

SET	A/B/C
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INDIAN SCHOOL MUSCAT
FINAL EXAMINATION 2023
BIOLOGY (044)

CLASS: XI

Max.Marks: 70

MARKING SCHEME			
SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
A	1	A sporophyll	
	2	A Heterocyst	
	3	D cytokinin	
	4	B A.Quaternary structure B. four	
	5	C pleura	
	6	C bundles are open and conjoint	
	7	D cylindrical, striated, syncytial and unbranched	
	8	B 8	
	9	C spraying sugarcane crops with GA3 makes the internodes shorter and thicker.	
	10	C. order and phylum	
	11	A Hinge joint-between Humerus and Pectoral girdle	
	12	A. Pons and medulla oblongata	
	13	A	
	14	A	
	15	C	
	16	A	
		SECTION B	

17	Ascomycetes Growing on dung	1+1
18	Conversion of glucose to 2 molecules of pyruvic acid. Cytoplasm Invertase	1+ ½ + ½
19	Increase in body mass taken as a criterion, non living things also grow. Single celled organisms have growth and reproduction interrelated/ many living organisms do not reproduce. OR Botanists assign a scientific name to a plant, based on certain principles and criteria. The scientific name ensures that the plant has only one name, in any part of the world, it also ensures that such a name has not been used for any other known plant.	1+1
20	1-C 2-D 3-B 4-A	½ x 4
21	Starch-hold 12 molecules in its helical portion and is blue. Paper made of cellulose does not contain complex helices and hence cannot hold 12.	1+1
	SECTION C	
22	Fall in GFR-JG cells – renin. Renin converts Angiotensinogen into Angiotensin I and angiotensin II. Constrict the blood vessel and increases the glomerular blood pressure and GFR. (Consider aldosterone mechanism as well)	1+1+1
23	High intensity of light and high oxygen concentration. Neither synthesis of sugars nor of ATP. Releases carbon dioxide with the utilisation of ATP.	1+1+1
24	a) During cardiac cycle each ventricle pumps 70ml of blood – stroke volume. Volume of blood pumped out by each ventricle per minute and averages 5l – cardiac output. b) Hypertension/CAD/ angina/ heart failure (any one)	1+1+1
25	a) Calyx – imbricate/ corolla – valvate (1+1) b) Axile . china rose, tomato, lemon (½ + ½)	3
26	a) Forelimbs modified into wings b) Pneumatic bones c) Air sacs connected to lungs d) Stream lined body e) Presence of feathers f) Tail for changing direction g) Oil glands (any 3) OR The members of phylum chordata is characterised by the presence of notochord. The members of sub phylum vertebrata possess notochord during the	1+1+1

		embryonic period. The notochord is replaced by a cartilagenous or bony vertebral column in the adult. Thus all vertebrates are chordates but all chordates are not vertebrates.	
27		Chloroplast. $\frac{1}{2}$ Chromoplast and Leucoplast. 1 Chromoplast – store coloured pigments 1 Leucoplast – colourless plastid and store substances. $1 \frac{1}{2}$ Amyloplast – starch Elaioplast – oil Aleuroplast – protein	3
28		The inner parts of cerebral hemispheres and a group of associated deep structures like amygdala, hippocampus etc form a complex structure called the limbic lobe or limbic system. 1 Involved in the regulation of sexual behaviour/ expression of emotional reactions/ motivation. 1+1	3
		SECTION D	
29		a) Paramoecium b) Slime mould c) Dinoflagellate/ gonyaulux d) B	1+1+1
30		a) Fruits formed without fertilization 1 b) Epicarp, mesocarp and endocarp/ mesocarp $\frac{1}{2} \times 4$ c) Drupe 1	1+2+1
		SECTION E	
31		Complete cycle – 4 marks Hatch and Slack pathway $\frac{1}{2}$ Kranz anatomy $\frac{1}{2}$ mark OR Complete cycle – 5 marks	4+1
32		<ul style="list-style-type: none"> • Ion channels are present in neural membrane which is selectively permeable to different ions. When neuron is not conducting impulse (resting), axonal membrane is more permeable to K⁺ ions and impermeable to Na⁺ ions. • Ionic gradient across the resting membrane is maintained by active transport of ions by sodium-potassium pump. This will develop positive charge outside the axonal membrane and negative charge on inner side. • The electrical potential difference across the resting membrane is called resting potential. • When stimulus is applied at site A, the membrane becomes permeable to Na⁺ ions to make rapid influx of Na⁺ ions to create outer surface negatively charged and inner membrane positively charged that create Action Potential or nerve impulse. • The nerve impulse from A moves to B in inner surface and B to A 	

