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ANSWER KEY

FIRST YEAR HIGHER SECONDARY EXAMINATION SEPTEMBER 2021

PART- III

BIOLOGY

PART II - ZOOLOGY

CODE NO: FY 226

30 SCORES **I HOUR**

Qn. No.	Sub Qns/ Divisions	Answer Key/Value Points	Score	Total Score
I		**Answer any 3 questions from 1-6. Each carries 1 score**		
1		Lub: Closure of cuspid valves/AV valves/ventricular activity Dub: closure of semilunar valves/ventricular activity One correct response - Full score (1)	½ ½	1
2	a b	Cnidoblast/Cnidocytes/Stinging capsule/ nematocyte Capture of prey/defence/offence/anchorage One correct response to question divisions a/b -Full score(1)	½ ½	1

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3	a b	Corpus callosum Corpora quadrigemina One correct response to q. divisions a/b – Full score (1)	½ ½	1
4		Emphysema	1	1
5		Ommatidia:Sense organ Cardiac tissue: Intercalated disc One correct pair - Full score (1)	½ ½	1
6		Shows relationship between temperature & enzyme action/effect of temperature on enzyme action/ enzyme action is highest at optimum temperature/enzyme action is lowest at minimum temperature /high temperature above optimum denatures enzyme/ enzyme activity declines above or below the optimum temperature/enzyme activity varies according to changes in temperature /parabolic graph related to enzyme action One relevant response – Full score	1	1
II		**Answer any 9 question from 7 to 24, each carries 2 score**		
7	a b c d	ADH/Antidiuretic hormone/vasopressin Thyroid Hormones Thyroid hormones/ Thyroxines /T 4 / T3/ Tetraiodothyronine/Triiodothyronine Insulin Two correct response from question divisions a/b/c/d - Full score (1+1)	½ ½ ½ ½	2

8	a	Ball and socket joint /Hinge joint /pivot joint/Saddle joint/Gliding joint / or their examples Two correct points- 1 score	1	
	b	Actin /Myosin/ Troponin/ Tropomyosin/ F actin/ G actin/Heavy meromyosin(HMM)/ Light meromysin (LMM)/ Myoglobin Two correct points- 1 score	1	2
9		Diphyodont – Two sets of teeth/Milk teeth (Temporary or deciduous) and permanent teeth *Heterodont- Different types of teeth/ four* types of teeth/incisors (i), canines (c),premolars (pm),molars (m)/ dental formula	1 1	2
10	a	Sexual dimorphism/ dioecious/ unisexual/ sexes separate	1	2
	b	Male Cockroach — Female cockroach Narrow abdomen — Broad abdomen Anal style present — Anal style absent *One difference from each - 1 score*	1	
11	a	DCT/ decreased reabsorption of water/ reabsorption of Na^+, water/ sensible comment on osmoregulation, renal reabsorption/ counter current mechanism	½	2
	b	Adrenal gland/ adrenal cortex	½	
	c	Pituitary/ posterior pituitary/ hypothalamus/ hypophysis/ pars nervosa	½	
	d	PCT/increased reabsorption of water/ antidiuresis/ sensible comment on osmoregulation , renal reabsorption/ counter	½	

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		current mechanism Two correct responses from question divisions a/b/c/d - 2 score		
12	a b c d	radula bioluminescence/ light emission Metagenesis Pneumatic /spongy bones	½ ½ ½ ½	2
13		Monograph- information of any one taxon *Flora- index to plant species in an area* Botanical garden- specialised garden with collection of living plants Museum – collection of preserved plants and animals Two correct pair (by drawing/ writing/ numbering) - Full score (1+1)	½ ½ ½ ½	2
14		A . *Hepatic caeca/ gastric caeca* Function: Digestive gland/ help in digestion/secrete digestive enzymes B. Malpighian tubules Function: Excretory organ of cockroach/waste removal/removal of nitrogenous waste/ osmoregulation	½ ½ ½ ½	2
15		Proximal convoluted tubule → Henles loop → Distal convoluted tubule → collecting duct Flow chart begins with PCT and ends in collecting duct - 2 score	½ x4	2

16	a b c d	Mucosa/ inner most layer of alimentary canal C.S Submucosa / inner layer of alimentary canal C.S Lumen/ gut/ alimentary canal Serosa/ outer most layer of alimentary canal C.S Two correct responses from question divisions a/b/c/d - Full score (1+1)	½ x 4	2
17		Fore limb - Humerus , carpals Hind limb - Tibia, fibula	1 1	2
18	a b c d	Adrenalin and noradrenalin/ epinephrine and norepinephrine/ fight or flight hormones/ cate cholamines/ emergency hormones/ adrenal medullary hormones/ stress hormones Fight/flight hormones/ catecholamines/ emergency hormones/ stress hormones Adrenal gland/adrenal medulla Anterior part of kidney/ above the kidney/ near the kidney/ adjacent to the kidney Two correct responses from question divisions a/b/c/d- Full score (1+1)	½ ½ ½ ½	2
19	a	A. SAN/SA node/ sino atrial node/ pace maker/ nodal tissue/ specialised cardiac tissue/ conducting system of heart B. AV node/ atrioventricular node/ AVN/ specialised cardiac tissue/ conducting system	1	

