FIRST YEAR HIGHER SECONDARY MODEL EXAMINATION– FEBRUARY - 2023

FY - 26

PART – III

BIOLOGY (BOTANY & ZOOLOGY)

SCORING KEY (UNOFFICIAL)

	PART -A BOTANY	
Qn. No.	**Scoring indicators**	**Marks**
	PART - I	
	Answer any 3 questions from 1 – 5. Each carry 1 score	
1.	Rhizopus	1
2.	Stele	1
3.	Aerobic respiration.	1
4.	Sporophyte / Sporophytic stage.	1
5.	RuBisCO / RuBP Carboxylase-Oxygenase.	1
	PART - II	
	Answer any 9 questions from 6 – 16. Each carry 2 scores	
6.	Diatoms are the chief 'producers' in the oceans. Diatomaceous earth (Cell wall remains of diatoms) is used in polishing, filtration of oils and syrups.	1 + 1 =2
7.	(a) – Fluid mosaic model. (b) – Lipids / Phospholipids. (c) – Integral protein and peripheral protein.	½ + 1½ =2
8.	(a) – A- Anaphase. B- Telophase. (b) – • Centromeres split and chromatids separate. • Chromatids move to opposite poles.	1 + 1 = 2

<table>
<tr><th>Qn. No.</th><th>Scoring indicators</th><th>Marks</th></tr>
<tr><td>9.</td><td>(a) – Synapsis.
(b) – Crossing over.</td><td>1 + 1 = 2</td></tr>
<tr><td>10.</td><td><table><tr><th>A</th><th>B</th></tr><tr><td>Prothallus
Coralloid roots
Floridean starch
Protonema</td><td>Gametophyte
Cycas
Red algae
Mosses</td></tr></table></td><td>½ x 4 = 2</td></tr>
<tr><td>11.</td><td><table><tr><th>RER</th><th>SER</th></tr><tr><td>1. Endoplasmic reticulum bearing ribosomes on their surface is called RER.
2. RER is actively involved in protein synthesis and secretion.</td><td>1. Endoplasmic reticulum devoid / lacking ribosomes on their surface is called SER.
2. SER is actively involved in synthesis of lipids / hormones.</td></tr></table>.</td><td>1 + 1 = 2</td></tr>
<tr><td>12.</td><td>a) – Geometrical growth curve / Sigmoid growth curve / S – shaped growth curve.
b) –
Lag phase.
Log or exponential phase.
Stationary phase.</td><td>½ x 4 = 2</td></tr>
<tr><td>13.</td><td><table><tr><th>ALCOHOLIC FERMENTATION</th><th>LACTIC ACID FERMENTATION</th></tr><tr><td>• Pyruvic acid produced in glycolysis is converted into CO2 and ethyl alcohol.
• Reaction is catalyzed by enzymes, pyruvic acid decarboxylase and alcohol dehydrogenase.
• Alcoholic fermentation is carried out by Yeast.</td><td>• Pyruvic acid produced in glycolysis is converted into lactic acid.
• Reaction is catalyzed by enzymes lactate dehydrogenase.
• Shown by Lactobacillus bacteria and Muscle cells.</td></tr></table>(Any two difference)</td><td>1 + 1 = 2</td></tr>
<tr><td>14.</td><td>(a) – Marginal placentation.
(b) – Axile placentation.
(c) – Parietal placentation.
(d) – Free central placentation.</td><td>½ x 4 =2</td></tr>
<tr><td>15.</td><td><table><tr><th>Plant hormone</th><th>Function of hormone</th></tr><tr><td>Auxin</td><td>Induce parthenocarpy.</td></tr><tr><td>Gibberellins</td><td>Increase the length of stem in sugarcane.</td></tr><tr><td>Cytokinin</td><td>Helps to overcome apical dominance.</td></tr><tr><td>Ethylene</td><td>Ripening of fruits.</td></tr></table></td><td>½ x 4 =2</td></tr>
</table>

<table>
<tr><th>Qn. No.</th><th>Scoring indicators</th><th>Marks</th></tr>
<tr><td>16.</td><td>(a) – Kranz anatomy
(b) –
They lack a process called photorespiration.
They can fix CO_2 in very low concentration.
They can tolerate higher temperature.
They show a response to high light intensities.
(Any two points)</td><td>½ + 1½ =2</td></tr>
<tr><td colspan="3">PART – III</td></tr>
<tr><td colspan="3">Answer any 3 questions from 17 – 20. Each carry 3 scores</td></tr>
<tr><td>17.</td><td><table><tr><th>Stem</th><th>Root</th><th>Leaf</th></tr><tr><td>Presence of hypodermis.
Conjoint open bundle.</td><td>Exarch xylem
Endodermis with casparian strips</td><td>Palisade parenchyma
Large empty bulliform cells</td></tr></table></td><td>1 + 1 + 1 =3</td></tr>
<tr><td>18.</td><td>(a) – The arrangement of veins and veinlet in the leaf lamina is called venation.
(b) –
‘A’ - Reticulate Venation – Vein and veinlet form a network on leaf lamina. Characteristic in dicotyledonous plants.
‘B’ - Parallel Venation – Vein and veinlet run parallel to each other on leaf lamina. Characteristic in monocotyledonous plants.</td><td>1+1+1= 3</td></tr>
<tr><td>19.</td><td>(a) – Cyclic Photophosphorylation
Non cyclic Photophosphorylation
(b) –<table><tr><th>CYCLIC PHOTOPHOSPHORYLATION</th><th>NON-CYCLIC PHOTOPHOSPHORYLATION</th></tr><tr><td>1. Electrons are transported in cyclic manner.
2. Only PS - I is involved.
3. Only ATP is produced.
4. Photolysis of water is absent.
5. Oxygen is not liberated.
6. External electron donor is absent</td><td>1. Electrons are transported in non-cyclic manner.
2. Both PS - I & PS - II are involved.
3. Both ATP & NADPH+H^+ are produced.
4. Photolysis of water is present.
5. Oxygen is liberated.
6. External electron donor (water) is present.</td></tr></table>(Any Four differences)</td><td>1 + 2 = 3</td></tr>
<tr><td>20.</td><td>a) – Cytoplasm
b) –
(a) – Fructose-6- phosphate (b) – 3-phosphoglyceric acid / Triose phosphate
(c) – Phosphoenolpyruvate / PEP (d) – Pyruvic acid</td><td>1 + 2 = 3</td></tr>
</table>

