

SET	A/B/C
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**INDIAN SCHOOL MUSCAT**  
**HALF YEARLY EXAMINATION 2022**  
**BIOLOGY**

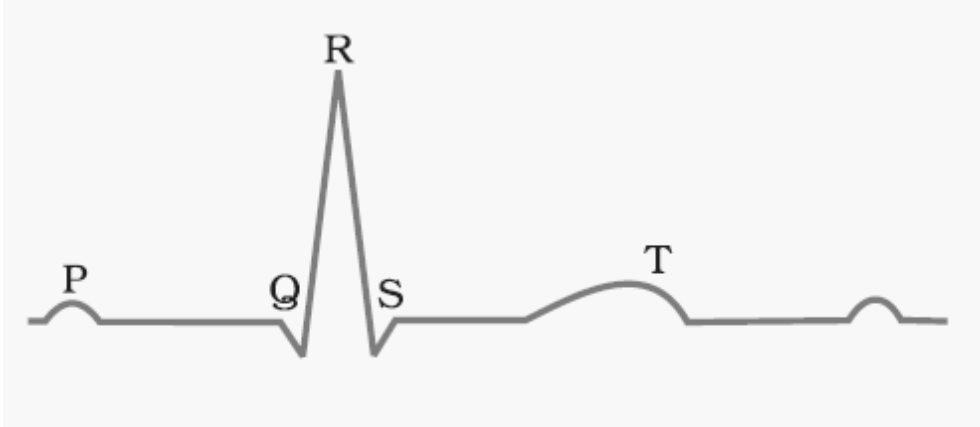
CLASS:XI

Max.Marks: 70

MARKING SCHEME			
SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
A	1	(b) One scientific name consisting of a generic and specific epithet	1
A	2	(d) Only IV	1
A	3	(d) 3 1 2 4	1
A	4	(d) All	1
A	5	(a) Hyphae	1
A	6	(c) Pasteur or (a) D.J Iwanosky	1
A	7	( c) Twice the number of chromosomes and twice the amount of DNA	1
A	8	(a) On grinding, the biomembranes are broken into pieces and form insoluble vesicles	1
A	9	(b) Genetic recombination occurs during meiosis.	1
A	10	(b) Iodine	1
A	11	(b) A double walled membranous pericardium	1
A	12	(c) Larynx	1
A	13	B – A and R are correct but R is not the correction explanation of A	1
A	14	D – A is false R is true	1
A	15	A – A and R are correct R is the correct explanation of A	1
A	16	A – A and R are correct R is the correct explanation of A	1

