

P.U.C. – I BIOLOGY QUESTION BANK

CHAPTER – 7

STRUCTURAL ORGANISATIONS IN ANIMALS

ONE MARK QUESTIONS

Q 1) Define Tissue

Ans It is the group of similar cells along with intercellular substances Performing specific function.

Q 2) What is organ system ?

Ans When two or more organs perform a common function by their physical and/or chemical interaction they together form organ system.

Q 3) Which tissue provide a covering or lining for some part of the body?

Ans Epithelial tissue.

Q 4) What is simple epithelium?

Ans It is the epithelium which is composed of a single layer of cells and Function as a lining for body cavities, ducts and tubes.

Q 5) Define Squamous epithelium.

Ans It is the epithelium made up of a single thin layer of flattened cells with irregular boundaries.

Q 6) Where do you find squamous epithelium?

Ans In the walls of blood vessels and airsacs of lungs.

Q 7) Define Cuboidal epithelium.

Ans It is the epithelium composed of a single layer of cube like cells.

Q 8) Where do you find Cuboidal epithelium?

- Ans** It is found in the ducts of glands and tubular parts of nephrons.
- Q 9)** What is the function of Cuboidal epithelium ?
- Ans** Function of Cuboidal epithelium is secretion and absorption.
- Q.10)** Define columnar epithelium .
- Ans** It is a epithelium composed of a single layer of tall and slender cells with nucleus located at the base.
- Q-11** Where do you find columnar epithelium ?
- Ans** It is found in the lining of stomach and Intestine.
- Q-12** What is the function of columnar epithelium?
- Ans** It helps in secretion and absorption.
- Q-13** What is Ciliated epithelium?
- Ans** If columnar or cuboidal cells bear cilia on their free surface, it is called Ciliated epithelium.
- Q-14** Where do you find Ciliated epithelium?
- Ans** It is present in the inner surface of hollow organs like bronchioles and fallopian tubes.
- 15)** What is function of ciliated epithelium ?
- Ans** It's function is to move particles or mucus in a specific direction over epithelium.
- 16)** What is Glandular epithelium ?
- Ans** Some of the Columnar or Cuboidal cells get specialised for secretion called Glandular epithelium.
- 17)** How many types of cell junctions are present in epithelium and other tissues?

- Ans** There are three types of cell junctions in epithelium and other tissues.
- 18)** Which is the tissue which is most abundant and widely distributed in our body?
- Ans** Connective tissue.
- Q.19)** What is function of fibres in connective tissue ?
- Ans** Fibres provide strength, elasticity and flexibility to the tissue.
- Q.20)** What is areolar tissue ?
- Ans** It is a loose connective tissue present below the skin giving support and frame work for epithelium/.
- Q.21)** What are Chondrocytes ?
- Ans** Cells of cartilage tissue are called chondrocytes.
- Q.22)** What are Osteocytes.
- Ans** Bone-cells are called Osteocytes.
- Q.23)** What are lacunae ?
- Ans** These are the spaces in bone tissue where Osteocytes are present.
- Q.24)** Name the fluid connective tissue.
- Ans** Blood.
- Q.25)** Name the blood cells of Blood.
- Ans** Red blood cells (RBC) and White blood cells (WBC) and blood platelets
- Q.26)** What is the main function of muscle Tissue?
- Ans** It helps in all movements of body.

- Q.27)** **what is skeletal muscle tissue.**
Ans **It is the muscle attached to skeletal bones and show number of striations.**
- Q 28)** **What is smooth Muscle tissue?**
Ans **It is a muscle tissue which has fibres taper at both ends and do not shows striations.**
- Q. 29)** **What are Neuron ?**
Ans **Neuron is the structural unit of neural system.**
- Q 30)** **what is Neuroglial cells?**
Ans **They protect and support neurons.**
- Q 31)** **Which tissue is involved in making inner wlls of blood vessels ?**
Ans **Squamous epithelium.**
- Q 32)** **Name the scientific name of Earthworm ?**
Ans **Pheretima posthuma.**
- Q 33)** **What are setae**
Ans **A ring of S shaped Chitinous structures found in each segment of earthworm is called setae**
- Q 34)** **What is the function of Setae?**
Ans **Setae help in locomotion.**
- Q 35)** **In which segment of earth worm female genital pores are present?**
Ans **14th segment**
- Q 36)** **In which segment of earth worm , Male genital pores are present?**
Ans **18th segment.**

- Q 37) What is hermaphrodite ?**
Ans It is an animal having both testes and Ovary.
- Q 38) What is Vasa deferentia ?**
Ans It is the common prostrate and spermatic duct.
- Q 39) On which segments of earth worm two pairs of testes occur ?**
Ans 10th and 11th segments.
- Q 40) On which segments of earthworm a pair of ovaries occur?**
Ans 12th and 13th segments.
- Q 41) What is the food of earthworm?**
Ans It is the decaying leaves and organic matter mixed with soil.
- Q 42) What is the function of stomach in earthworm?**
Ans Calciferous glands present in stomach neutralise the humic acid present in humus.
- Q 43) On which segment of earthworm intestinal caecae are present?**
Ans 26th segment.
- Q 44) What do the blood glands in earthworm produce?**
Ans They produce blood cells and Haemoglobin.
- Q 45) Which takes part in respiration in earthworm ?**
Ans Body surface.
- Q 46) What are Nephridia ?**
Ans They are the excretory organs in earthworm.
- Q 47) What is the function of cocoon in earthworm?**

