DIRECTORATE OF GOVERNMENT EXAMINATION, CHENNAI – 6
HIGHER SECONDARY FIRST YEAR PUBLIC EXAMINATION – MARCH – 2025
ZOOLOGY KEY ANSWER
PART – III ZOOLOGY

Maximum Marks: 70

NOTE: Answer written only in BLACK or BLUE should be evaluated.

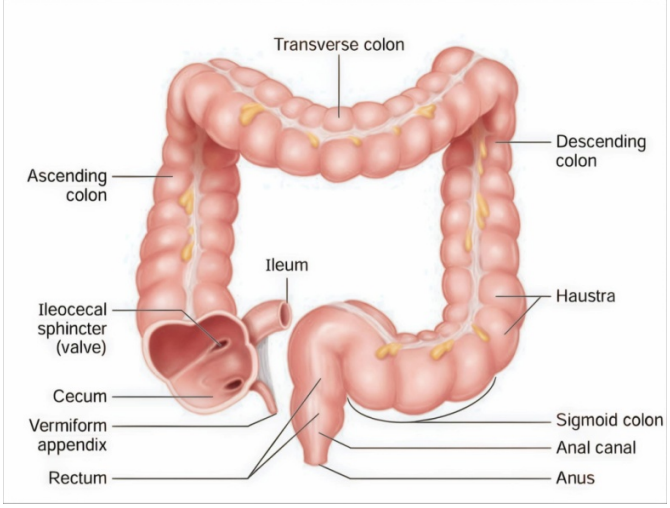
PART – I

Answer all the questions **15 x1 = 15**

TYPE - A			TYPE - B			Mark
Q.NO	Option Code	Answer	Q.NO	Option code	Answer	
1	(b)	Continuous Micturition	1	(d)	Hyperpolarization	1
2	(d)	Taxon	2	(b)	Myoglobin	1
3	(a)	(ii) and (iv) are not correct	3	(b)	Continuous Micturition	1
4	(a)	Hypothalamus	4	(a)	500 mL	1
5	(d)	Hyperpolarization	5	(d)	Taxon	1
6	(d)	Gigantism	6	(a)	AB	1
7	(a)	500 mL	7	(a)	(ii) and (iv) are not correct	1
8	(c)	Hypothalamus	8	(a)	Hypothalamus	1
9	(b)	Myoglobin	9	(d)	All the above	1
10	(a)	AB	10	(d)	Gigantism	1
11	(b)	Ctenophora	11	(d)	Cockroach	1
12	(d)	Both (b) and (c)	12	(b)	Ctenophora	1
13	(d)	All the above	13	(c)	Cortisol and Aldosterone are steroid hormones	1
14	(d)	Cockroach	14	(d)	Both (b) and (c)	1
15	(c)	Cortisol and Aldosterone are steroid hormones	15	(c)	Hypothalamus	1

PART – II

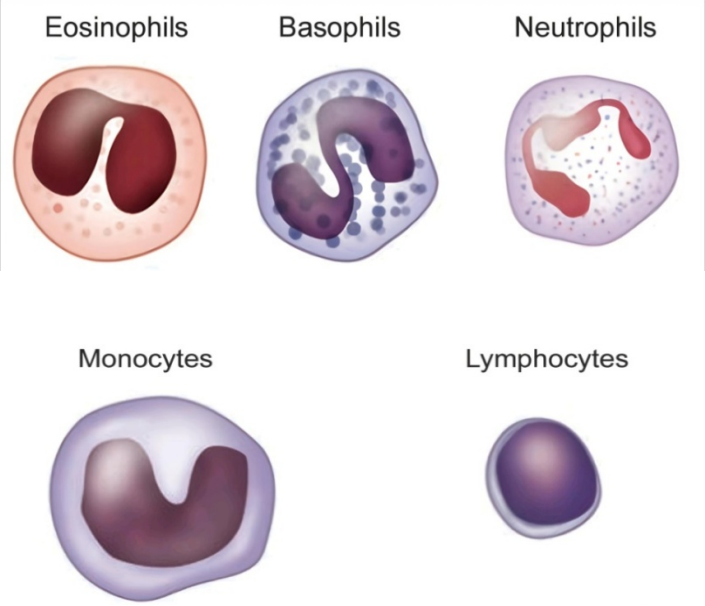
Note: Answer any six questions. Question No.24 is compulsory. **6 x 2=12**