A	17	The main criteria for classification of organisms into five kingdoms include cell structure, thallus organisation, mode of nutrition, reproduction and phylogenetic relationships. ( for any four)	2						
A	18	<ul style="list-style-type: none"><li>- <i>Gracillaria</i> and <i>Gelidium</i>. 1 m</li><li>- in making ice cream &amp; jelly ½ m</li><li>- to grow microbes ½ m</li></ul>	2						
A	19	Polyps – sessile , cylindrical and no gonads, reproduces asexually. Medusa – free swimming, umbrella like, having gonads, reproduces sexually. For any two points 2 marks	2						
A	20	Somatic neural system – transmit the impulses to skeletal muscles Autonomic neural system – transmit the impulses to smooth muscles and involuntary organs of the body.	2						
A	21	a) acromegaly b) Diabetes insipidus – diuresis 2 m	2						
A	22	The diffusion membrane is made up of three major layers namely, <ul style="list-style-type: none"><li>- the thin squamous epithelium of alveoli</li><li>- the endothelium of alveolar capillaries</li><li>- the basement substance</li><li>- High solubility of Carbon di oxide.</li><li>- Any two factors ( thickness of membrane/solubility ) 6 x ½</li></ul>	3						
A	23	A- Neutrophil – phagocytic/ cells which destroy foreign organisms entering the body B- Monocytes – phagocytic/ cells which destroy foreign organisms entering the body C- Eosionophil – resist infections/ associated with allergic reactions OR Based on the antigens on the surface of RBC Cannot donate. Reason- antibody b ( in plasma of Rajesh’s blood)interact with antigen B ( in Ashish blood). Clumping occurs. Will disrupt blood flow and destroy blood cells. 1+1+1	3						
A	24	Malphigian body – ultra filtration 1m Renal tubules – tubular secretion and tubular reabsorption – 1m Loop of Henle and vasa recta – concentration of urine. ½ each.	3						
A	25	The vertebral column <ul style="list-style-type: none"><li>- protects the spinal cord</li><li>- supports the head and</li><li>- Serves as the point of attachment for the ribs and musculature of the back.</li></ul>	3						
A	26	<table><tr><td>Lysosome</td><td>Golgi apparatus</td><td>Ribosome</td></tr><tr><td>Rich in hydrolytic enzymes.</td><td>Made up of many flat, disc shaped sacs or cisternae.</td><td><ul style="list-style-type: none"><li>· Involved in protein synthesis.</li><li>· Membrane is absent.</li></ul></td></tr></table>	Lysosome	Golgi apparatus	Ribosome	Rich in hydrolytic enzymes.	Made up of many flat, disc shaped sacs or cisternae.	<ul style="list-style-type: none"><li>· Involved in protein synthesis.</li><li>· Membrane is absent.</li></ul>	3
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		1 X 3	
A	27	(a) Fluid mosaic model. (b) Lipids/Phospholipids (c) Integral proteins, Peripheral or extrinsic proteins. 3 X 1	3
A	28	a) Bryophyta b) Pteridophyta c) Gymnosperms  OR Diploblastic – two embryonic germ layers Acoelomates – no body cavity Aves – forelimbs are modified into wings/ presence of air cavity 3 X 1	3
A	29	i) Definition – 1m ii) Neural system – sends signals by neuron at specific sites/quick Endocrine system – by hormones/slow one point each 1 m iii) Medulla- respiratory rhythm centre iv) Acetyl choline – for depolarization of muscle membrane( sarcolemma) OR Neural junction 1 m electrical and chemical synapse – 1m	4
A	30	i) Mitochondria 1m ii) Any two differences 2 m iii) Both are double membranous OR They have their own DNA and 70s Ribosomes.	4
A	31	<ul style="list-style-type: none"> <li>The adrenal cortex can be divided into three layers, called zonareticularis (inner layer), zona fasciculata (middle layer) and zona glomerulosa (outer layer). 1 ½</li> <li>The adrenal cortex secretes many hormones, commonly called as corticoids. ½ <ul style="list-style-type: none"> <li>Glucocorticoids – cortisole – carbohydrate metabolism 1 ½</li> <li>Mineralocorticoids – aldosterone – balance of water and minerals 1 ½</li> </ul> </li> </ul> OR Based on the number of axon and dendrites, the neurons are divided into three types <ul style="list-style-type: none"> <li>multipolar - with one axon and two or more dendrites; found in the cerebral cortex 1 ½ m</li> <li>bipolar - with one axon and one dendrite, found in the retina of eye 1 ½ m</li> <li>Unipolar - cell body with one axon only; found usually in the embryonic stage. 1 ½ m</li> </ul> node of Ranvier ½ m	5

A	32	<ul style="list-style-type: none"> <li>- A neurotransmitter (acetylcholine) causes the release of calcium ions into the sarcoplasm of a muscle fibre on receiving a signal.</li> <li>- Increase in <math>\text{Ca}^{2+}</math> level leads to the binding of calcium with a sub-unit of troponin on actin filaments.</li> <li>- Utilising the energy from ATP hydrolysis, the myosin head now binds to the exposed active sites on actin to form a cross-bridge.</li> <li>- This pulls the attached actin filaments towards the centre of A-band. The Z-line attached to these actins are also pulled inwards thereby causing a shortening of the sarcomere, i.e. contraction.</li> <li>- When <math>\text{Ca}^{++}</math> ions are pumped back to the sarcoplasmic cisternae resulting in the masking of actin filaments. This causes the return of 'Z' lines back to their original position, i.e., relaxation.</li> </ul> <p><math>5 \times 1 = 5\text{m}</math></p> <p style="text-align: center;">OR</p>  <p>P wave - depolarisation of atria  QRS wave - depolarisation of ventricles  T wave - repolarisation of ventricles <math>2 + 3\text{m}</math></p>	
A	33	<p>Mitosis – <math>\frac{1}{2}\text{m}</math>  Karyokinesis – Prophase/Metaphase/anaphase/ Telophase with one point each - 4 mark  Cytokinesis in either plant or animals- <math>\frac{1}{2}\text{m}</math>  OR  Oxidoreductases/dehydrogenases/Transferases/Hydrolases/Lyases/Isomerases/Ligases ( for any 5 ) <math>5 \times 1\text{m}</math></p>	5