- Ans** Fertilization and development in earthworm occur within the cocoon.
- Q 48)** How many types of nephridia are present in earthworm based on their location ?
- Ans** Three (3) types.
- Q. 49)** What are sclerites ?
- Ans** In each segment of cockroach, exoskeleton has hardened plate called sclerite.
- Q.50)** How many segments of in cockroach, fuse to form Head ?
- Ans** Six (6) segments.
- Q 51)** How is the mouth parts adopted in cockroach.
- Ans** Mouth parts bear appendages for biting and chewing.
- Q 52** How many segments does abdomen consist in cockroach?
- Ans** ten (10) segments.
- Q 53)** What is the function of Gizzard in cockroach?
- Ans** It helps in grinding food particles.
- Q 54)** What is Haemocoel ?
- Ans** It is the blood filled body cavity in cockroach.
- Q 55)** How many chambers are there in heart of cockroach?
- Ans** 13 chambers .
- Q 56)** How many pairs of spiracles are present in the heart of cockroach?
- Ans** 10 pairs.
- Q 57)** What is the function of net work of trachea in cockroach?

Ans It functions as a respiratory system.

Q 58) what are malpighian tubules?

Ans They are the excretory organs in cockroach.

Q 59) Why is cockroach called uricotelic ?

Ans Because they excrete their nitrogenous wastes in the form of uric Acid.

Q 60) What is Phallomere ?

Ans It is the Chitinous asymmetrical structures surrounding male genopore in cockroach.

Q 61) What are spermatophores ?

Ans In cockroach, sperms stored in seminal vesicles are glued together in the form of bundles called spermatophores.

Q 62) How many ovarioles are present in the ovary of cockroach?

Ans Eight (8) ovarioles.

Q 63) How many ganglia occur in thorax of cockroach ?

Ans Three (3) ganglia.

Q 64) What is Ootheca?

Ans It is a dark reddish to blackish brown capsule produced by female cockroach which contains 14 to 16 eggs.

Q 65) Define Paurometabolous.

Ans In cockroach there is the development through nymphal stage which is called Paurometabolous.

Q 66) What are Nymphs ?

Ans Young ones of cockroach are called Nymphs ?

- Q 67)** How many times do nymphs moult to form adults ?
Ans 13 times.
- Q 68)** Give the scientific name for frog which is commonly found in India?
Ans *Rana tigrina*.
- Q 69)** What are cold blooded animals ?
Ans These are the animals whose body temperature varies according to the temperature of environment.
- Q 70)** What is Aestivation ?
Ans It is the summer sleep in frog.
- Q 71)** What is Hibernation ?
Ans It is the winter sleep in frog.
- Q 72)** Name the membrane present in frog which covers and protect eyes while in water ?
Ans Nictating membrane.
- Q 73)** Name the membrane in frog, which receive sound signals?
Ans Tympanum.
- Q 74)** What is the function of webbed Digits in frog?
Ans They help in swimming.
- Q 75)** Why is alimentary Canal short in frogs?
Ans Because frogs are carnivorous.
- Q 76)** What do liver and Pancreas secrets in frog ?
Ans Liver secrete bilejuice and Pancreas secrete pancreatic juice.
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- Q 77) What is Chyme ?**
Ans Partially digested food in stomach by the action of Hcl and gastric juice is called chyme.
- Q 78) Name the part of alimentary canal where both bile juice and Pancreatic juice enter ?**
Ans Duodenum.
- Q 79) Which juice emulsifies fat ?**
Ans Bile juice .
- Q 80) What are villi ?**
Ans Finger like folds present in small intestine which help in absorption of food are called villi ?
- Q 81) How many chambers are present in heart of frog?**
Ans Three (3) chambers .
- Q 82) Name the covering membrane to the heart.**
Ans Pericardium.
- Q 83) What is sinus Venosus ?**
Ans It is a triangular structure which receive blood through venacava.
- Q 84) Name the red coloured Pigment present in RBC ?**
Ans Haemoglobin.
- Q 85) What are Nephrons ?**
Ans Nephrons are the structural and functional units of Kidney.
- Q 86) What is meant by Ureotelic animal ?**

Ans **Animal which excrete out urea, as the nitrogenous waste is called ureotelic animal.**

Q87) **By which , chemical co-ordination of various organs in frog's body is achieved.?**

Ans **By hormones.**

Q 88) **How many pairs of Cranial nerves arise from brain in frog ?**

Ans **10 pairs.**

Q 89) **What is cranium ?**

Ans **Brain is covered in a bony structure called Cranium.**

Q 90) **What is mesorchium?**

Ans **Testes, which are found attached to the upper part of kidneys by a double fold of Peritoneum is called mesorchium.**

Q 91) **What is cloaca ?**

Ans **It is a small, median chamber that is used to pass faecal matter, urine and sperms to exterior in frogs.**

Q 92) **Name the larval stage of frog?**

Ans **Tadpole.**

Q 93) **Name the process, where tadpole has to undergo to become adult?**

Ans **Metamorphosis .**

TWO MARKS QUESTIONS

Q 1) **Name the four broadly classified tissues in Animals?**

Ans **a) Epithelial tissue.**

b) Connective tissue.

c) Muscular tissue.

d) Neural tissue.