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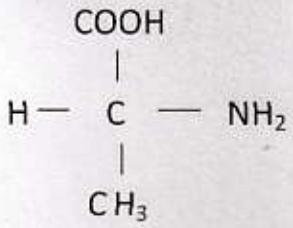
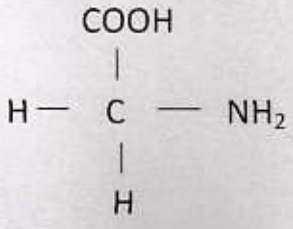
		of heart		2
	b	A / SAN Generate action potential/ responsible for maintaining rhythmic contractile activity of heart/ generate impulse on heart/ initiate and maintain heart beat One correct response (either from a/b) - 2 score	1	
20		Spongilla - Porifera/ Sponges Ctenoplana - Ctenophora/ Sea walnut/ Comb jelly Laccifer - Arthropoda/ insecta Calotes - Reptilia/ chordata/ vertebrata / tetrapoda Two correct response – 1+1= 2 score	½ ½ ½ ½	2
21	a	 	1	2
	b	 One correct structure – 2 score/ A structure that shows correct functional group – 2 score	1	

22		Signal from CNS ⟶ motor neuron ⟶ neuro muscular junction ⟶ motor end plate ⟶ release of neuro transmitter ⟶ acetyl choline ⟶ generation of action potentional in sacrolemma ⟶ release of calcium ions ⟶ binding of calcium with troponin ⟶ remove the masking of active site for myosin ⟶ utilizing energy from ATP ⟶ Myosin binds to actin ⟶ formation of cross bridges or Flow chart starts with CNS or motor neuron or neuro muscular junction or motor end plate ;⟶ ; ⟶ ; ⟶ ; ⟶ ; ends in; myosin binds to actin or formation of cross bridge . (Through the relavant points like myosin,actin, acetyl choline , sarcolemma , calcium ions, ATP , energy etc in the chart) Flow chart with minimum 4 points in correct sequence –2 score	2	2
23		A. Chondrichthyes/cartilaginous fish/ shark/ dogfish/ marine fish B. Osteichthyes/ bony fish/ catla/ fresh water fish One point from A and B Differences A B * Marine * Fresh water * Cartilagenous endo skeleton * Bony endo skeleton * Mouth ventral * Mouth terminal	½ ½ 1	2

		* Placoid scale * Ctenoid/cycloid scale * Operculum absent * Operculum present * Air bladder absent * Air bladder present (May consider other relevant differences) Two correct points (or one pair) from A & B -1 score		
24	a b c d	Hydra/star fish Shark Spongilla Star fish/hydra	½ ½ ½ ½	2
III 25	a b	**Answer any 3 questions from 25 to 30. Each carries 3 score** Electro cardio gram/ electro cardio graph/ graphical representation of electrical activity of heart/ an instrument to detect the working of heart/ shows electrical activity of heart Correct labelled diagram – 2 score or Correct expression to P, QRS and T waves as : P-depolarisation of atria QRS- depolarisation of ventricles T- repolarisation of ventricles 2 score Unlabelled diagram with 3 peaks- 1 score	1 2	3
26	a b	Apo enzyme Prosthetic group Eg: Haem Coenzyme Eg: NAD,NADP	1 1	

		Metalions Eg: Zinc (or other examples) cofactor + eg/ 2 cofactors/ 2 eg – 1 score		3
	c	Catalytic activity loses / stops/ declines/ ceases Correct responses a & b – 3 score	1	
27	a	Ctenophora- comb plates/ biolumniscence	½	3
	b	Echinodermata- Spiny skin/ calcareous ossicles/ radial symmetry/ water vascular system	½	
	c	Mammalia- Mammary gland/ pinna/ hairs/ different types of teeth	½	
	d	Chordata- Notochord/ dorsal hollow nerve cord/ paired pharyngeal gill slits/ post anal tail	½	
	e	Annelida- Rings/ annulus/ metameres nephridia/ Segments	½	
	f	Arthropoda- Jointed appendages/ malpighian tubles Three correct responses on a to f (salient character also) get 3 score (1+1+1=3)	½	
28	a	Oxygen dissociation curve/ sigmoid curve for oxygen transport/ oxygen haemoglobin relationship	1	3
	b	Temperature , PCO_2, H^+ conc. Useful to study the effect of PCO_2, H^+ conc.	1	
	c	etc on binding of oxygen with haemoglobin Correct response a+b/ a+c- 3 score (1 ½ +1 ½)	1	
29	a	Receptor → afferent neuron → inter neuron in spinal cord → motor neuron → effector organ Four correct sequence 2 scores	2	3
	b	Knee jerk action (other examples of simple	1	

		reflex)/ reflex action/ reflex arc		
30	*	Tight junction/ help to stop leakage of substances across a tissue	1	
	*	Adhering junction/ cement neighbouring cells together	1	3
	*	Gap junction/ communication between adjacent cells Name of 3 cell junctions – 3 score (1+1+1) or 3 Functions – 3 score (1+1+1) or Three relevant points based on the question – 3 score	1	

MEMBERS OF SCHEME FINILIZATION

	PEN NO.	NAME	PH.NO	NAME	PH.NO.
1	195779	REEBA P R	9846889593	15. MANOJ M.C	9846505145
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3.	155357	RENJITH D	9447555978	17. SANDHYA S.R	9446469702
4.	158155	SATHYAJITH K.Y	9447479997	18. PRASEEDA K.	8281420655
5.	630923	GOPAKUMAR C	9656240321	19. ABOOBACKER P.P	9447011120
6.	410881	MELVIN DAS	9447569584	20. SREELATHA KUNJAMMA	9496211969
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8.	411074	ANIL ANTONY THERATTIL	9446761338		
9.	704070	RAJESH KUMAR R	8281493163		
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11.	232100	SHAJINA M	9495804703		
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