amount	dicots	monocots	○○○●
46. In dicot roots the vascular bundles are arranged	in a ring around pith	in a single strand	in a star shape without pith	scattered in cortex	○○●○
47. Which are the two vital functions of roots?	Photosynthesis and storage	Anchorage and absorption	Excretion and gas exchange	Support and reproduction	○●○○
48. The primary sites for absorption of water and minerals are	stomata	lenticels	root caps	root hairs	○○○●

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Questions	A	B	C	D	A B C D
49. Most minerals enter root hairs mainly by	active transport only	photosynthesis	bulk flow with water	osmosis only	○○●○
50. Which minerals can be absorbed by plants?	Those stuck to soil particles	Only insoluble salts	Those in dry soil	Those dissolved in soil water	○○○●
51. Mineral movement along its concentration gradient is	active uptake	passive uptake	translocation	transpiration	○●○○
52. Minerals move passively through cells of cortex via	stomata	lenticels	plasmodesmata	Casparian strips	○○●○
53. In facilitated diffusion, minerals are moved across the membrane by	carrier proteins	cellulose	root pressure	ATP only	●○○○
54. Which process requires ATP for mineral uptake?	Active transport	Facilitated diffusion	Diffusion	Osmosis	●○○○
55. Active transport allows uptake of minerals	without carrier proteins	along the concentration gradient	without respiration	against the concentration gradient	○○○●
56. Active transport in roots is selective and relies on	evaporation	photosynthesis	transpiration	respiration	○○○●
57. Absorption of water by roots occurs by	active transport	facilitated diffusion	translocation	osmosis	○○○●
58. Osmosis is movement of water through a	dry soil	completely permeable wall	solid cuticle	partially permeable membrane	○○○●
59. Entry of water into a cell by osmosis is called	exosmosis	plasmolysis	endosmosis	transpiration	○○●○
60. Movement of water out of a cell by osmosis is called	exosmosis	endosmosis	absorption	guttation	●○○○
61. In root epidermal cells, which part is selectively permeable?	Cell wall	Cuticle	Cell membrane	Root hair tip only	○○●○
62. The path of water in a root from epidermis is	cortex → endodermis → pericycle → xylem	xylem → cortex → epidermis	cortex → pith → phloem	pericycle → cortex → xylem	●○○○
63. Mycorrhizae are associations between plant roots and	insects	algae	bacteria	fungi	○○○●
64. Loss of water as vapour from aerial parts of a plant is	transpiration	absorption	guttation	translocation	●○○○
65. About what percentage of absorbed water is lost by transpiration?	99%	50%	10%	25%	●○○○

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Questions	A	B	C	D	A B C D
66. About 90% of water loss occurs through	lenticels	root hairs	stomata	cuticle	○○●○
67. Water loss through the general body surface is	lenticular transpiration	cuticular transpiration	stomatal transpiration	guttation	○●○○
68. Cuticular transpiration accounts for about	7-9%	90%	50%	less than 3%	●○○○
69. Transpiration through lenticels is called	cuticular transpiration	lenticular transpiration	foliar transpiration	stomatal transpiration	○●○○
70. Lenticels are scar-like regions present in the	stem	flower petal	leaf	root hair	●○○○
71. Lenticular transpiration accounts for less than	50%	3%	25%	90%	○●○○
72. Transpiration is called a necessary evil because it	makes plants wilt always	stops photosynthesis	cools the plant but loses much water	blocks mineral uptake	○○●○
73. Excessive unchecked transpiration causes	more growth	more turgor	wilting	chlorosis	○○●○
74. Wilting is the loss of	minerals	turgor	sugar	chlorophyll	○●○○
75. Plants with large leaves and many stomata show	a lower transpiration rate	a higher transpiration rate	no transpiration	only cuticular loss	○●○○
76. Transpiration is greater in the day because stomata are	absent	covered by cuticle	widely open	nearly closed	○○●○
77. The rate of transpiration is measured by a	potometer	barometer	manometer	thermometer	●○○○
78. In a potometer, the rate of transpiration is read from the movement of	an air bubble	a mercury column	a plant stem	a thermometer	●○○○
79. Rising air temperature on a sunny day	stops transpiration	increases transpiration	decreases transpiration	has no effect	○●○○
80. For every 10°C rise in temperature, the rate of transpiration roughly	triples	doubles	stays same	halves	○●○○
81. At about 40-45°C, stomata tend to	disappear	close	open widely	double in number	○●○○
82. Moving wind makes transpiration	faster	unrelated to diffusion	slower	stop completely	●○○○