Q 2) Differentiate simple epithelium from Compound epithelium?

Ans Simple epithelium is composed of a single layer of cells and functions as a lining for body cavities, ducts and tubes.

Q 3) Name two types of Glandular epithelium and where do they occur?

Ans i) Unicellular glandular occurring as Goblet cells in alimentary canal

ii) Multicellular glandular in salivary glands.

Q 4) Differentiate exocrine from endocrine glands ?

Ans Exocrine glands secrete their secretions through duct or tubes. Endocrine Glands do not have ducts, hence they secrete their secretions directly into blood.

Q 5) Give functions of compound epithelium.

Ans 1) It provides protection against chemical and mechanical stress.

2) They cover body surface of the skin.

3) They cover moist surface of buccal cavity

4) They cover pharynx, inner lining of ducts.

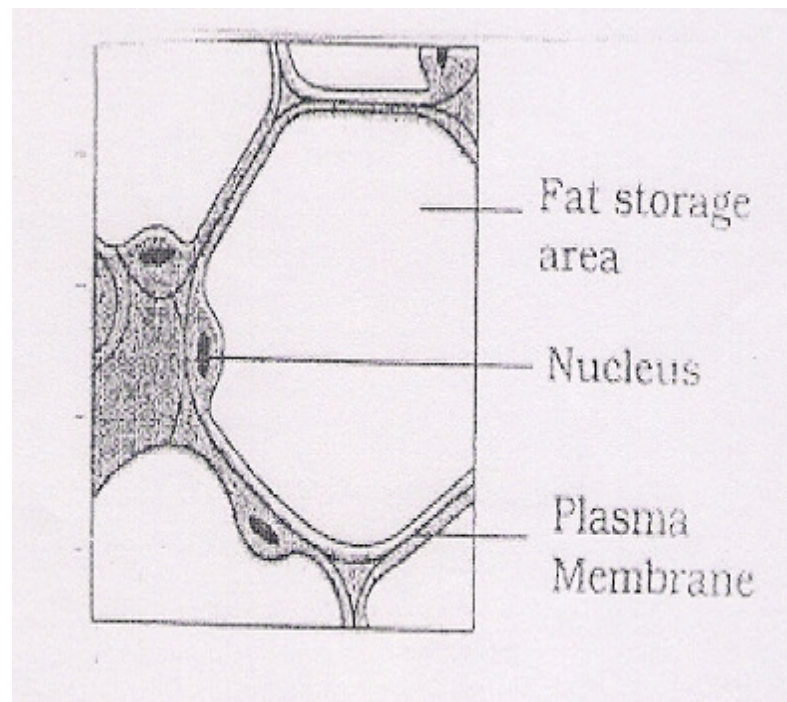
Q 6) Name any two cell junctions.

1) Tight junctions

2) Adhering junctions.

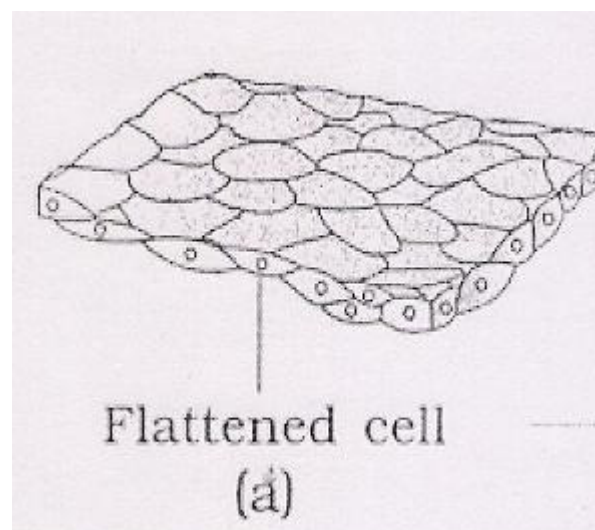
Q.7 Draw a neat labelled diagram of Adipose tissue