Q.NO	ANSWERS	MARKS
16	**Nitrogenous waste of amphibia** Amphibian larvae-Ammonia Adult Amphibian-Urea	 **1** **1**
17	**Physiotherapy** Physiotherapy is the therapeutic exercise to make the limbs work near normally.	**2**
18	**Functions of Epithelial tissues** 1. Protection 2. Absorption 3. Filtration 4. Excretion 5. Secretion 6. Sensory reception **(Any Four)**	**4 X ½ = 2**
19	**Human large intestine**  Diagram Parts (Any Two)	 **1** **1**
20	**Flame cells** Flame cells are specialized excretory cells in Platyhelminthes / flatworms .	**2**
21	**Significance of Glucometer** 1. Handy and portable. 2. Immediate results, the results are displayed in approximately 40 seconds. 3. Requires no calculation. 4. No training is required for operating the instrument. **(Any Two)**	**2 X1=2**
22	**Functions of Alary muscles** Responsible for blood circulation in the cockroach.	**2**
23	**Lymph** The fluid inside the lymph vessels or lymphatics is called lymph.	**2**

24	**Composite fish farming** Few selected fishes belonging to different species are stocked together in proper proportion in a pond.	**2**

PART – III

Note: Answer any six questions. Question No.33 is compulsory. **6 x 3=18**

Q.NO	ANSWERS	MARKS
25	**Different types of Human WBC** Types of WBC (Names) 	**1** **1** **1**
26	**Blind spot** 1. The optic nerves and the retinal blood vessels enter the eye slightly below the posterior pole. 2. Devoid of photoreceptors.	**2** **1**
27	**Rules of Nomenclature** 1. The scientific name should be italicized in printed form and if handwritten, it should be underlined separately. 2. The generic name's (*Genus*) first alphabet should be in uppercase. 3. The specific name (*species*) should be in lowercase. 4. The scientific names of any two organisms are not similar. 5. The name or abbreviated name of the scientist who first publishes the scientific name may be written after the species name along with the year of publication. 6. If the species name is framed after any person's name, the name of the species shall end with i, ii or ae. **(Any Three)**	**3 X 1=3**

<table>
<tr><td>28</td><td>Difference between elastic fibres and elastic connective tissue
<table>
<tr><th>Elastic fibres</th><th>Elastic connective tissue</th></tr>
<tr><td>1. Elastic fibres are a component of the dense connective tissue.</td><td>Elastic connective tissue is a type of dense connective tissue and contains high proportion of elastic fibres</td></tr>
<tr><td>2. It attaches muscles to bones and one bone to another bone</td><td>It is found in the walls of large arteries, ligaments associated with vertebral column and within the walls of the bronchial tubes.</td></tr>
<tr><td>3. It withstands great tensile stress when pulling force is applied in one direction.</td><td>It allows the recoil of tissue following stretching.</td></tr>
</table></td><td>1

1

1</td></tr>
<tr><td>29</td><td>Features of Bony fishes
1. These are both marine and freshwater fishes
2. Bony endoskeleton
3. Spindle shaped body.
4. Skin is covered by ganoid, cycloid or ctenoid scales.
5. Respiration is by four pairs of filamentous gills and is covered by an operculum on either side.
6. Air bladder is present with or without a connection to the gut. It helps in gaseous exchange (lung fishes) and for maintaining buoyancy in most of the ray finned fishes.
7. They have a ventrally placed two chambered heart.
8. Excretory organs are mesonephric kidneys and are ammonotelic.
9. Presence of well developed lateral line sense organ.
10. Sexes are separate.
11. External fertilization is seen
12. Most forms are oviparous. (Any Three)</td><td>3 X 1=3</td></tr>
<tr><td>30</td><td>Layers of Adrenal cortex
Zona glomerulosa
Zona fasciculata
Zona reticularis</td><td>1
1
1</td></tr>
<tr><td>31</td><td>Cross Breeding
Breeding between a superior male of one breed with a superior female of another breed.</td><td>3</td></tr>
<tr><td>32</td><td>Clinical significance of Sphygmomanometer
1. To diagnose pathological conditions such as hypertension and hypotension.
2. Helps to assess the state of blood circulation.
3. Provides the functional details of heart.</td><td>1
1
1</td></tr>
<tr><td>33</td><td>Snoring during sleep
1. Breathing with a hoarse sound during sleep is caused by the vibration of the soft palate.
2. Snoring is caused by a partially closed upper air way (nose and throat) which becomes too narrow for enough air to travel through the lungs.
3. This makes the surrounding tissues to vibrate and produces the snoring sound.</td><td>1

