

## Padasalai.Net's 12<sup>th</sup> Bio Zoology Answer Keys



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XI COMMON PUBLIC EXAMINATION, MARCH -2022 (16-05-2022)

TENTATIVE ANSWER KEY  
Question type B

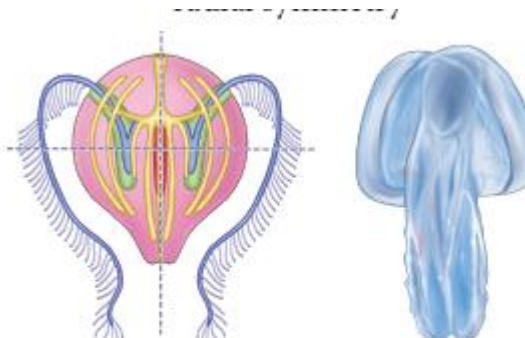
SUB: BIO-ZOOLOGY

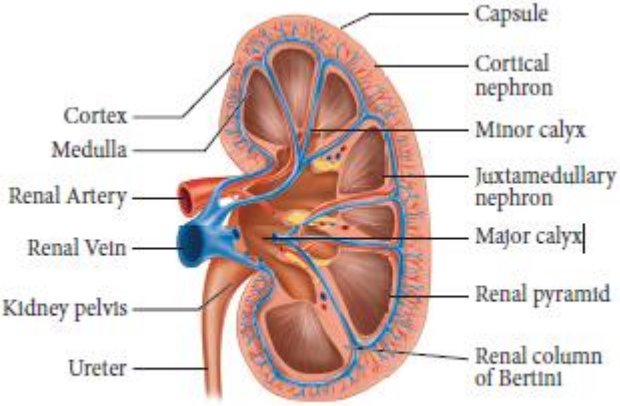
MARKS: 35

Q.NO	CONTENT	MARKS	MODE OF QUESTION
<b>PART -I</b>			
I.	CHOOSE THE CORRECT ANSWER	8 X 1 = 8	BOOK BACK / BOOK INSIDE/ CREATIVE
1	c. Iodine	1	BOOK INSIDE
2	a. Closure of semi lunar valves	1	BOOK BACK
3	d. Both (b) and (c)	1	BOOK BACK
4	d. Organ of Corti	1	BOOK BACK
5	d. Segments 14 - 17	1	BOOK BACK
6	b. Insects	1	BOOK BACK
7	b. Emulsification	1	BOOK BACK

8	<b>b. Myocytes</b>	1	BOOK BACK
<b>Q.NO</b>	<b>CONTENT</b>	<b>MARKS</b>	<b>MODE OF QUESTION</b>
II.	<b>PART -II</b> ANSWER ANY SIX OF THE FOLLOWING QUESTION NUMBER 24 IS COMPULSORY	4 X 2 = 8	BOOK BACK / BOOK INSIDE/ CREATIVE
9	<b>Schizocoelomates</b> – in these animals the body cavity is formed by splitting of mesoderm. (e.g., annelids, arthropods, molluscs). In <b>Enterocoelomate animals</b> the body cavity is formed from the mesodermal pouches of archenteron. (e.g., Echinoderms, hemichordates and chordates)	1  1	BOOK BACK
10	<b>Components of frog Blood</b> The <b>blood</b> consists of <b>plasma</b> [60%] and <b>blood cells</b> [40 %] includes red blood cells, white blood cells, and platelets. RBCs are loaded with red pigment, nucleated and oval in shape. Leucocytes are nucleated, and circular in shape	1  1	BOOK BACK
11	<b><u>Peculiar character of Duck</u></b> The body is fully covered with oily feathers. They have a layer of fat under their skin which prevents it from getting wet. They lay eggs at night or in the morning. The ducks feed on rice bran, kitchen wastes, waste fish and snails.	1  1	BOOK INSIDE
12	In 1859 Charles Darwin in his book <b>Origin of species</b> explains the evolutionary connection of species by the process of natural selection.	1  1	BOOK BACK
13	WBCs are divided into two types, <b>granulocytes</b> and <b>agranulocytes</b> . Granulocytes are characterised by the presence of granules in the cytoplasm and are differentiated in the bone marrow. The granulocytes include <b>neutrophils</b> ,	1  1	BOOK INSIDE

	eosinophils and basophils.		
14	<b>Homeostasis:</b> Maintenance of constant internal environment of the body by the different coordinating system.	2	BOOK BACK

