DIRECTORATE OF GOVERNMENT EXAMINATIONS, CHENNAI - 600 006.

HIGHER SECONDARY FIRST YEAR – MARCH / APRIL 2023

ZOOLOGY ANSWER KEY

TOTAL MARKS : 70

NOTE :

1. **Use blue or Black ink to write and underline and pencil to draw diagrams**
2. **Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer in Section -1**
3. **Put zero (0) mark provided in case of either option code or corresponding answer wrong.**

PART - I **15×1=15**

1. Answer all the questions

2. Choose the most appropriate answer from the given four alternatives and Write

TYPE – A			TYPE - B		
1	(c)	Bilirubin	1	(c)	Trachea
2	(a)	Goitre	2	(b)	Thermusaquaticus
3	(d)	Long of Henle's loop	3	(d)	Melatonin
4	(a) or (b)	70-110 mg-dl (or) 70-100 mg-dl	4	(b)	Emulsification
5	(a)	Mesonephros	5	(a) or (b)	70-110 mg-dl (or) 70-100 mg-dl
6	(c)	Apiculture	6	(d)	1-(iii),2-(iv),3-(ii),4-(i)
7	(d)	Melatonin	7	(d)	Long of Henle's loop
8	(a)	Rennette cells	8	(a)	Mesonephros
9	(d)	1-(iii), 2-(iv),3-(ii),4-(i)	9	(c)	Apiculture
10	(b)	Thermusaquaticus	10	(b)	Tracheal tubes
11	(b)	Emulsification	11	(b)	Sarcomere
12	(b)	Tracheal tubes	12	(c)	Bilirubin
13	(c)	Trachea	13	(a)	Rennette cells
14	(b)	Medulla oblongata	14	(a)	Goitre
15	(b)	Sarcomere	15	(b)	Medulla oblongata

PART-II

Answer any 6 questions

Question No.24 is compulsory . **6×2=12**

16	<table><tr><th>Zoo</th><th>Wild life Sanctuary</th></tr><tr><td>Places where animals are kept in protected environments.</td><td>Animals lives in natural habitats</td></tr><tr><td>If enable us to study their food habits and behaviour.</td><td>We cannot understand animals food habit and behaviour closely.</td></tr></table>	1 1
17	**Flame cells** 1. Specialized excretory cells found in flat worms called Flame cells. 2. This helps in osmoregulation and excretion.	1 1
18	**Pace Maker:** **1.** A medical device which uses electrical impulses, delivered by electrodes contracting the heart muscles to regulate beating of the heart.	2
19	**Earthworm casts:** In Earthworm undigested particle along with earth are passed out through the anus – called worm castings	2
20	**Methaemoglobin.** Iron component of the haem is in ferric state, than the normal ferrous state it is called methaemoglobin.	2
21	**Contractile proteins present in the skeletal muscles** 1. Actin 2. Myosin 3. Tropomyosin 4. Troponin **(Any Two)**	1+1
22	**Blind spot** 1. The optic nerve and the retinal blood vessels enter the eye slightly below the posterior pole is called Blind Spot. 2. Devoid of photo receptors, hence it is called Blind Spot	1 1

23.	**Symptoms of Cretinism:** 1. Retarded skeletal growth. 2. Absence of sexual maturity. 3. Retarded mental ability. 4. Thick wrinkled skin. 5. Protruded enlarged tongue. 6. Bloated face. 7. Thick and short limbs occur. 8. Low BMR. 9. Slow pulse rate 10. Subnormal body Temperature. 11. Elevated blood cholesterol level. **(Any Two)**	1+1

24.	**Biopsy**	**Autopsy**	1+1
	Examination of tissue or liquid removed from a living body to discover the presence, cause or extent of disease.	It is a post - mortem examination to discover the cause of death or extent of disease.	