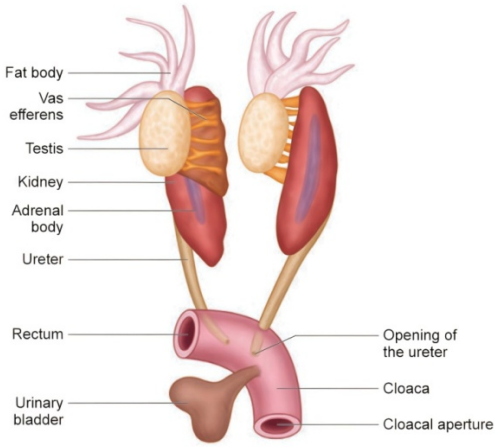
1

1</td></tr>
</table>

PART – IV

Note: Answer all the questions. **5 x 5=25**

<table>
<tr><th>Q.NO</th><th>ANSWERS</th><th>MARKS</th></tr>
<tr><td>34
(a)</td><td>Difference between rod cells and cone cells
<table><tr><th>Rod cells</th><th>Cone cells</th></tr><tr><td>1. Rods are responsible for vision in dim light</td><td>The cones are responsible for colour vision and works best in the bright light</td></tr><tr><td>2. The pigment present in the rods is rhodopsin</td><td>The pigment present in the cones is photopsin</td></tr><tr><td>3. Rhodopsin is formed of a protein scotopsin and retinal (an aldehyde of vitamin A)</td><td>Photopsin is formed of opsin protein and retinal</td></tr><tr><td>4. There are about 120 millions rod cells</td><td>There may be 6-7 millions cone cells</td></tr><tr><td>5. Rods are predominant in the extra fovea region</td><td>Cones are concentrated in the fovea region</td></tr></table></td><td>1
1
1
1
1</td></tr>
<tr><td colspan="3">(OR)</td></tr>
<tr><td>34
(b)</td><td>Difference between hyperglycemia and hypoglycemia
<table><tr><th>Hyperglycemia</th><th>Hypoglycemia</th></tr><tr><td>1. It is caused due to reduced secretion of insulin</td><td>It is caused due to increased secretion of insulin</td></tr><tr><td>2. Blood glucose level is elevated</td><td>Blood glucose level decreases</td></tr><tr><td>3. Symptoms
Polyurea (excessive urination), polyphagia (excessive intake of food), polydipsia (excessive consumption of liquids due to thirst), ketosis in blood.
(Any Two Symptoms)</td><td>Symptoms
Increased heartbeat, weakness, nervousness, headache, confusion, lack of co-ordination, slurred speech, serious brain defects like epilepsy and coma occurs
(Any Two Symptoms)</td></tr></table></td><td>2
1
2</td></tr>
<tr><td>35
(a)</td><td>Difference between chordates and non - chordates
<table><tr><th>Chordates</th><th>Non - Chordates</th></tr><tr><td>1. Notochord is present</td><td>Notochord is absent</td></tr><tr><td>2. Dorsal, hollow and single nerve cord</td><td>Double ventral solid nerve cord</td></tr><tr><td>3. Pharynx perforated by gill slits</td><td>Gill slits absent</td></tr><tr><td>4. Heart is ventrally placed</td><td>Heart is dorsal or laterally placed or absent</td></tr><tr><td>5. A post anal tail is present</td><td>A post anal tail is absent</td></tr><tr><td>6. Alimentary canal is placed ventral to the nerve cord</td><td>Alimentary canal is placed dorsal to the nerve cord</td></tr></table>(Any Five)</td><td>5 X 1=5</td></tr>
</table>