Ans



Q 8) Drw a neat labeled sketch of squamous epithelium

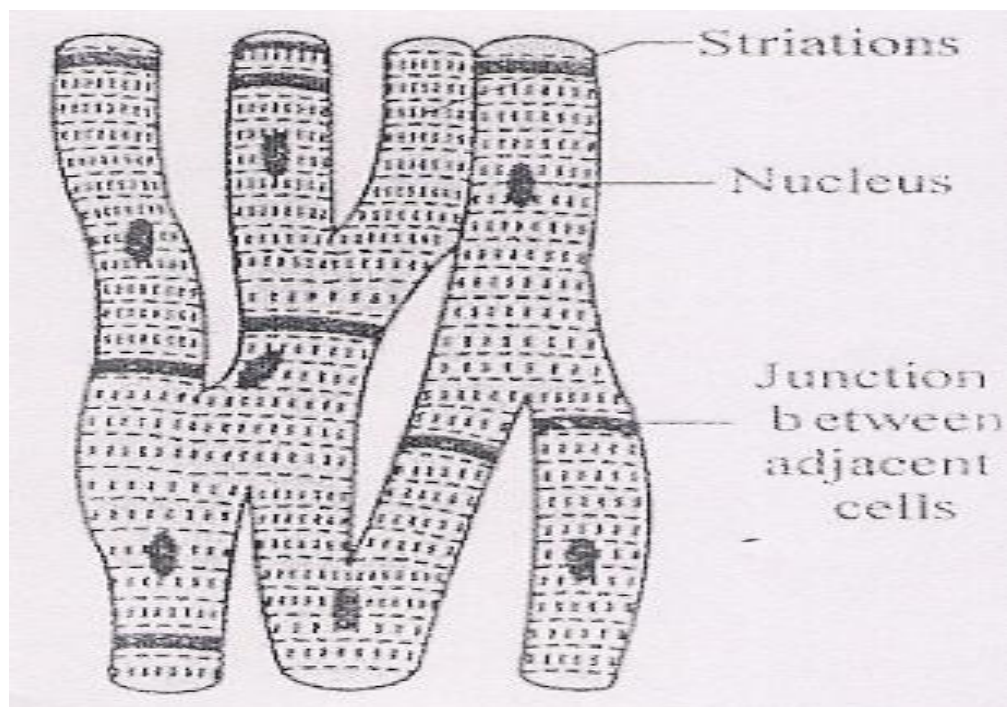
Ans



Q 9)

Draw a labeled sketch of Cardiac muscle tissue

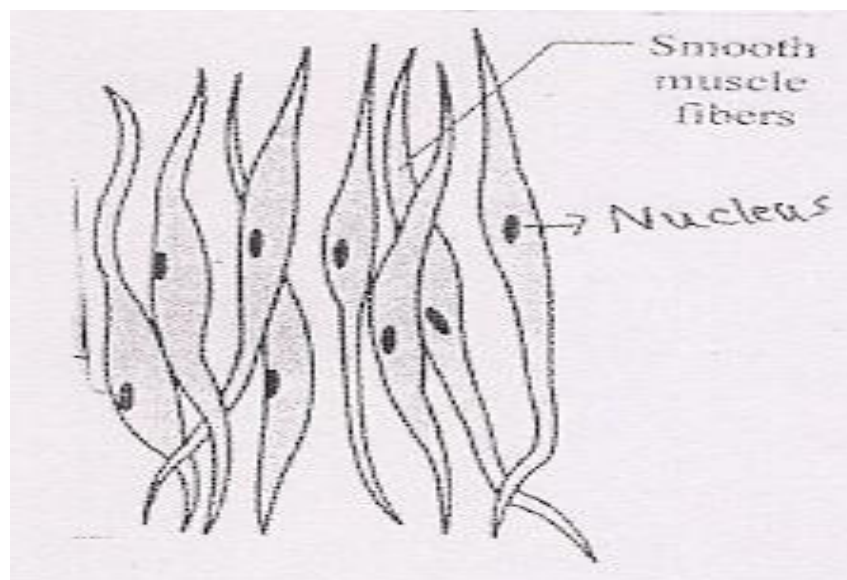
Ans



Q 10)

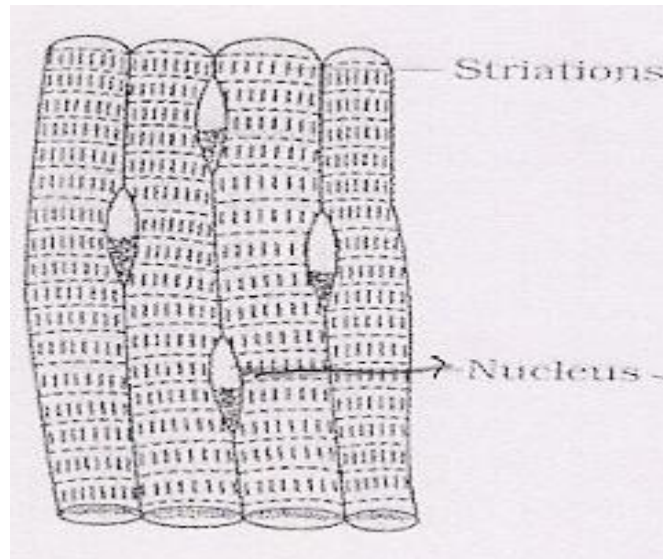
Draw labeled sketch of smooth muscle

Ans



Q 11) Draw labeled sketch of skeletal tissue

Ans



Q 12) Name the types of fibres of connective tissue and what is the function of fibres in connective tissue.

Ans i) Collagen fibres, ii) Elastic Fibres.

These fibres provide strength, elasticity and and flexibility to the connective tissue.

Q 13) What is the difference between loose connective tissue and dense connective tissue ?

Ans Loose connective tissue has cells and fibres loosely arranged in semi fluid substance. In Dense connective tissue, fibres and fibroblasts are compactly packed.

