FIRST YEAR HIGHER SECONDARY EXAMINATION, SEPTEMBER 2021

UNOFFICIAL ANSWER KEY

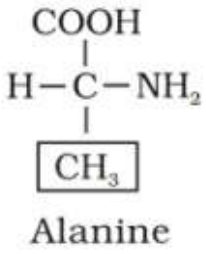
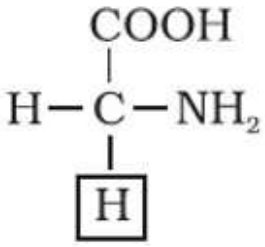
ZOOLOGY

<table>
<tr><th>Qn No.</th><th>Scoring key</th><th>Score</th></tr>
<tr><td colspan="3">I Answer any 3 questions from 1 to 6. Each carries 1 score</td></tr>
<tr><td>1</td><td>
<table>
<tr><th>Heart Sound</th><th>Caused due to</th></tr>
<tr><td>Lab(Question error, its LUB)</td><td>Closure Of AV valves/Tricuspid and bicuspid valves/Ventricular systole</td></tr>
<tr><td>Dub</td><td>Closure of Semilunar valves/ Ventricular diastole</td></tr>
</table>
</td><td>0.5
0.5</td></tr>
<tr><td>2</td><td>a)Cnidoblast
b)Functions:
Defence/Capture of prey/Anchorage (Any one)</td><td>0.5
0.5</td></tr>
<tr><td>3</td><td>a)Corpus callosum
b)Corpora quadrigemina</td><td>0.5
0.5</td></tr>
<tr><td>4</td><td>Emphysema</td><td>1</td></tr>
<tr><td>5</td><td>Ommatidia : Sense Organs
Cardiac tissue: Intercalated disc</td><td>0.5
0.5</td></tr>
<tr><td>6</td><td>It’s a graph showing the relationship between temperature and Enzymatic action/ Graph shows effect of temperature on enzymatic action/ Graph shows optimum temperature of Enzymatic action/ Low temperature preserves the enzymes in a temporarily inactive state whereas high temperature destroy enzyme activity because proteins are denatured by heat. (any one)</td><td>1</td></tr>
<tr><td colspan="3">II Answer any 9 questions from 7 to 24. Each carries 2 score</td></tr>
<tr><td>7</td><td>a)ADH/Antidiuretic hormone/Vasopressin
b) (Question error: Grave’s disease due to hyperthyroidism. Its not a deficiency disorder)
c)Thyroid Hormones / Thyroxines / T4 / T3 / Tetraiodothyronine /Tri iodothyronine : (Spelling error in question paper, its Cretinism)
d)Insulin</td><td>0.5
0.5
0.5
0.5</td></tr>
<tr><td>8</td><td>a)Ball and socket joint, Hinge joint, Pivot joint, saddle joint,Gliding joint (any two)
b)Actin,Myosin,Troponin.Tropomyosin ,Myoglobin,(Any two)</td><td>0.5+0.5
0.5+0.5</td></tr>
<tr><td>9</td><td><u>Diphyodont:</u> human beings forms two sets of teeth during their life, a set of temporary milk or deciduous teeth replaced by a set of permanent or adult teeth
<u>Heterodont :</u> Humans have four different types of teeth like</td><td>1</td></tr>
</table>

<table>
<tr><td></td><td>incisor,canines,premolar and molar/Humans have different types of teeth</td><td>1</td></tr>
<tr><td>10</td><td>a)Sexual dimorphism
b)(Any one difference)
<table>
<tr><th>Male Cockroach</th><th>Female cockroach</th></tr>
<tr><td>Wings extend beyond the tip of the abdomen</td><td>Wings extend upto abdomen</td></tr>
<tr><td>Anal style present</td><td>Anal style absent</td></tr>
<tr><td>Abdomen long and narrow</td><td>Abdomen broad</td></tr>
</table></td><td>1