	(OR)	
35 (b)	**Male reproductive system of frog** ➢ The male frog has a pair of testes. Testes are attached to the kidney and the dorsal body wall by folds of peritonium called mesorchium. ➢ Vasa efferentia arise from each testis.They enter the kidneys on both side and open into the bidder's canal. ➢ Finally, it communicates with the urinogenital duct that comes out of kidneys and opens into the cloaca.  Diagram Parts (Any Four)	**1** **1** **1** **1** **1**
36 (a)	**Functions of Liver** 1. Bile secretion. 2. Destroys aging and defective blood cells. 3. Stores glucose in the form of glycogen or disperses glucose into the blood stream with the help of pancreatic hormones. 4. Stores fat soluble vitamins and iron. 5. Detoxifies toxic substances. 6. Involves in the synthesis of non-essential amino acids and urea. **(Any Five)**	**5 X 1=5**
	(OR)	
36 (b)	**The steps involved in respiration** 1. The exchange of air between the atmosphere and the lungs. 2. The exchange of O_2 and CO_2 between the lungs and the blood. 3. Transport of O_2 and CO_2 by the blood. 4. Exchange of gases between the blood and the cells. 5. Uptake of O_2 by the cells for various activities and the release of CO_2.	**1** **1** **1** **1** **1**

37 (a) **Antidiuretic Hormone (ADH)**

- ADH facilitates reabsorption of water by increasing the number of aquaporins on the cell surface membrane of the distal convoluted tubule and collecting duct. **2**
- ADH is produced by hypothalamus. **1**
- Excessive loss of fluid from the body or when there is an increase in the blood pressure, stimulate the neurohypophysis to secrete the ADH. **1**

When you drink excess amounts of your favourite juice, release of ADH is suppressed from the neurohypophysis. **1**

(OR)

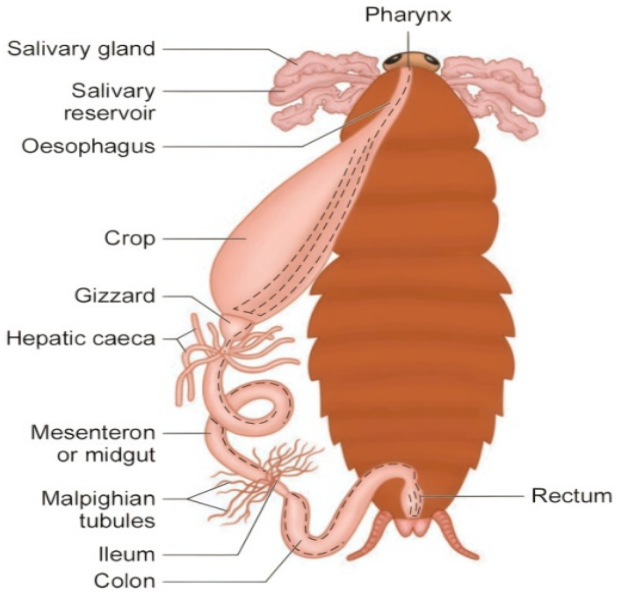
37 (b) **Benefits of regular exercise** **5 X 1=5**

1. The muscles used in exercise grow larger and stronger.
2. The resting heart rate goes down.
3. More enzymes are synthesized in the muscle fibre.
4. Ligaments and tendons become stronger.
5. Joints become more flexible.
6. Protection from heart attack.
7. Influences hormonal activity.
8. Improves cognitive functions.
9. Prevents Obesity.
10. Promotes confidence, esteem.
11. Aesthetically better with good physique.
12. Over all well-being with good quality of life.
13. Prevents depression, stress and anxiety. **(Any Five)**

38 (a) **Differences between Arteries and Veins** **5 X 1=5**

Arteries	Veins
1. The blood vessels that carry blood away from the heart	The blood vessels that carry blood to the heart
2. The walls of the arteries are thick	Veins have thinner walls
3. The blood pressure is high	The blood pressure is low
4. They carry oxygenated blood, except the pulmonary artery	They carry deoxygenated blood, except the pulmonary vein
5. Valves are absent	Valves are present
6. Tunica media is thicker in arteries	Tunica media is thinner in veins
7. Non- collapsible	Collapsible
8. The arteries usually lie deep inside the body	They are superficially located
9. They have a narrow lumen	They have wide lumen

(Any Five)

	(OR)	
38 (b)	**Digestive system of cockroach**  Diagram Parts (Any Four)	 **3** **2**