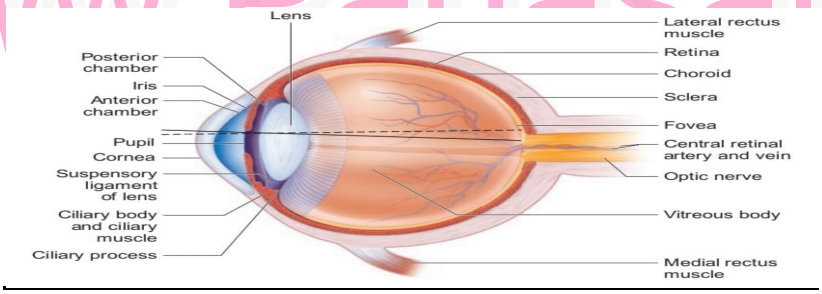
PART-III

Answer any Six Questions

Question No.33 is Compulsory . **6×3=18**

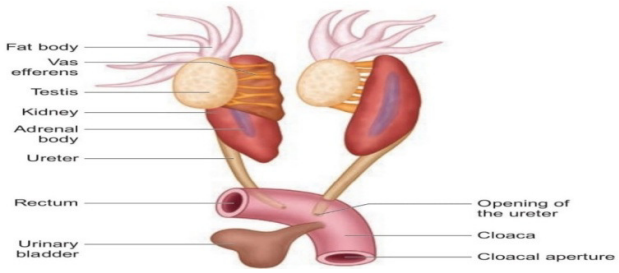
25.	**RULES OF NOMENCLATURE** 1. The Scientific Name should be italicized in printed form and if handwritten, it should be underlined separately. 2. The generic name's first alphabet should be in Uppercase 3. The specific name should be in lowercase. 4. The scientific names of any two organisms are not similar. 5. The name on 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 persons name, the name of the species shall end with i, ii or ae. **(ANY THREE)**	**3×1=3**

26	**CHORDATES**	**NON-CHORDATES**	**(ANY THREE)** **3×1=3**
	Alimentary canal is placed ventral to the nerve cord	Alimentary canal is placed dorsal to the nerve cord.	
	Notochord is present	Notochord is absent	
	Dorsal,hollow and single nerve cord.	Double Ventral solid nerve cord.	
	Pharynx perforated by gill slits	Gill slits absent	
	Heart is ventrally placed	Heart is dorsal or laterally placed or absent	
	A post anal tail is presents	A post anal tail is absent.	

27.	**TYPES OF RESPIRATION IN FROG** 1. CUTANEOUS RESPIRATION 2. BUCCAL RESPIRATION 3. PULMONARY RESPIRATION	 1 1 1
28.	**FUNCTIONS OF HUMAN LIVER** 1. Destroys aging and defective blood cells. 2. Stores Glucose in the form of Glycogen. 3. Stores fat soluble vitamins and iron . 4. Detoxifies toxic substances. **5.** Involves in the synthesis of non-essential amino acids and Urea **(ANY THREE)**	**3×1=3**
29.	Pneumonia is considered as a dangerous disease because 1. Inflammation of the lungs due to infection caused by bacteria or virus is called Pneumonia and the common symptoms are sputum production, nasal congestion and shortness of breath so it is considered a dangerous disease.	**3**
30.	**LYMPH AND ITS FUNCTIONS** The fluid inside the lymphatics is called lymph. **FUNCTIONS:** 1. The lymph nodes successfully prevent the invading micro organisms from reaching the blood stream. 2. Lymphocytes provide Immunity **3.** Helps in absorbing fat in villi **(ANY ONE)**	**2** **1**
31.	**L.S OF THE HUMAN EYE**  	**Diagram-2 marks** **Parts-1 Mark**
32	**DIFFERENT TYPES OF RIB BONES** • TRUE RIBS • FALSE RIBS • FLOATING RIBS	 **1** **1** **1**
33	**AMMONOTELES,URICOTELES AND UREOTELES** **AMMONOTELES:** Animals that excrete most of its nitrogen in the form of ammonia are called ammonoteles. **URICOTELES:** Animals that excrete Uric acid crystals with a minimum loss of water are called Uricoteles. **UREOTELES:** Animals that excrete Urea are called Ureoteles.	 **1** **1** **1**