Q 14) Differentiate Dense regular connective tissue from Dense irregular connective tissue.

Ans In dense regular connective tissue collagen fibres are present in rows between many parallel bundles of fibres. In Dense irregular

connective tissue fibroblasts and collagen fibres are oriented differently.

Q 15) Differentiate Tendon from Ligament.

Ans Tendon is a connective tissue which attach skeletal muscles to bones Ligament is a connective tissue which attach one bone to another.

Q 16) Give two differences between bone and cartilage

Ans 1) Cartilage is solid and Pliable and resists compression,
2) Cells of this tissue is called chondrocytes
1) Bone have a hard and non pliable ground substance rich in calcium salts and collagen fibres which give strength, 2) Bone cells are called osteocytes.

Q 17) Give the locality of cartilage

Ans Tip of Nose, outer ear joints, between adjacent bones of vertebral column, limbs.

Q 18) Give four functions of Bone.

- a) It is the main tissue which provide structural frame to the body
- b) It provides support and protect softer tissue and organs
- c) Long bones of legs, serve weight bearing functions.
- d) Bone marrow in some bones, is the site of production of blood cells.

Q 19) Where do you find smooth muscle tissue?

Ans It is found in the wall of internal organs such as blood vessels, stomach and intestine.

Q 20) Differentiate smooth muscle from skeletal muscle.

Ans Smooth muscle has fibres which taper at both ends and do not show striations and it is involuntary and found in the wall of

internal organs skeletal muscle is attached to skeletal bones and they show striations and it is voluntary.

Q 21) How is dorsal and ventral surfaces distinguished in earthworm

Ans Dorsal surface of the body is marked by a dark median mid dorsal line along longitudinal axis of body whereas ventral surface of the body is marked by presence of genital openings.

Q 22) What is Prostomium? Give its function ?

Ans Prostomium is a lobe which serves as a covering for mouth in earthworm. It helps as a wedge to force open cracks in the soil into which earthworm may crawl.

Q 23) Comment on the structure of clitellum.

Ans In a mature earthworm, segments of 14th, 15th and 16th are covered by prominent dark band of glandular tissue called clitellum. Based on this structure, body of earth worm is divisible into three regions such as pre-clitellar, clitellar and post clitellar segments. Clitellum does not bear setae.

Q 24) Where are female genital pore and male genital pores present in earth worm?

Ans A single female genital pore is present in mid-ventral line of 14th segment and a pair of male genital pores are present on ventro-lateral sides of 18th segment.

Q 25) What is typhlosole? Give its function.

Ans In earth worm, characteristic feature of intestine between 26th to 35th segments, there is the presence of internal median fold of dorsal wall called typhlosole. It helps in increasing effective area for absorption in the intestine.

Q 26) Where are blood glands present in earthworm? Give its function.

Ans Blood glands are present on 4th, 5th and 6th segments. They produce blood cells and haemoglobin which is dissolved in plasma.

Q 27) How do nephridia occur in earthworm? Mention three types.

Ans Nephridia occur as segmentally arranged coiled tubules and three types are 1) septal Nephridia, ii) integumentary nephridia iii) pharyngeal nephridia.

Q 28) Comment on the structure of Nervous system in earthworm.

Ans Nervous system in earthworm is basically represented by ganglia arranged segment wise on the ventral paired nerve cord. Nerve cord in the anterior region (3rd and 4th segments) bifurcates , laterally encircling the pharynx and join cerebral ganglia dorsally to form nerve ring.

Q 29) How are the, sensitive organs in earthworm ?

Ans Earthworm has light and touch sensitive organs (receptor cells) to distinguish light intensities and to feel vibrations in the ground. They have chemo receptors (taste receptors) which react to chemical stimuli.

Q 30) How many pairs of spermathecae are present in earthworm and what is their function ?

Ans There are four pairs of spermathecae in earthworm. They receive and store spermatazoa during copulation.

Q 31) How do exchange of sperms occur between two earthworms during mating ?

Ans One worm has to find another worm and they mate juxtaposing opposite gonadial openings exchanging packets of sperms called spermatophores.

Q 32) why are earthworms called “friend of farmers”?