Q.NO	CONTENT	MARKS	MODE OF QUESTION
III.	<b>PART -III</b> ANSWER ANY SIX OF THE FOLLOWING QUESTION NUMBER 33 IS COMPULSORY	3 X 3 = 9	BOOK BACK / BOOK INSIDE/ CREATIVE
15	<p>Biradial symmetry is a combination of radial and bilateral symmetry as seen in ctenophores. There are only two planes of symmetry, one through the longitudinal and sagittal axis and the other through the longitudinal and transverse axis. (e.g., Comb jellyfish – <i>Pleurobrachia</i>)</p>  <p>Figure 2.4 Biradial symmetry in comb jelly</p>	3	BOOK INSIDE

16	<p><b>Economic importance of Frog</b></p> <ul style="list-style-type: none"> <li>• Frog is an important animal in the <b>food chain</b>; it helps to maintain our ecosystem. So <b>'frogs should be protected'</b>.</li> <li>• Frog are beneficial to man, since they feed on insects and helps in reducing insect pest population.</li> <li>• Frogs are used in traditional medicine for controlling <b>blood pressure</b> and for its <b>anti aging</b> properties.</li> <li>• In USA, Japan, China and North East of India, frogs are <b>consumed</b> as delicious food as they have high nutritive value.<b>(Any three)</b></li> </ul>	1  1  1	BOOK INSIDE
17	 <p style="text-align: center;"><b>Figure 8.3 L S of kidney</b></p>	3	BOOK INSIDE
18	<p>The cones are responsible for colour vision and works best in the bright light. The pigment present in the cones is photopsin, formed of opsin protein and retinal. Light induces dissociation of retinal from opsin and causes the structural changes in opsin. This generates an action potential in the photoreceptor cells and is transmitted by the optic nerves to the visual cortex of the brain, via bipolar cells, ganglia and optic nerves, for the perception of vision.</p> <p>The optic nerves and the</p>	1.5	BOOK INSIDE

	retinal blood vessels enter the eye slightly below the posterior pole, which is devoid of photo receptors; hence this region is called <b>blind spot</b> .	1.5	
19	<p>Thymus gland is partially an endocrine and partially a lymphoid organ. It is a bilobed structure located just above the heart and aorta, behind the sternum.</p> <p>It is covered by fibrous capsule and anatomically it is divisible into an outer cortex and an inner medulla. It secretes four hormones such as <b>thymulin, thymosin, thymopoietin and thymic humoral factor (THF)</b>.</p> <p>The primary function of thymus is the production of immuno competent 'T' lymphocytes which provides cell mediated immunity.</p>	1  1  1	BOOK INSIDE

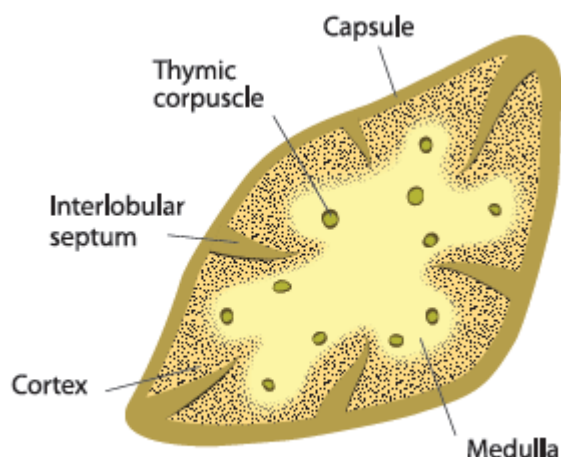


Figure 11. 5 Structure of thymus gland

Q.NO	CONTENT	MARKS	MODE OF QUESTION
IV.	<b>PART -IV</b> ANSWER ALL THE QUESTION	2 X 5 = 10	BOOK BACK BOOK INSIDE CREATIVITY BOOK INSIDE
20 (a)	<p>Apart from bile secretion, the liver also performs several functions</p> <p>1. Destroys aging and</p>	1	