1</td></tr>
<tr><td>11</td><td>a)Decrease Reabsorption of water(Key copied from hand teachers book)/Reabsorption of Na+ and Water from the distal part of nephrons
b)adrenal gland/Adrenal cortex
c)Pituitary gland/Posterior pituitary/Neurohypophysis/Pars nervosa
d)Increases Reabsorption of water/Prevent Diuresis/Constrictory effect on blood vessel</td><td>0.5
0.5
0.5
0.5</td></tr>
<tr><td>12</td><td>a)Radula
b)Bioluminescence
c)metagenesis
d)Pneumatic bone</td><td>0.5
0.5
0.5
0.5</td></tr>
<tr><td>13</td><td>• Index to plant species found in an area-Flora
• Specialised garden with collection of living plants-Botanical Garden
• Collection of preserved plants and animals-Museum
• Information of any one taxon-Monograph</td><td>0.5
0.5

0.5
0.5</td></tr>
<tr><td>14</td><td>A-Hepatic caeca/Gastric caeca
Function: It’s a digestive gland/It secrete digestive juice
B-Malpighian Tubule
Function: Excretory organ of cockroach</td><td>0.5
0.5
0.5
0.5</td></tr>
<tr><td>15</td><td>Bowman’s capsule-Proximal convoluted tubule-Henle’s loop-Distal convoluted tubule-Collecting duct</td><td>0.5×4=2</td></tr>
<tr><td>16</td><td>a)Mucosa
b)Sub mucosa
c)Lumen
d)Serosa</td><td>0.5
0.5
0.5
0.5</td></tr>
<tr><td>17</td><td>
<table>
<tr><th>Bones in Forelimb</th><th>Bones in Hindlimb</th></tr>
<tr><td>Humerus</td><td>Tibia</td></tr>
<tr><td>carpals</td><td>Fibula</td></tr>
</table></td><td>0.5+0.5
0.5+0.5</td></tr>
<tr><td>18</td><td>a)Adrenaline and nor adrenaline/Epinephrine and nor epinephrine</td><td>0.5</td></tr>
</table>

	/Fight or flight hormone/Catacholamines/emergency hormones/ adrenal medullary hormones b) Fight or flight hormone/Catacholamines/emergency hormones c)Adrenal gland/Supra renal gland/Adrenal medulla d)Anterior part of each kidney/above kidney	 0.5 0.5 0.5
19	a)A-SAN/Sino-atrial node/Pacemaker/Heart of heart B-AVN/Atrio-ventricular node b)SAN is called pace maker because SAN can generate 70-75 min^{-1} action potential and is responsible for initiating and maintaining the rhythmic contractile activity of heart.	0.5 0.5 0.5+0.5
20	• Spongilla= Phylum Porifera • Ctenoplasa (Question spelling error, its ctenoplana)=Phylum Ctenophora • Laccifer=Phylum Arthropoda • Calotes=Class Reptilia/Phylum Chordata	0.5 0.5 0.5 0.5
21	a)  Alanine b)  Glycine	1 1
22	Signal for muscle contraction sent by central nervous system (CNS) via motor neuron-→Neural signals reached the neuromuscular junction/motor-end plate-→Release of neurotransmitter (Acetyl choline)--→generation of action potential in the Sarcolemma--→Action potential spread through the muscle fibre causes the release of calcium ions into the sarcoplasm--→ calcium ion binds with a subunit of troponin on actin filament and thereby remove	2

	the masking of active sites for myosin-→utilising the energy from ATP hydrolysis, the myosin head now binds to the exposed active sites on actin to form cross bridge	
23	A-Shark/Chondrichthyes B-Catla/Osteichthyes	0.5 0.5 0.5 0.5

Class – Chondrichthyes	Class – Osteichthyes
They are marine animals	It includes both marine and fresh water fishes
They have cartilaginous endoskeleton	They have bony endoskeleton.
Mouth is located ventrally	Mouth is mostly terminal
Gill slits are separate and without operculum (gill cover).	They have four pairs of gills which are covered by an operculum on each side
The skin minute placoid scales	Skin is covered with cycloid/ctenoid scales
Air bladder absent	Air bladder is present
many of them are viviparous	They are mostly oviparous