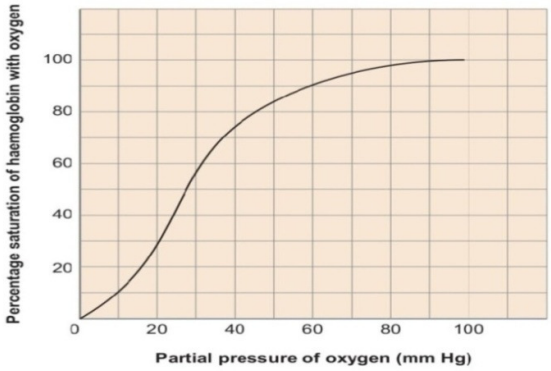
PART-IV

Answers all questions. **5×5=25**

34.a.	**GENERAL CHARACTERISTICS OF PHYLUM ARTHROPODS** **(ANY FIVE)** 1. This is the largest Phylum 2. They are bilaterally symmetrical, segmented, triploblastic and Schizocoelomate animals. 3. They have jointed appendages which are used for locomotion, feeding and are sensory in function. 4. Moulting or Ecdysis is present 5. The body cavity is called as Haemocoel. 6. Respiratory ogans are gills, bookgills,book lungs and Trachea. 7. Ciruculatory system is of open type. 8. Eyes are simple or compound. 9. Excretion takes place through Malpighian tubules, green glands, coxal glands. 10. They are mostly dioecious and oviparous 11. Fertilization is internal. 12. Life history includes metamorphosis. **(OR)**	**5×1=5**
34.b.	**MALE REPRODUCTIVE SYSTEM OF FROG:** 1. The male frog has a pair of testis which are attached to the kidney and the dorsal; body wall by folds of peritonium called mesorchium. 2. Vasa efferentia arise from each testis. 3. They enter the kidneys on both side and open into the bidder's canal. 4. It communicates with the Urinogenital duct that comes out of kidneys and opens into the Cloaca.  	**3** **2**

35 a.	**DIGESTION IN THE SMALL INTESTINE:** When food enters into the small intestine the bile,pancreatic juice and Intestinal juice are the secretion released into the small intestine. **THE BILE** The Bile contains bile pigments (Bilirubin and Biliverdin) and Bile salts, Cholestrol and Phospholipids but has no enzymes. Bile helps in emulsification of fats. **PANCREATIC JUICE** The Pancreatic juice contains enzymes such as trypsi nogen, Chymotrypsinogen, Carboxypeptidases, Pancreaticamylases, Pancreatic lipases and Nucleases and **Equations** **INTESTINAL JUICE (or) SUCCUS ENTRICUS** The Secretion of the Brunner's gland along with the secretions of the intestinal glands constitutes intestinal juice. The enzymes in the intestinal juice such as Maltase,Lactase,Sucrase,Peptidases,Lipases,Nucleotidases and Nucleosidases. **Equations**	**1** **2** **2**
	(OR)	
35 b	**TRANSPORT OF OXYGEN** **(Any Five)** 1. Molecular oxygen is carried in blood in two ways bound to haemoglobin within the Red Blood Cells and dissolved in plasma. 2. Oxygen is poorly soluble in water, so only 3% of the oxygen is transported in the dissolved form. 3. 97% of oxygen binds with haemoglobin in a reversible manner to from oxyhaemoglobin. 4. The rate at which haemoglobin binds with O_2 is regulated by the partial pressure of O_2. 5. Each Haemoglobin carries maximum of four molecules of Oxygen. 6. In alveoli high P^{O2}, low P^{CO2}, low temperature favours the formation of Oxyhaemoglobin, 7. In tissues low O_2, high P^{CO2}, high H+ and high temperature favours the dissociation of Oxygen from Oxyhaemoglobin. 8. Sigmoid curve-is obtained when percentage saturation of haemoglobin with oxygen is plotted against P^{O2} **9.** Under normal Physiological conditions every 100 ml of oxygenated blood can deliver about 5 ml of O2 to the tissues.	**5×1=5**

10. Diagram



36.a. **ABO Blood Grouping** — **5**

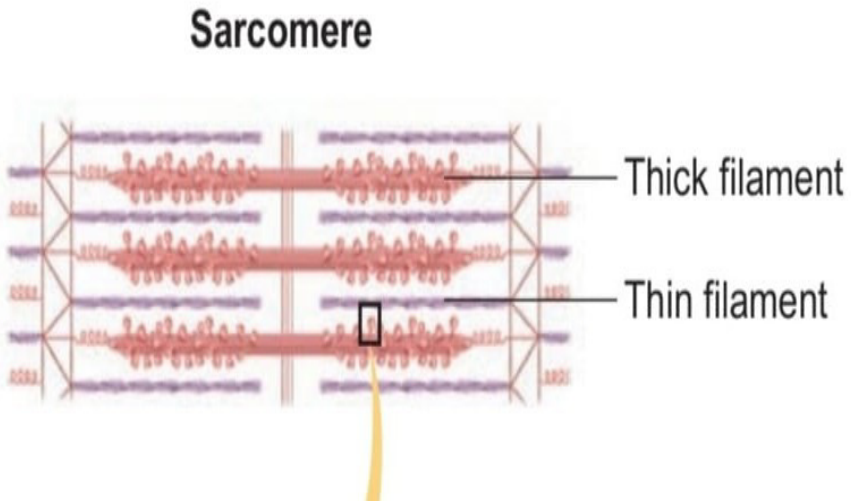
1. Depending on the presence or absence of surface antigens on the RBC blood group can has different types A,B,AB and O.
2. The Plasma of A,B and O individuals have natural antiobodies called agglutinins.
3. Surface antigens are called agglutinogen.
4. The antibody acting on agglutinogen A is called anti-A
5. The antibody acting on agglutinogen B is called anti-B.
6. Agglutinogens A &B are present in AB group and do not contain Anti A & Anti B.

