4. They are found in sea and fresh water.

37.List the functions of air bladder in fishes.

Functions of air bladder:

In fishes air bladder regulates buoyancy and helps them to float in water. If air bladders are absent, the animals need to swim constantly to avoid sinking.

38.Write the characteristics that contributes to the success of reptiles on land.

1. They are mostly terrestrial animals and their body is covered by dry and cornified skin with epidermal scales which checks loss of water.
2. Most reptiles lay cleidoic eggs with extra embryonic membranes like omnion, chorion, allantois, and yolk sac, Shell around the egg checks dessication.
3. Embryonic membranes enclose the embryo and provide watery environment. Internal fertilization method helps them to survive on land.

39.List the unique features of bird's endoskeleton.

1. The endoskeleton is fully ossified (bony).
2. The long bones are hollow with air cavities (pneumatic bones).

40.Could the number of eggs or young ones produced by an oviparous and viviparous female be equal? Why?

1. Animals which lay eggs are called**oviparous animals**.
2. Animals which give birth to young ones are called **viviparous animals**.
3. In the case of oviparous animals, they produce more number of eggs since the eggs are exposed to environmental conditions and predators. They have to pass through several developmental stages before becoming on adult. They face less chances of survival. Hence they produce more number of eggs to ensure continuation of race. Further the eggs are released from the parent and develop with the help of yolk stored in the egg. Parental care is not seen.
4. In viviparous animals one or few eggs are produced by the female since the mother has to undergo gestation period and nurture the young ones in her womb until they are born. Reproduction cycle requires more time. But the embryo is protected from environmental conditions and predators. Chances of survival are very high..
5. Therefore the number of eggs / young ones in a viviparous animal will be less as compared to an oviparous animal.

CHAPTER- 3- TISSUE LEVEL OF ORGANISATION

Evaluation

1. The main function of the cuboidal epithelium is

a. Protection b. Secretion c. Absorption **d. Both (b) and (c)**

2. The ciliated epithelium lines the

a. Skin b. Digestive tract c. Gall bladder **d. Trachea**

3. What type of fibres are found in connective tissue matrix?

a. Collagen b. Areolar c. Cartilage d. Tubular

4. Prevention of substances from leaking across the tissue is provided by

a. Tight junction b. Adhering junction

c. Gap junction d. Elastic junction

5. Non-shivering thermogenesis in neonates produces heat through

a. White fat **b. Brown fat** c. Yellow fat d. Colourless fat

6. Some epithelia are pseudostratified. What does this mean?

*Pseudo-stratified epithelial cells are columnar, but unequal in size.
*Although the epithelium is single layered yet it appears to be multi-layered because the nuclei lie at different levels in different cells.
*Hence, it is also called pseudostratified epithelium and its function is secretion and absorbtion.

7. Differentiate white adipose tissue from brown adipose tissue.

-Adipose tissues are also found in subcutaneous tissue, surrounding the kidneys, eyeball, heart, etc. Adipose tissue is called '**white fat'** or **white adipose tissue.**
-The adipose tissue which contains abundant mitochondria is called '**Brown fat**' or **Brown adipose tissue.**
-White fat stores nutrients whereas brown fat is used to heat the blood stream to warm the body. -Brown fat produces heat by **non-shivering thermogenesis** in neonates.

8. Why blood is considered as a typical connective tissue?

-**Blood** is the fluid connective tissue containing plasma, red blood cells (RBC), white blood cells (WBC) and platelets.
-It functions as the transport medium for the cardiovascular system, carrying nutrients, wastes, respiratory gases throughout the body.

9. Differentiate between elastic fibres and elastic connective tissue.

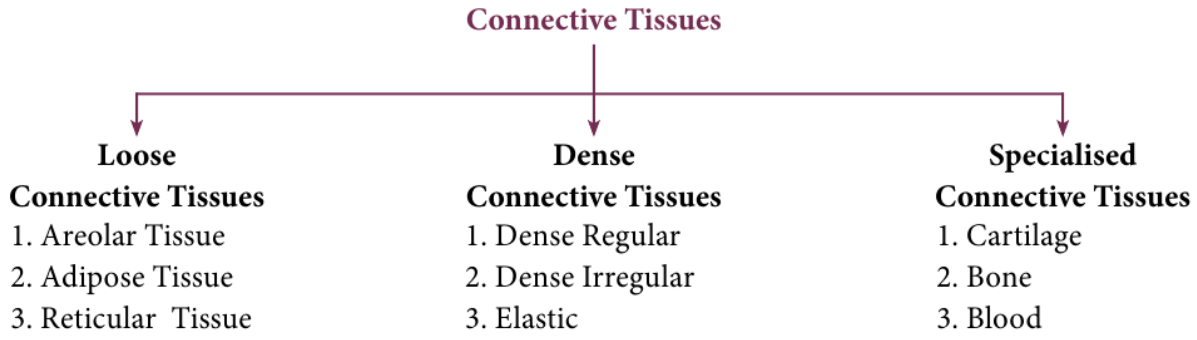
***Elastic fibre** is found in the skin as the leathery dermis and forms fibrous capsules of organs such as kidneys, bones, cartilages, muscles, nerves and joints.
***Elastic connective tissue** contains high proportion of elastic fibres. It allows recoil of tissues following stretching. It maintains the pulsatile flow of blood through the arteries and the passive recoil of lungs following Inspiration.
-It is found in the walls of large arteries; ligaments associated with **vertebral column** and within the walls of the **bronchial tubes.**