(any two difference)

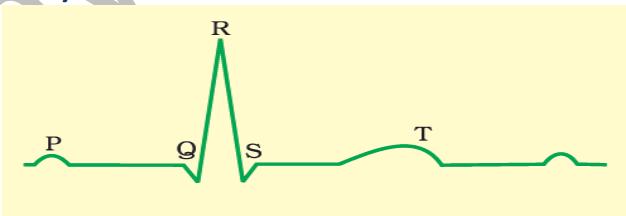
24	Asymmetry	Radial symmetry	Bilateral symmetry	0.5×4=2
	c)Spongilla	a)Hydra/Star fish d) Star fish/ Hydra	b)Shark (Larva of starfish is bilateral)	

III Answer any 3 questions from 25 to 30. Each carries 3 score

25

a) Electro-cardiograph/ electrocardiogram /ECG is a graphical representation of the electrical activity of the heart during a cardiac cycle. /Electro-cardiograph is a machine is used to obtain an electrocardiogram (ECG). — 0.5

b)



Diagrammatic presentation of a standard ECG — 1

- **The P-wave**

It represents the electrical excitation (or depolarisation) of the atria, which leads to the contraction of both the atria. — 1.5

	• **The QRS complex** It represents the depolarisation of the ventricles which initiates the ventricular contraction. • **The T-wave** It represents the return of the ventricles from excited to normal state (repolarisation).	
26	a)Apoenyme b) **i)Prosthetic group** • They are organic compounds and are distinguished from other cofactors in that they are tightly bound to the apoenzyme. **Example:** • in peroxidase and catalase, which catalyze the breakdown of hydrogen peroxide to water and oxygen, haem is the prosthetic group and it is a part of the active site of the enzyme. **ii)Co-enzymes :** They are also organic compounds but their association with the apoenzyme is only transient, usually occurring during the course of catalysis. Examples Coenzyme nicotinamide adenine dinucleotide (NAD) and NADP **iii)Metal ions :** A number of enzymes require metal ions for their activity which form coordination bonds with side chains at the active site and at the same time form one or more cordination bonds with the substrate, Examples zinc is a cofactor for the proteolytic enzyme carboxypeptidase. (Mention any two kinds of cofactor with examples) c)Catalytic activity is lost when the co-factor is removed from the enzyme	0.5 0.5 0.5 0.5 0.5 0.5
27	a)Presence of ciliated comb plate (Greek ctene, or "comb" and phora, or "bearer"- this Greek terms Not explained in Text book) b)These animals have an endoskeleton of calcareous ossicles and hence the name Echinodermata/Spiny bodied c)Presence of milk producing mammary gland d)Presence of notochord e)In Latin ,annulus : liitle ring/Their body surface is distinctly marked out into segments or metamere /metamerically segmented body	0.5 0.5 0.5 0.5 0.5

	f)Arthros-Joint, Poda-appendages/ They have jointed appendages	0.5
28	a) Oxygen dissociation curve/The graph shows the relation between pO2 and percentage saturation of haemogloin with oxygen/ b)Po2/pCO2/Temperature/pH/H+ (Write any 3) c) It is highly useful in studying the effect of factors like pCO2, H+ concentration, etc., on binding of O2 with haemoglobin.	1 0.5+0.5 1
29	a)Receptor-Afferent neuron-Interneuron in spinal cord-Motor neuron-Effector organ b)Any one example	2.5 0.5
30	Question error, its name and comment on the different types of cell junctions <u>i) Tight junctions:</u> Tight junctions help to stop substances from leaking across a tissue. <u>ii) Adhering junctions</u> it perform cementing to keep neighboring cells together. <u>iii) Gap junctions</u> it facilitate the cells to communicate with each other by connecting the cytoplasm of adjoining cells, for rapid transfer of ions, small molecules and sometimes big molecule	 1 1 1