Questions	A	B	C	D	A B C D
83. Humidity is the amount of ____ in the air.	oxygen	water vapour	nitrogen	carbon dioxide	○●○○
84. In dry air, the rate of transpiration is	lower	zero	higher	unchanged	○○●○
85. In humid air, the rate of transpiration is	doubled	unaffected	higher	lower	○○○●
86. Movement of water and minerals from roots to leaves through xylem is	absorption	translocation	guttation	ascent of sap	○○○●
87. The most widely accepted theory explaining ascent of sap is the	pressure flow theory	cell theory	TACT theory	germ theory	○○●○
88. In TACT, the letter T stands for transpiration pull and	tension	temperature	turgor	translocation	●○○○
89. The four factors of the TACT theory are	temperature, air, light, soil	Pull, adhesion, cohesion, tension	turgor, absorption, carbon, tissue	transport, active, cell, tube	○●○○
90. Which are the two types of xylem cells mentioned?	Tracheids and vessels	Fibres and sieve tubes	Sieve tubes and vessels	Tracheids and companion cells	●○○○
91. Tracheids are long, dead cells with	nuclei	pointed ends	perforated end walls	thin walls only	○●○○
92. Xylem vessels are formed by fusion of vessel elements placed	side by side	in rings	end to end	in a star	○○●○
93. Attraction between water molecules and xylem walls is	transpiration pull	cohesion	adhesion	tension	○○●○
94. Adhesion occurs because water and cellulose are both	polar molecules	gases	acids	non-polar molecules	●○○○
95. Attraction between nearby water molecules is	diffusion	cohesion	adhesion	osmosis	○●○○
96. Cohesion between water molecules is due to	hydrogen bonds	glycosidic bonds	ionic bonds	peptide bonds	●○○○
97. The pulling force created by evaporation from leaves is	cohesion	root pressure	adhesion	transpiration pull	○○○●
98. Bulk flow of water to the plant top is ultimately driven by	phloem sugars	gravity	solar energy	ATP in xylem	○○●○
99. Transport of prepared food through phloem is	absorption	transpiration	ascent of sap	translocation	○○○●

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Questions	A	B	C	D	A B C D
100. Important components of phloem are	guard cells	tracheids and vessels	cortex cells	sieve tube elements and companion cells	○○○●
101. Sieve tube elements lack	cytoplasm	sieve plates	nuclei	cell walls	○○●○
102. Functions of sieve tube elements are controlled by	companion cells	tracheids	root hairs	guard cells	●○○○
103. In translocation, a source is	only the xylem	a part that supplies food, like a leaf	only the root	a part that uses food like a fruit	○●○○
104. In translocation, a sink is a part that	loses water	makes food	absorbs water	uses or stores food	○○○●
105. Which plant part is typically a sink?	Mature green leaf	Xylem	Stomata	Fruit	○○○●
106. Which plant parts can act as both source and sink?	Stems and roots	Fruits only	Flowers only	Leaves and fruits	●○○○
107. Phloem sap contains about ____ dry matter.	50-60%	90%	1-2%	10-25%	○○○●
108. Most of the dry matter in phloem sap is	protein	starch	sucrose	glucose	○○●○
109. Mass flow theory explains	mineral uptake	transpiration	translocation of organic solutes	ascent of sap	○○●○
110. In pressure flow, sugars are loaded into sieve tubes by	diffusion	transpiration	osmosis	active transport	○○○●
111. Loading of sugar into phloem makes water move in by	osmosis	adhesion	evaporation	active transport	●○○○
112. Entry of water into the phloem increases	adhesion	humidity	hydrostatic pressure	transpiration	○○●○
113. The sugar solution moves in phloem from	high pressure to low pressure	low pressure to high pressure	sink to source	xylem to xylem	●○○○
114. At the sink, sugars are	unloaded actively	loaded passively	stored in xylem	made by photosynthesis	●○○○
115. After unloading at the sink, water goes back to the	stomata	cuticle	xylem	root hair	○○●○
116. Gas exchange in plants takes place mainly through	stomata and lenticels	root caps and cuticle	xylem and phloem	guard and root hairs	●○○○