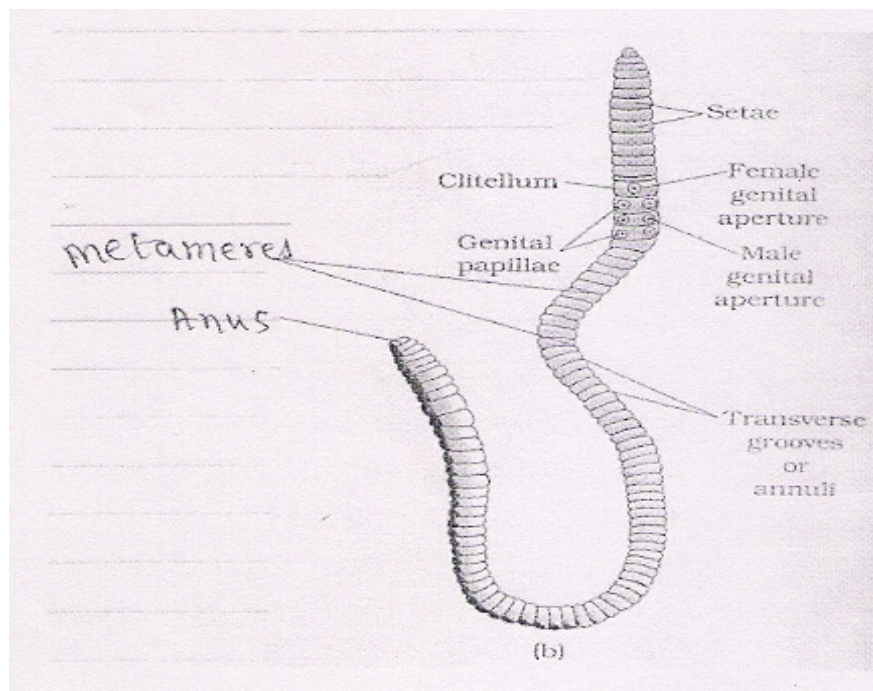
Ans Earthworms are called friend of farmers because they make burrows in the soil and make it porous which helps in respiration and penetration of developing plant roots. Fertility of soil is also increased by their vermicompost.

Q 33) What is the difference between Prostomium and Peristomium

Ans Prostomium is the lobe which serve as covering to the mouth in cockroach and it is sensory infunction. Peristomium is the first segment which contains mouth.

Q 34) Draw a neat labeled sketch of Ventral view of earthworm.

Ans)



Q 35) Name any four parts of closed circulatory system in earth worm

- Ans**
- 1) Dorsal vessel
 - 2) Ventral vessel
 - 3) Sub-neural-vessel
 - 4) Lower Oesophgaeal vessel

- Q 36)** How is male cockroach different from female cockroach?
- Ans** In female , the 7th sternum is boat shaped and together with 8th and 9th sterna forms a brood and genital pouch whose anterior part contains female gonophore, spermathecal pairs and collateral glands. In males, genital pouch lies at the hind end of abdomen bounded dorsally by 9th sternum. Males bear a pair of short, thread like anal styles which are absent in females.
- Q 37)** What are hepatic caecae? What is their function ?
- Ans** A ring of 6 to 8 blind tubules present at the junction of foregut and midgut in cockroach are called hepatic caecae. They secrete digestive juice.
- Q 38)** What are malpighian tubules found in cockroach?
- Ans** At the junction of midgut and hindgut in cockroach is present a rim of 100 to 150 yellow coloured thin filamentous structures called malpighian tubules. They help in removal of excretory products from haemolymph.
- Q 39)** What is mosaic vision ? Describe.
- Ans** With the help of several ommatidia, cockroach can receive several images of an object. This kind of vision is known as mosaic vision. With more sensitivity but less resolution, being common during night, is also called Nocturnal vision.
- Q 40)** Differentiate forewing from hindwing in cockroach .
- Ans** Forewings also called tegmina are opaque dark and leathery and cover hind wings when at rest. Hind wings are transparent, membranous and used in flight.
- Q 41)** How are the colours of dorsal and ventral sides of skin in frog?

Ans Colour of dorsal side of the body is generally olive green with dark irregular spots. On the ventral side the skin is uniformly pale yellow.

Q 42) How are the male frogs distinguished ?

Ans Male frogs can be distinguished by the presence of sound producing vocal sacs and also a copulatory pad on the first diit of forelimb.

Q 43) What is the difference between cutaneous respiration and Pulmonary respiration ?

Ans In frog, when it is in water, skin acts as a aquatic respiratory organs and it is called cutaneous respiration. Frog when on land respire through lungs and it is called pulmonary respiration.

Q 44) What do the blood vascular system and lymphatic system consist in frog ?

Ans Blood vascular system consist of heart, blood vessels and blood lymphatic system consist of lymph, lymph channels and lymph nodes.

Q 45) Differentiate Hepatic portal system from renal Portal system

Ans Hepatic portal system is the special venous connection between Liver and intestine . Renal portal system is the special venous connection between kidney and lower parts of the body.

Q 46) Name any four endocrine glands of frog.

Ans a) Pituitary gland b) Parathyroid gland
b) Thymus c) Pineal body

Q 47) How are frogs beneficial to mankind ?

Ans **Frogs eat insects and protect crops. Frogs maintain ecological balance because these serve as an important link of food chain and food web in the ecosystem. In some countries muscular legs of frog are used as food by man.**

QUESTIONS CARRYING FOUR MARKS

Q 1) Describe loose connective tissue and dense connective tissue.

Ans Loose connective tissue :- It has cells and fibres loosely arranged in a semi fluid ground substance for exa: Areolar tissue present below skin, often it serves s a support frame work for epithelium. It contains fibroblasts, macrophages and mast cells. Adipose tissue is another type of loose connective tissue are specialised to store fat. Excess of nutrients which are not used immediately are converted into fats and are stored in this tissue.