	<p>defective blood cells</p> <p>2. Stores glucose in the form of glycogen or disperses glucose into the blood stream with the help of pancreatic hormones</p> <p>3. Stores fat soluble vitamins and iron</p> <p>4. Detoxifies toxic substances.</p> <p>5. Involves in the synthesis of nonessential amino acids and urea.</p>	1	
20 (b)	<p><b>Methods of Animal breeding:</b></p> <p>There are two methods of animal breeding, namely inbreeding and outbreeding</p> <p><b>1. Inbreeding:</b> Breeding between animals of the same breed for 4-6 generations is called inbreeding. Inbreeding increases homozygosity and exposes the harmful recessive genes. Continuous inbreeding reduces fertility and even productivity, resulting in “inbreeding depression”. This can be avoided by breeding selected animals of the breeding population and they should be mated with superior animals of the same breed but unrelated to the breeding population. It helps to restore fertility and yield.</p> <p><b>2. Outbreeding:</b> The breeding between unrelated animals is called outbreeding. Individuals produced do not have common ancestors for 4-6 generations. Outbreeding helps to produce new and favourable traits, to produce hybrids with superior qualities and helps to create new breeds. New and favourable genes can be introduced into a population through outbreeding. i. <b>Out crossing:</b> It is the breeding between unrelated animals of the same breed but having no common ancestry. The offspring of such a cross is called outcross. This method is suitable for breeding animals below average in productivity.</p> <p>ii. <b>Cross breeding:</b> Breeding between a superior male of one breed with a superior female of another breed. The cross bred progeny has superior traits ( hybrid vigour</p>	2	BOOK BAC
		1	

	<p>or heterosis.)</p> <p>iii. <b>Interspecific hybridization:</b>          In this method of breeding mating is between male and female of two different species. The progeny obtained from such crosses are different from their parents, and may possess the desirable traits of the parents. Have you heard about Mule? It was produced by the process of interspecific hybridization between a male donkey and a female horse.</p>	1	
21 (a)	<p>The movement of air between the atmosphere and the lungs is known as ventilation or breathing. Inspiration and expiration are the two phases of breathing. Inspiration is the movement of atmospheric air into the lungs and expiration is the movement of alveolar air that diffuse out of the lungs. (Figure 6.4)</p> <p>Lungs do not contain muscle fibres but expands and contracts by the movement of the ribs and diaphragm. The diaphragm is a sheet of tissue which separates the thorax from the abdomen. In a relaxed state, the diaphragm is domed shaped. Ribs are moved by the intercostal muscles. External and internal intercostal muscles found between the ribs and the diaphragm helps in creating pressure gradients. Inspiration occurs if the pressure inside the lungs (intrapulmonary pressure) is less than the atmospheric pressure likewise expiration takes place when the pressure within the lungs is higher than the atmospheric pressure. Inspiraton is initiated by the contraction of the diaphragm muscles and external intercostal muscles, which pulls the ribs and sternum upwards and outwards and increases the volume of the thoracic chamber in the dorso-ventral axis, forcing the lungs to expand the pulmonary volume. The increase in pulmonary volume and decrease in the intrapulmonary pressure forces the fresh air from outside to enter the air passages into the lungs to equalize the pressure. This process</p>	5	BOOK INS

is called **inspiration**.

Relaxation of the diaphragm allows the diaphragm and sternum to return to its dome shape and the internal intercostal muscles contract, pulling the ribs downward reducing the thoracic volume and pulmonary volume. This results in an increase in the intrapulmonary pressure slightly above the atmospheric pressure causing the expulsion of air from the lungs. This process is called **expiration**.