		<p>on outer surface. This process is repeated several times to transmit the impulse.</p> <ul style="list-style-type: none"> Nerve impulse is transmitted from one neuron to another neuron through synapse. <p style="text-align: center;">OR</p> <p>Cardiac cycle – 4 marks Lub – closure of tri and bi cuspid valves ½ Dub – closure of semilunar valves ½</p>	
	33	<p>Prophase I is divided into 5 distinctive sub-stages:</p> <p>Leptotene – The chromosomes begin to condense and are attached to the nuclear membrane via their telomeres</p> <p>Zygotene – Synapsis begins with a synaptonemal complex forming between homologous chromosomes</p> <p>Pachytene – Crossing over of genetic material occurs between non-sister chromatids</p> <p>Diplotene – Synapsis ends with disappearance of synaptonemal complex; homologous pairs remain attached at chiasmata</p> <p>Diakinesis – terminalisation of chiasmata</p> <p style="text-align: center;">OR</p> <p>a) Ribosome/ George Palade ½ + ½ b) RNA and protein ½ + ½ c) 70S and 80 S / prokaryotes and eukaryotes 2 d) Polysome 1</p>	

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SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
B	1	B	
	2	C	
	3	A	
	4	A	
	5	C	
	6	A	
	7	A	
	8	C	
	9	C	
	10	C	
	11	A	
	12	A	
	13	C	
	14	D	
	15	A	
	16	A	
		SECTION B	

	17	Fatty acid to Acetyl CoA Glycerol - PGAL	1+1
		SECTION C	
	22	a) Disc shaped structures on the sides of centromere for the attachment of spindle fibres. b) Synthesis of lipids c) Centromere at the centre forming equal arms	1+1+1
	24	Occurs when PS I only is functional. It occurs in the stroma lamellae where enzyme NADP reductase is absent and PSII is also absent.	3
	25	Both microspores and megaspores are produced. Salvinia , Selaginella OR Coelom is lined by mesoderm. (i) Platyhelminthes (ii) Aschelminthes	1+1+1
	26	Juxta Glomerular Apparatus $\frac{1}{2}$ Formed by cellular modifications in the distal convoluted tubule and the afferent arteriole at the location of their contact. 1 When GFR falls, $\frac{1}{2}$ JG cells secrete Renin $\frac{1}{2}$ and stimulate the glomerular blood flow and thereby the GFR back to normal. $\frac{1}{2}$	3
	27	A – synaptic vesicles B – neurotransmitters C – synaptic cleft D - synaptic membrane E – ion channels F- post-synaptic neuron	3

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SET	QN.NO	VALUE POINTS	MARKS SPLIT UP
C	1	C	1
	2	A	1
	3	B	1
	4	D	1
	5	A	1
	6	C	1
	7	A	1
	8	A	1
	9	B	1
	10	A	1
	11	A	1
	12	C	1
	13	A	1
	14	A	1
	15	B	1
	16	D	1
		SECTION B	

	20	Proteins would be degraded by proteases and the individual aminoacids depending on their structure would enter the pathway at some stage within Kreb's cycle or even as pyruvate or acetyl CoA.	2
		SECTION C	
	23	<p>A – synaptic vesicles</p> <p>B – neurotransmitters</p> <p>C – synaptic cleft</p> <p>D - synaptic membrane</p> <p>E – ion channels</p> <p>F- post-synaptic neuron</p>	½ x 6
	24	Any three differences	3x1
	25	Renin-angiotensinogen to angiotensin I and angiotensin II. Vaso constrictor/aldosterone-reabsorption of Na ⁺ and water from the distal parts of the tubule.Increase GFR	3x1
	26	<p>a) Primary wall, middle lamella, secondary wall (½ x 3)</p> <p>b) Cellulose, galactans, mannans (½ x 3)</p>	3
	28.	<p>a) They have fucoxanthin in addition to chl a,c.</p> <p>b) Ectopus, dictyota, laminaria, sargassum, fucus (any two)</p> <p>c) mannitol, laminarin</p>	1+ ½ + ½ + ½ + ½