Dense Connective Tissue:-

Fibres and fibroblasts are compactly packed in dense connective tissue which may be regular or irregular. In dense regular connective tissue, collagen fibres are present in rows between many parallel bundles of fibres. Tendons, which attach skeletal muscles to bones and ligaments which attach one bone to another are example. Dense irregular connective tissue has fibroblasts and many fibres are oriented differently. This tissue is present in the skin.

Q 2) Give one place of occurrence of the following

- | | |
|---------------------------|------------------------|
| a) Squamous epithelium | b) cuboidal epithelium |
| c) columnar epithelium | d) ciliated epithelium |
| e) cardiac muscle | f) smoth muscle |
| g) skeletal mucle | h) cartilage |

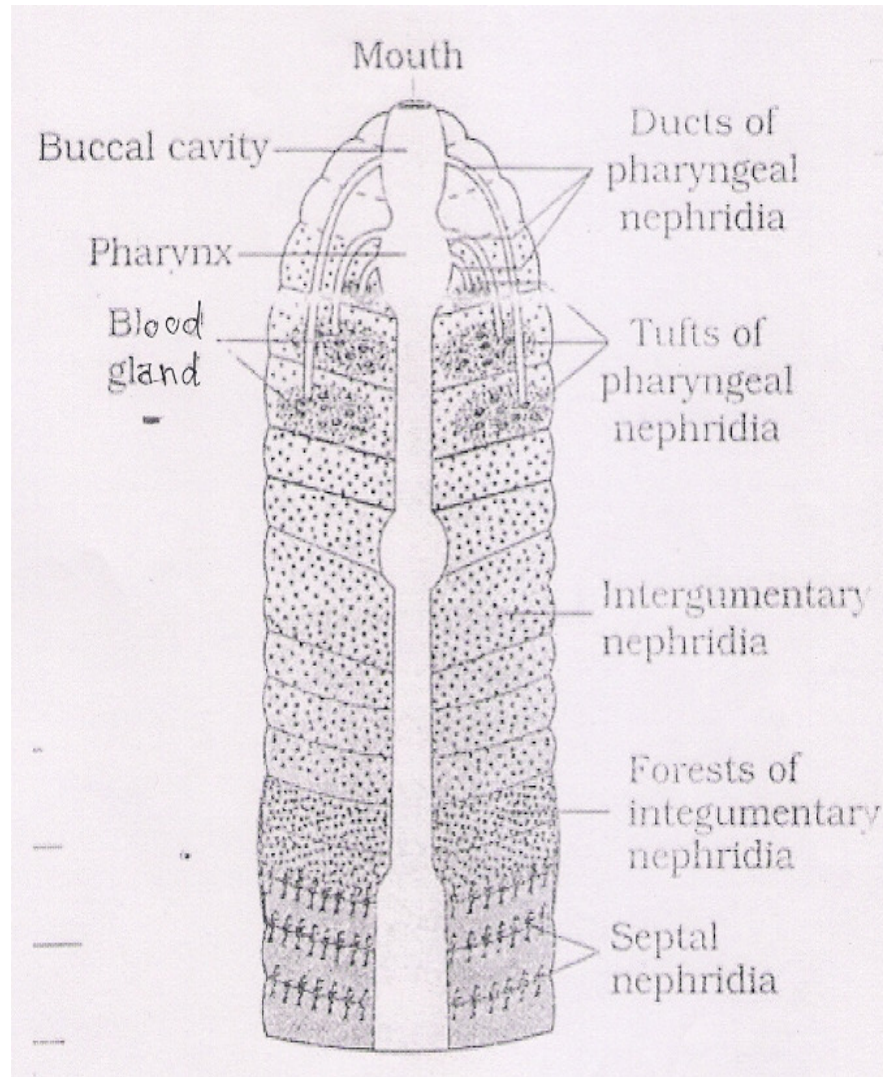
Ans

- | | |
|----------------------------|--------------------------------|
| a) Air sacs of lungs | b) Tubular part of Nephron |
| c) lining of stomach | d) innersurface of branchioles |
| e) Heart wall | f) Wall of intestine |
| g) found attached to bones | h) tip of nose. |

Q 3)

