

11 TH STANDARD PUBLIC EXAM MAY -2022

Bio-Zoology answer key

Types- A

1	d. organ of corti
2	b. Insect
3	c. Iodine
4	4. b. Myocytes
5	d. both (b) and (c)
6	b. Emulsification
7	d. Segments 14-17
8	a. Closure of semi lunar valves

section- 2

(2 marks)

9. compare Schizocoelom with enterocoelom:

Based on the mode of formation of coelom, the eucoelomates are classified into two types,

i) Schizocoelomate animals – In these animals the body cavity is formed by splitting of mesoderm. Eg: Annelids, Arthropods, Molluscs.

ii) Enterocoelomate animals - In these animals the body cavity is formed from the mesodermal pouches of archenteron. Eg: Echinoderms, hemichordates and chordates

10. What are the component of blood of frog?

- ❖ The blood consists of plasma - 60%, and blood cells - 40%, RBC, WBC, and platelets.
- ❖ RBCs are loaded with red pigment, nucleated and oval in shape.
- ❖ Leucocytes are nucleated, and circular in shape

11. What are the peculiar characters of Duck ?

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.

12. What is the role of Charles Darwin in relation to concept of species?

In his book “**Origin of species**” - explains the evolutionary connection of species by the process of natural selection.

13. List out the different types of WBC :

The different types of WBCs are Depending on the presence or absence of granules, WBCs are divided into two types, **granulocytes** and **agranulocytes**.

- The granulocytes include **neutrophils, eosinophils and basophils**
- **Agranulocytes** are characterised by the absence of granules. These are of two types, **lymphocytes** and **monocytes**.

14. comment on Homeostasis:

Maintenance of constant internal environment of the body by the different coordinating system.

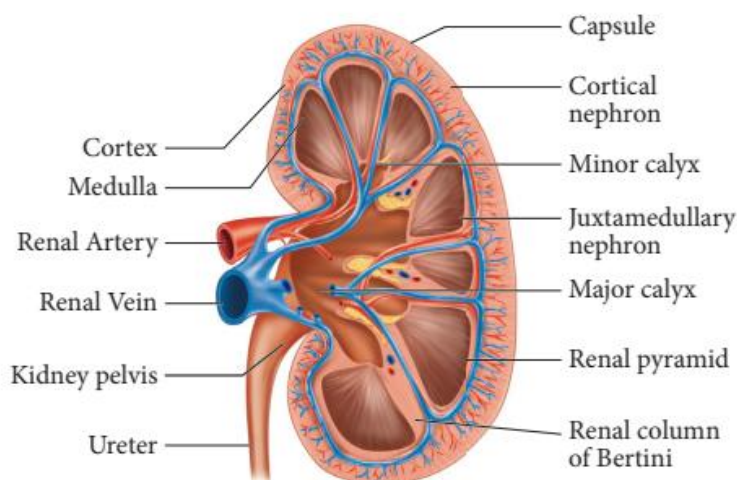
section- 3 (3marks)

15. Describe the characteristic features of bi radially symmetrical animal with example?

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 – *Pleurobrachia*)

16. write the economic importance of Frog:

- Frog is an important animal in the **food chain**; it helps to maintain our ecosystem. So **‘frogs should be protected’**.
- Frog are beneficial to man, since they feed on insects and helps in reducing insect pest population.
- Frogs are used in traditional medicine for controlling **blood pressure** and for its **anti aging** properties.
- In USA, Japan, China and North East of India, frogs are **consumed** as delicious food as they have high nutritive value.

17. Draw and label the L.S of Human Kidney**18.(i) We can perceive colours only in bright light. why?**

(ii) Which region of the eye is devoid of Photoreceptors?

- (i) The cells present on the retina and responsible for colour vision are known as cone cells. These cells become active only under bright light and remain inactive under dark.
- (ii) The optic nerves and the retinal blood vessels enter the eye slightly below the posterior pole, which is devoid of photo receptors; hence this region is called **blind spot**.

19. Thymus gland act as Endocrine gland as well as Lymphoid organ: give reasons?

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. 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 **thymulin, thymosin, thymopoietin and thymic humoral factor (THF)**. The primary function of thymus is the production of immuno competent 'T' lymphocytes which provides cell mediated immunity.

Section - 4

(5 marks)

20. (a) write the function of liver a part from bile secretion .

Liver has high **power of regeneration and liver cells** are replaced by new ones every 3-4 weeks.

Apart from bile secretion, the liver also performs several functions

1. Destroys aging and defective blood cells
2. Stores glucose in the form of glycogen or disperses glucose into the blood stream with the help of pancreatic hormones
3. Stores fat soluble vitamins and iron
4. Detoxifies toxic substances.
5. Involves in the synthesis of nonessential amino acids and urea.

(b) Discuss the various techniques adopted in cattle breeding

1. Inbreeding:

≠ Breeding between animals of the same breed for 4-6 generations is called inbreeding.

≠ Inbreeding increases homozygosity and exposes the harmful recessive genes.

≠ It helps to restore fertility and yield.

2. Outbreeding:

≥ 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) **Out crossing:** 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.

- ii) **Cross breeding:** Breeding between a superior male of one breed with a superior female of another breed. The cross bred progeny has superior traits (hybrid vigour or heterosis.)
- iii) **Interspecific hybridization:** 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

21. Explain the mechanism of breathing in Human

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. 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.

Inspiration is initiated by the contraction of the diaphragm muscles and external intercostals 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 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**.

(b) briefly explain the three fundamental distinct features of chordates with a neat labelled diagram.

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.

1. Presence of elongated rod like notochord below the nerve cord and above the alimentary canal. It serves as a primitive internal skeleton.
2. It may persist throughout life in lancelets and lampreys. In adult vertebrates, it may be partially or completely replaced by backbone or vertebral column.
3. 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