**SET - B UNCOMMON QUESTIONS AND ANSWERS**

SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
B	3	(b) Aminoacids	1
B	5	(a) Platyhelminthes	1
B	9	(b) 4	1
B	10	(a) Chrysophytes	1
B	18	<ul style="list-style-type: none"> <li>- as fuel</li> <li>- as packing material for trans-shipment of living material, as it has water holding capacity.</li> </ul>	2
B	21	<ul style="list-style-type: none"> <li>● Bacteria can have shapes like : Coccus (spherical), Bacillus (rod-shaped), Vibrium (comma shaped) and spirillum (spiral shaped).</li> </ul>	2
B	22	True ribs/ false ribs/ vertebr chondral ribs( with ribs numbers) 3m	3
B	23	<p>PCT is lined by simple cuboidal brush border epithelium which increases the surface area for reabsorption. – 1m</p> <ul style="list-style-type: none"> <li>- Involved in absorption of nutrients, electrolytes and water – 1m</li> <li>- to maintain the pH and ionic balance of the body fluids by selective secretion of hydrogen ions, ammonia and potassium ions into the filtrate and by absorption of HCO<sub>3</sub> from it.- 1m</li> </ul>	3
B	27	<p>As carboxy hemoglobin 1m</p> <p>As bicarbonate – 1m</p> <p>Role of carbonic anhydrase -1m</p>	3
B	31	<ul style="list-style-type: none"> <li>- acts as both exocrine and endocrine gland – 1m</li> <li>- islets of Langerhans – 1m</li> </ul>	5

		<p>- <math>\alpha</math> cells and <math>\beta</math> cells – 1m</p> <p><math>\alpha</math> cells</p> <p>Secretes – Glucagon –increases blood sugar– <math>\frac{1}{2}</math> + <math>\frac{1}{2}</math> m</p> <p><math>\beta</math> cells</p> <p>secrete insulin - decreases blood glucose levels (hypoglycemia) <math>\frac{1}{2}</math> + <math>\frac{1}{2}</math> m</p> <p>OR</p> <p>- controls the voluntary movements</p> <p>- balance of the body</p> <p>- functioning of vital involuntary organs (e.g., lungs, heart, kidneys, etc.)</p> <p>- thermoregulation</p> <p>- hunger and thirst</p> <p>- circadian (24-hour) rhythms of our body</p> <p>- activities of several endocrine glands and human behavior</p> <p>- site for processing of vision, hearing, speech, memory, intelligence, emotions and thoughts. ( for any 5 points)</p>	
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**SET - C UNCOMMON QUESTIONS AND ANSWERS**

MARKING SCHEME			
SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
C	4	(d) Thymine	1
C	8	(C) Pellicle	1
C	9	(d) Porifera	1
C	12	(b) Deuteromycetes	1
C	18	Gametophytes/ Sexually 1 m Two kinds of spores 1m	2
C	21	<p>-Halophiles (salt-loving)</p> <p>- Thermoacidophiles (in hot springs)</p> <p>- Methanogens (in marsh and in gut of ruminant animals. Produce methane gas.)</p>	2

C	22	changes in blood volume/ body fluid volume /ionic concentration 1 ½ acts on hypothalamus to release ADH ½ ADH – acts on DCT to reabsorb water / prevents diuresis 1m	3
C	26	Humerus Ulna and radius Carpels Meta carpels and phalanges 6 X ½	3
C	28	Emphysema Alveolar wall damaged Decrease in respiratory surface. 1 m each.	3
C	33	Prophase I Pachytene- chromosome condensation/ Zygotene- synapsis/pachytene- recombination nodule//crossing over/ Diplotene- Chiasmata/ Diakinesis- terminalisation 5 X 1m OR Structure polysaccharides – cellulose/chitin ½ m Storage polysaccharides – Glycogen/Starch/inulin ½ m Cellulose – cell wall of plant cell ½ m Chitin – exoskeleton of insect; fungus cell wall ½ m Glycogen – stored in animals ½ m Starch – stored in plants / made up of glucose units ½ m Inulin – made up of fructose ½ m With iodine Starch – forms helices/ forms blue black colour – 1m Cellulose – does not have helices/ no color change – 1m	5