Questions	A	B	C	D	A B C D
117. Gases in plants are exchanged by the process of	adhesion	active transport	diffusion	translocation	○○●○
118. During daytime, plants take in ___ and release ___.	O_2, CO_2	CO_2, O_2	O_2, water	CO_2, N_2	○●○○
119. During night, plants take in ___ and release ___.	CO_2, O_2	N_2, O_2	CO_2, water	O_2, CO_2	○○○●
120. During the day, net gas exchange shows photosynthesis rate is	equal to respiration only at noon	zero	less than respiration rate	greater than respiration rate	○○○●
121. At night, plants release carbon dioxide because	photosynthesis is faster	there is no photosynthesis	stomata are widest	respiration stops	○●○○
122. At dawn and dusk, photosynthesis and respiration rates are	unrelated	equal	doubled	zero	○●○○
123. The point of no net gas exchange is the	boiling point	compensation point	saturation point	wilting point	○●○○
124. Roots exchange gases with	soil air	leaf air spaces	xylem sap	phloem sap	●○○○
125. Roots always take in ___ and release ___.	CO_2, H_2O only	N_2, O_2	O_2, CO_2	CO_2, O_2	○○●○
126. Hydrogen carbonate indicator turns yellow when CO_2	builds up	is removed	falls	is absent	●○○○
127. Plant adjustment to temperature and water and salt availability is	transpiration	nutrition	homeostasis	translocation	○○●○
128. Which is an importance of homeostasis in plants?	Faster transpiration always	Survival under drought and salinity	Loss of turgor	Stopping respiration	○●○○
129. Excretion in plants is a ___ term, meaning removal of anything from the body.	narrow	fixed	chemical	broad	○○○●
130. Carbon dioxide is excreted at night as a waste of	respiration	transpiration	photosynthesis	translocation	●○○○
131. Oxygen released in the daytime is a waste of	osmosis	respiration	photosynthesis	absorption	○○●○
132. Plant cells store wastes in large	plastids only	nuclei	ribosomes	vacuoles	○○○●
133. Leaves loaded with pigmented waste compounds turn	white	black	blue	yellow	○○○●

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Questions	A	B	C	D	A B C D
134. Leaves that act as organs of excretion are called	bracts	chlorophores	excretophores	stomata	○○●○
135. Gardeners use decomposed autumn leaves because they are	water-free	sterile	rich in chlorophyll	mineral-rich	○○○●
136. Ebony trees deposit dark waste material in old	leaves	phloem	epidermis	xylem	○○○●
137. Conifer trees excrete wastes through their	leaves only	flowers	fruits	roots	○○○●
138. Chemicals released by roots into soil act against	competing plants	rain water	soil minerals	fungi that help	●○○○
139. Osmotic adjustment is also known as	translocation	transpiration	osmoregulation	homeostasis only	○○●○
140. A cell in a hypotonic environment becomes	plasmolysed only	turgid	flaccid	dead	○●○○
141. A cell in a hypertonic environment becomes	bigger	turgid	firm	flaccid	○○○●
142. In an isotonic situation, water movement is	into the cell	none into or out of the cell	only by active transport	out of the cell	○●○○
143. Plants living in water-rich environments are	hydrophytes	mesophytes	xerophytes	halophytes	●○○○
144. Plants adapted to extremely dry conditions are	xerophytes	hydrophytes	epiphytes	mesophytes	●○○○
145. Which plants have the lowest transpiration rate?	Xerophytes	Epiphytes	Hydrophytes	Mesophytes	●○○○
146. Stomata are on the upper leaf surface in	xerophytes	hydrophytes	mesophytes	all plants	○●○○
147. Sunken stomata are a feature of	xerophytes	hydrophytes	mesophytes	algae	●○○○
148. Stomata open at night in	mesophytes	all three	xerophytes	hydrophytes	○○●○
149. Cuticle is thickest in	algae	mesophytes	xerophytes	hydrophytes	○○●○
150. Succulents store plenty of water and are	hydrophytes	xerophytes	halophytes	mesophytes	○●○○

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