10. Name any four important functions of epithelial tissue and provide at least one example of a tissue that exemplifies each function.

-The functions of epithelium includes **protection, absorption, filtration, excretion, secretion** and **sensory reception.**
1.Absorption -Simple epithelium
2.Secretion- Columnar epithelium,pseudo-stratifiedepithelium
3.Protection- Pseudo-stratified epithelium

11. Write the classification of connective tissue and their functions

-Connective tissue develops from the **mesoderm** and is widely distributed in the body.
-There are four main classes of connective tissues. They are **connective tissue** (which includes fat and the fibrous tissue of ligaments), **cartilage, bones** and **blood.**
-Major functions of connective tissues are **binding** and **support**, **protection**, **insulation** and **transportation** of substances.(Refer page no:54-56)



12. What is an epithelium? Enumerate the characteristic features of different epithelia.

Epithelial tissue is a sheet of cells that covers the body surface or lines the body cavity. It occurs in the body as a **covering, as a lining epithelium and as glandular, epithelium**.
-The functions of epithelium includes **protection, absorption, filtration, excretion, secretion** and **sensory reception.**
-The **squamous epithelium** is made of a single thin layer of flattened cells with irregular boundaries. They are found in the kidney glomeruli, air sacs of lungs, lining of heart, blood vessels and lymphatic vessels and are involved in functions like forming a diffusion boundary and filtration.
-The **cuboidal epithelium** is made of a single layer of cube like cells. This tissue is commonly found in the kidney tubules, ducts and secretory portions of small glands and surface of the ovary. Its main functions are secretion and absorption.
-The **columnar epithelium** is composed of single layer of tall cells with round to oval nuclei at the base. It lines the digestive tract from the stomach to the rectum.
-ciliated type propels mucus by ciliary actions and it lines the small bronchioles, fallopian tubes and uterus.
-**Pseudo-stratified epithelial** cells are columnar, but unequal in size. Although the epithelium is single layered yet it appears to be multi-layered because the nuclei lie at different levels in different cells.

CHAPTER- 4 -ORGAN AND ORGAN SYSTEMS IN ANIMALS

EVALUATION

1. The clitellum is a distinct part in the body of earthworm *Lampito mauritii*, it is found in?
a. Segments 13 – 14 **b. Segments 14 – 17** c. Segments 12 – 13 d. Segments 14 - 16
2. Sexually, earthworms are
a. Sexes are separate **b.Hermaphroditic but not self fertilizing**
c. Hermaphroditic and self – fertilizing d. Parthenogenic
3. To sustain themselves, earthworms must guide their way through the soil using their powerful muscles. They gather nutrients by ingesting organic matter and soil, absorbing what they need into their bodies.True or False: The two ends of the earthworm can equally ingest soil.
b. False
4. The head region of Cockroach -----pairs of ------and ----shaped eyes occur.
a. One pair, sessile compound and kidney shaped
b. Two pairs, stalked compound and round shaped
c. Many pairs, sessile simple and kidney shaped
d. Many pairs, stalked compound and kidney shaped
5. The location and numbers of malpighian tubules in *Periplaneta.*
a. At the junction of midgut and hindgut, about 150.
b. At the junction of foregut and midgut, about 150.
c. Surrounding gizzard, eight.
d. At the junction of colon and rectum, eight.
6. The type of vision in Cockroach is
a. Three dimensional b. Two dimensional **c. Mosaic** d. Cockroach do not have vision
7. How many abdominal segments are present in male and female Cockroaches?
a. 10, 10 b. 9, 10 c. 8, 10 d. 9, 9
8. Which of the following have an open circulatory system**?**
a. Frog b. Earthworm c. Pigeon **d. Cockroach**
9. Buccopharyngeal respiration in frog
a. is increased when nostrils are closed b. Stops when there is pulmonary respiration
c. is increased when it is catching fly **d. stops when mouth is opened.**
10. Kidney of frog is
a. Archinephros b. Pronephros **c. Mesonephros** d. Metanephros
11. Presence of gills in the tadpole of frog indicates that