	PART -B **ZOOLOGY**	
Qn. No.	Scoring indicators	Marks
	PART - I	
	Answer any 3 questions from 1 – 6. Each carry 1 score	
1.	b / Melatonin	1
2.	Asthma	1
3.	Collagen	1
4.	*Musca domestica*	1
5.	Glomerulonephritis	1
	PART - II	
	Answer any 9 questions from 6 – 16. Each carry 2 scores	
6.	a) – Serum. b) – AB group. c) – Pericardium. d) – Sino-atrial node / SAN / SA Node.	½ x 4 =2
7.	a) – Pleurobrachia / Example of Ctenophora b) – Ctenophora c) – Comb plates present / Bioluminescence present/ marine / radially symmetrical / diploblastic organisms / tissue level of organization. (Any two characters)	½ x 4 =2
8.	(a) A – Activation energy without enzyme. B – Activation energy with enzyme. (b) Enzymes bring down the activation energy making the transition of substrate to product more easily.	1 + 1 = 2
9.	a) ACTH – Adrenocorticotrophic hormone. b) FSH – Follicle stimulating hormone. c) TSH – Thyroid stimulating hormone. d) ADH – Anti-diuretic hormone.	½ x 4 =2

<table>
<tr><th>Qn. No.</th><th>Scoring indicators</th><th>Marks</th></tr>
<tr><td>10.</td><td>A – Nerve cord
B – Notochord
C – Gill slits
D – Post-anal part</td><td>½ x 4 =2</td></tr>
<tr><td>11.</td><td>a) IRV - Inspiratory Reserve Volume / Additional volume of air, a person can inspire by a forcible inspiration / It is 2500 mL to 3000 mL
ERV - Expiratory Reserve Volume / Additional volume of air, a person can expire by a forcible expiration / It is 1000 mL to 1100 mL
b) TV - Tidal Volume / Volume of air inspired or expired during a normal respiration / It is approx. 500 mL
RV - Residual Volume / Volume of air remaining in the lungs even after a forcible Expiration / It is 1100 mL to 1200 mL.
(Any one definition for each)</td><td>½ x 4 =2</td></tr>
<tr><td>12.</td><td><table><tr><th>Ammonotelic</th><th>Ureocotelic</th><th>Ureotelic</th></tr><tr><td>Bony fishes</td><td>Birds</td><td>terrestrial amphibians
Mammals</td></tr></table></td><td>½ x 4 =2</td></tr>
<tr><td>13.</td><td><table><tr><th>A</th><th>B</th></tr><tr><td>a) Proboscis</td><td>ii) Balanoglossus</td></tr><tr><td>b) Malpighian tubules</td><td>iv) Silkworm</td></tr><tr><td>c) Radula</td><td>i) Pila</td></tr><tr><td>d) Choanocytes</td><td>iii) Sycon</td></tr></table></td><td>½ x 4 =2</td></tr>
<tr><td>14.</td><td>a) – Gout
b) – Arthritis
c) – Tetany
d) – Osteoporosis</td><td>½ x 4 =2</td></tr>
<tr><td>15.</td><td>A – Thalamus
B – Corpora quadrigemina
C – Hindbrain
D – Cerebellum</td><td>½ x 4 =2</td></tr>
<tr><td>16.</td><td>(a) – Glucose / $C_6H_{12}O_6$.
(b) – Alanine.
(c) – Fatty acid / Palmitic acid.
(d) – Glycerol.</td><td>½ x 4 =2</td></tr>
</table>

	PART – III	
	Answer any 3 questions from 17 – 20. Each carry 3 scores	
Qn. No.	**Scoring indicators**	**Marks**
17.	a) – Electrocardiograph / electrocardiogram b) – **QRS – complex** Depolarization or contraction of Ventricle c) – Any deviation in ECG indicates the abnormality of heart. So, it is clinically important.	1+1+1 = 3
18.	i) – Coelentrata eg :- Hydra / Adamsia / Physalia / Pennatula / Gorgonia. ii) – Mollusca eg :- Pila / Pinctada / Sepia / Loligo / Octopus / Aplysia / Dentalium iii) – Arthropoda eg :- Honey bee / Silk worm / Laccifer / Locusta / Limulus iv) – Platyhelminthes eg :- Ascaris (Round worm) /Wuchereria (Filarial worm) / Ancylostoma – Hook worm	1+1+1 =3
19.	a) i) – Hyposecretion of Growth Hormone ii) – Prolonged hyperglycemia due to low level of insulin / Hyposecretion of insulin iii) – Excess secretion of growth hormone in adults / Hypersecretion of growth hormone in adults iv) – Hyposecretion of ADH / Less secretion of ADH. b) Adrenaline and noradrenaline. Gland - Adrenal medulla / adrenal gland .	2 + 1 =3
20.	a) A – Nucleus B – Schwann cells C – Axon D – Synaptic knob b) Unipolar - cell body with one axon only. Bipolar - with one axon and one dendrite. Multipolar -with one axon and two or more dendrites. (Any two types)	2 + 1 = 3