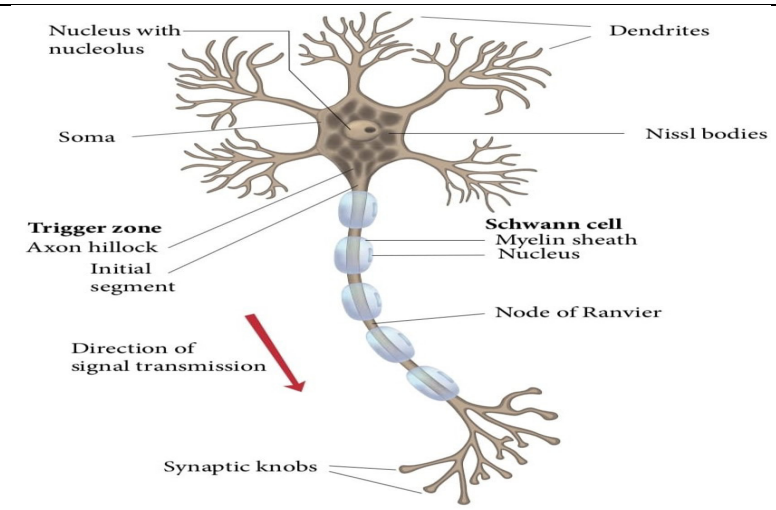
(or) Table

Blood group	Agglutinogens (antigens) on the RBC	Agglutinin (antibodies) in the plasma
A	A	Anti B
B	B	Anti A
AB	AB	No antibodies
O	No antigens	Anti A and Anti B

5

(OR)

36.b.	**SLIDING FILAMENT THEORY** ➢ Theory-Definition ➢ Explanation- Cross bridge of muscle contraction ➢ Diagram with parts 	**2** **2** **1**
37.a.	**STRUCTURE OF A NEURON:** **(Any Six)** 1. A structural and functional unit of nervous system. 2. It is a microscopic structure composes of three parts namely cell body, dentrites and axon. 3. The cell body is the spherical part of the neuron that contains all the cellular organelles as a typical cell. 4. There is no centriole. 5. The plasma membrane covering the neuron is called neurilemma and the axon is axolemma. 6. The repeatedly branched short fibres coming out of the cell body are called dendrites. 7. The cell body and the dentrites contains cytoplasm and granulated endoplasmic reticulam called Nissl's granules. 8. An axon is a long fibre that arises from a cone shaped area of the cell body called the Axon Lillock. 9. The axon, particularly of peripheral nerves is surrounded by schwann cells. 10. The gap between adjacent schwann cells are called Nodes of Ranvier.	**3**

		2
	(OR)	
37.b.	**Pancreas:** 1. Pancreas is a composite gland which performs both exocrine and endocrine functions. 2. It is a leaf like structure located just below the stomach. 3. It has one to two millions of islets of Langerhans. 4. In each islets about 60% of alpha cells secrete Glucagon 30% of Beta cells secrete Insulin 10% of Delta cells secrete somatostatin.	2
	INSULIN: Its main effect to lower blood Glucose levels by increasing uptake of Glucose into the body cells. It is called Hypoglycemic hormone.	1½
	GLUCAGON: It acts on liver and promote breakdown of glycogen to glucose. It is called Hyperglycemic hormone.	1½

38.a.	**Computed Tomographic Scanning (or) CT – Scanning** Computed tomographing is originally known as computes axial tomography (CAT or CT Scan). The word tomography is derives from Greek word tomes means slice and graph means to write. **Clinical Significance:** 1. Gives a clear image of bone soft tissues and blood vessels. 2. Helps in the diagnosis of injuries of the inner ears and sinuses. 3. To detect cancer, heart and lung disorders. 4. For diagnosis of spinal problems and skeletal injuries. 5. Helps to measure bone mineral density. 6. To detect stroke causing clots and haemorrhage 7. To detect stroke causing clots and haemorrhage in the brain **(Any Four)** **(OR)**	**1** **4**
38 .b.	**<u>Artificial Insemination.</u>** Artificial Insemination is a technique in which the semen collected from the male is injected to the reproductive track of the selected female. **Advantages of artificial insemination:** 1. It increases the rate of conception. 2. It avoids genital diseases. 3. Semen can be collected from injured bulls which have desirable traits. 4. Superior animals located apart can be bred successfully.	**1** **4**