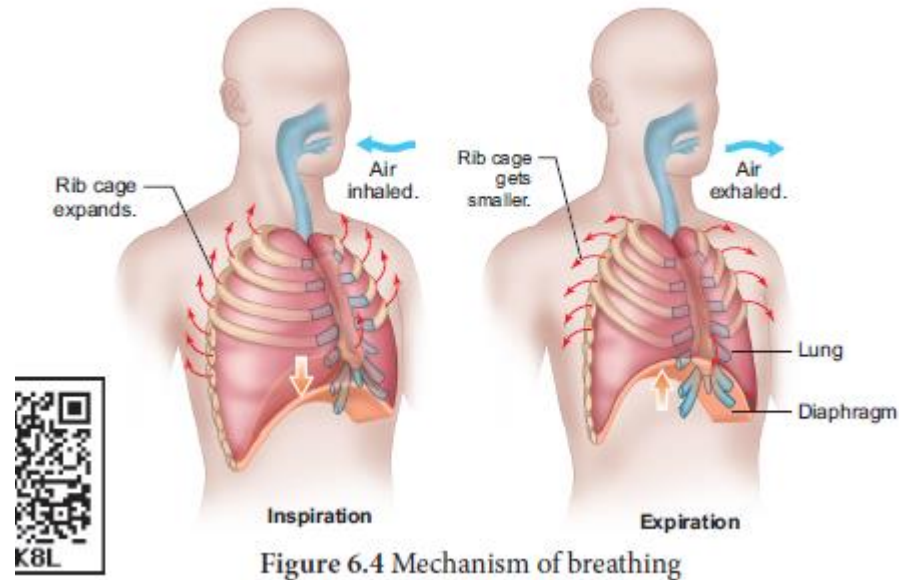
On an average, a healthy human breathes 12–16 times/minute. An instrument called **Spirometer** is used to measure the volume of air involved in breathing movements for clinical assessment of a person's pulmonary

Events in inspiration and expiration

Inspiration	Expiration
Respiratory centre initiates the stimuli during inspiration.	Respiratory centre terminates the stimuli during expiration.
↓	↓
The diaphragm and inspiratory muscles contract.	The diaphragm relax but internal intercostal muscles contract.
↓	↓
The thoracic volume increases as the chest wall expands.	The thoracic volume decreases as the chest wall contracts.
↓	↓
The intra pulmonary pressure is reduced.	The intra pulmonary pressure is increased.
↓	↓
The alveolar pressure decreases than the atmospheric pressure	The alveolar pressure increases than the atmospheric pressure.
↓	↓
Air is taken inside due to expansion of alveoli.	Air is sent out due to the contraction of alveoli.
↓	↓
Air flows into the alveoli until the alveolar pressure equalizes the atmospheric pressure and the alveoli get inflated.	Air flows out of the alveoli until the alveolar pressure equalizes the atmospheric pressure and the alveoli get deflated.

function.





21 (b)

Chordata is the largest phylum with most familiar group of animals, such as fishes, amphibians, reptiles, birds and mammals and less known forms such as **lancelets** (*Amphioxus*) and **tunicates** (*Ascidian*). All chordates possess three fundamental distinct features at some stage of their life cycle (Figure 2.19), they are:

1. Presence of elongated rod like notochord below the nerve cord and above the alimentary canal. It serves as a primitive internal skeleton. It may persist throughout life in lancelets and lampreys. In adult vertebrates, it may be partially or completely replaced by backbone or vertebral column.
2. A dorsal hollow or tubular fluid filled nerve cord lies above the notochord and below the dorsal body wall. It serves to integrate and co-ordinate the body functions. In higher chordates, the anterior end of the nerve cord gets enlarged to form the brain and the posterior part becomes the spinal cord, protected inside the vertebral column.
3. Presence of pharyngeal gill slits or clefts in all chordates at some stage of their lifecycle. It is a series of gill slits or clefts that perforates the walls of pharynx and

5

BOOK INS

appears during the development of every chordate. In aquatic forms, pharyngeal gill slits are vascular, lamellar and form the gills for respiration. In terrestrial chordates, traces of non-functional gill clefts appear during embryonic developmental stages and disappear later. Besides the above said features, chordates are bilaterally symmetrical, triploblastic, coelomates with organ system level of organisation; they possess post anal tail, closed circulatory system with a ventral myogenic heart except in *Amphioxus*.

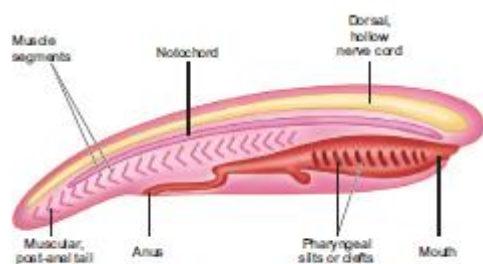


Figure 2.19 A Typical Chordate



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