

**FIRST YEAR HIGHER SECONDARY MODEL EXAMINATION 2021**

**Part – III**

**BIOLOGY**

**PART - A BOTANY**

**CODE .No. FY-326**

**KEY**

**Maximum score: 30**

Q.No.	SECTION -I	Split score	Total score										
1	Mycelium	1	1										
2	Abscisic acid /ABA	1	1										
3	(c) Virus	1	1										
4	Crossing over	1	1										
5	Leg haemoglobin	1	1										
6	Pneumatophore	1	1										
	<b>SECTION-II</b>												
7	(a) Green algae (b) Starch (c) Phaeophyceae (d) Phycoerythrin	½ ½ ½ ½	2										
8	- Vascular bundles radial in roots but conjoint in stem. - Xylem exarch in roots but endarch in stem. OR - Hypodermis absent in roots but present in stem. - Root hair present in root but absent in stem. - Trichomes absent in roots, but present in stem. - Cuticle absent in root, but present in stem. <p align="right">[Any 2]</p>	1   1	2										
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10	(a) Bryophytes. (b) They live on land but dependent on water for sexual reproduction.	1 1	2										
11	Tracheid, Vessels, Xylem parenchyma, Xylem fibres.	½ ½ ½ ½	2										
12	Alternate pyllotaxy / Opposite pyllotaxy/ Whorled pyllotaxy [Any 2]	1 1	2										

13	(a) Fluid mosaic model. (b) Transport of molecules across the membrane/Passive transport/active transport/ cell growth /formation of intercellular junctions/ secretion/endocytosis, cell division. [Any relevant one point]	1 1	2												
14	(a) Imbibition is a special type of diffusion when water is absorbed by solids – colloids – causing them to increase in volume. (b) Helps in seed germination /absorption of water by plants /root hair / seeds/ [Any relevant one point]	1 1	2												
15	(a) Anaphase. (b) -Centromeres split and chromatids separate. -Chromatids move to opposite poles. [Any 1]	1 1	2												
16	<ul style="list-style-type: none"> <li>creates transpiration pull for absorption and transport of plants.</li> <li>supplies water for photosynthesis.</li> <li>transports minerals from the soil to all parts of the plant.</li> <li>cools leaf surfaces, sometimes 10 to 15 degrees, by evaporative cooling.</li> <li>maintains the shape and structure of the plants by keeping cells turgid. [Any 2]</li> </ul>	1 1	2												
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18	(a) Mitochondria (b) A-Matrix B-Crista	1 ½ ½	2												
19	a.1. Light reaction 2. Dark reaction b. Light reaction - grana Dark reaction - Stroma	½ ½ ½ ½	2												
20	(a) sigmoid growth curve or S-curve (b) A-Lag phase , B-Stationary phase	1 ½ ½	2												
21	a. Store hydrolytic enzymes b. Packaging of materials c. Lipid synthesis d. Store excretory products	½ ½ ½ ½	2												
22	(a) Fermentation is the incomplete oxidation of glucose under anaerobic conditions. (b) i-CO <sub>2</sub> and ethanol. ii-Lactic acid	1 ½ ½	2												
23	a. A. Carboxylation B. Reduction C. Regeneration b. Ribulose 1,5 - bisphosphate or RUBP	½ ½ ½ ½	2												

24	(a) 'Kranz' means 'wreath' and is a reflection of the arrangement of bundle sheath cells in C <sub>4</sub> Plants. The bundle sheath cells may form several layers around the vascular bundles; they are characterised by having a large number of chloroplasts, thick walls impervious to gaseous exchange and no intercellular spaces. (b) Maize, Sorghum	1 1/2 1/2	2
25	(a) Hypogynous, perigynous and epigynous (b) Hypogynous flower- ovary is superior. Perigynous- ovary is half inferior. Epigynous flowers- ovary is inferior.	1 1/2 1 1/2	2
<b>SECTION-III</b>			
26	(a) The ratio of the volume of the CO <sub>2</sub> evolved to the volume of O <sub>2</sub> consumed in respiration. ( RQ= volume of CO <sub>2</sub> evolved/ volume of O <sub>2</sub> consumed) (b) i. In Carbohydrate : 1 ii. In Fat less than: 1	1 1 1	3
27	1. The element must be absolutely necessary for supporting normal growth and reproduction. In the absence of the element the plants do not complete their life cycle or set the seeds. 2. The requirements of the elements must be specific and not replaceable by any other element.( Deficiency of any one element cannot be met by supplying some other element). 3. The element must be directly involved in the metabolism of the plant.	1 1 1	3
28	(a) Glycolysis. (b) Cytoplasm. (c) Pyruvic acid. OR 2 Pyruvic acids, 2NADH+2H <sup>+</sup> and 2ATP.	1 1 1	3
29	a. A.S B.G2 b. S phase- DNA replication G2 - Cell growth/ synthesis of RNA & proteins	1/2 1/2 1 1	3
30	a. Ethylene b. Horizontal growth of seedlings/ swelling of the axis/apical hook formation in Dicot seedlings/promote senescence and abscission of plant organs/enhance the rate of respiration rate during the ripening of fruits/ break seed and bud dormancy/ flowering in mango /initiate germination in peanut seeds/ sprouting of potato tubers/flowering and synchronising the fruit set in pineapples/ promotes internode or petiole elongation in deep water rice plants/ promotes root growth and root hair formation/stimulate female flowers in cucumbers. ( Any 2 appropriate functions)	1 2	3