Draw neat labeled diagram of Nephridial system in earthworm

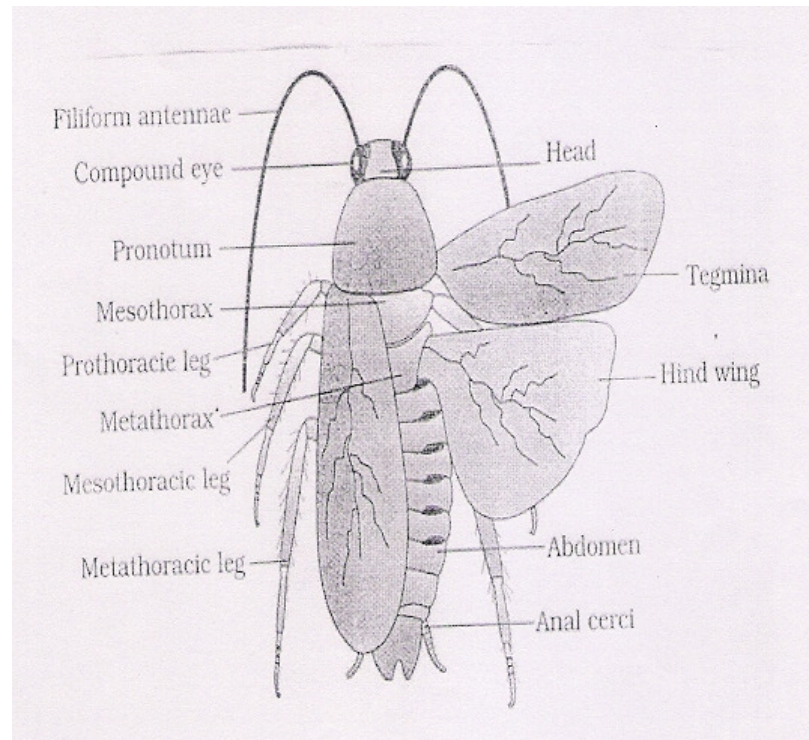
Ans



Q 4)

Draw labeled sketch of external features of cockroach

Ans

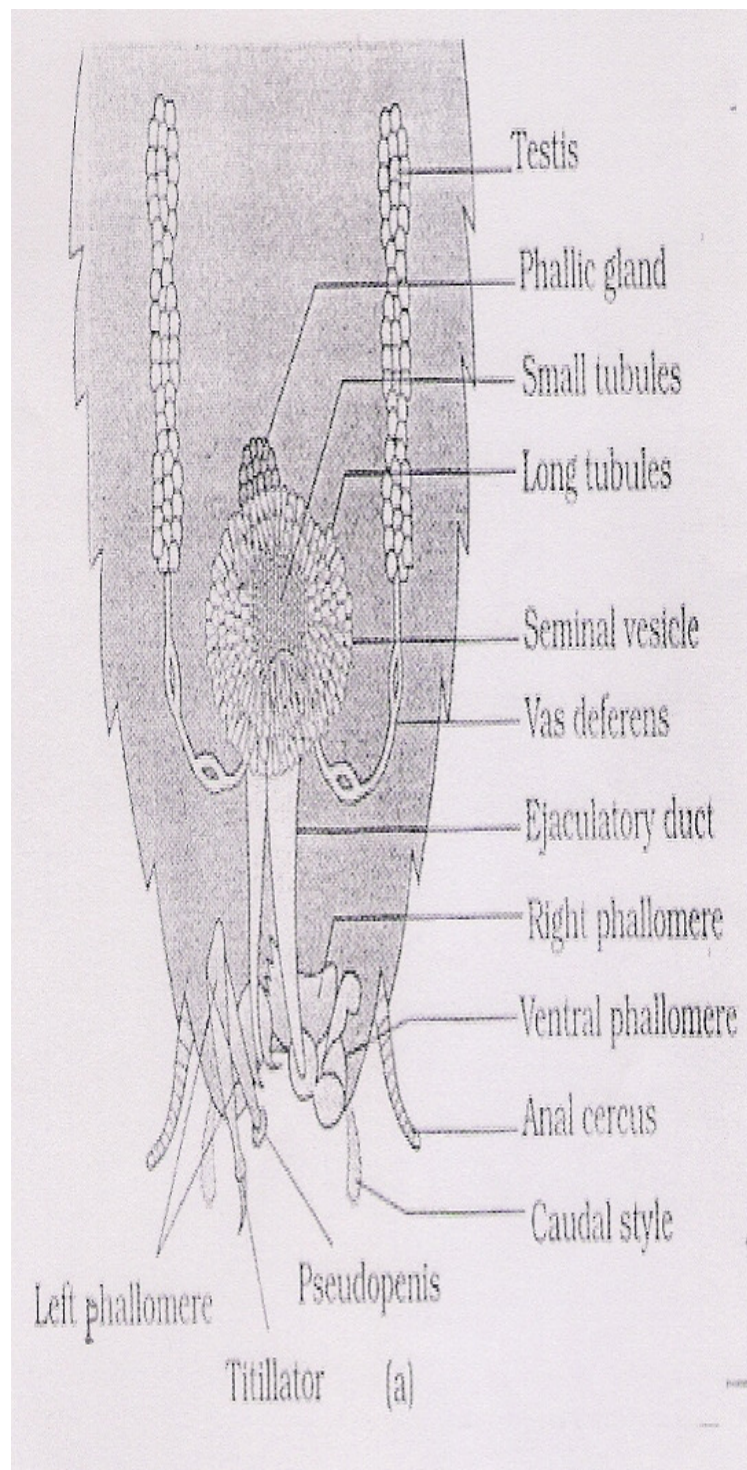


Q 5) Describe the structure of Head region of cockroach

Ans Head is triangular in shape and it lies anteriorly at right angles to the longitudinal body axis. It is formed by fusion of six segments and show great mobility in all directions. Head capsule bears a pair of compound eyes. A pair of thread like antennae arise from membranous sockets. Antennae have sensory receptors that help in monitoring environment Anterior end of the head bears appendages forming biting and chewing type of mouth parts. Mouth parts consist of labrum (upper lip) a pair of mandibles, a pair of maxillae and a labium (lower lip)Hypophrynx lies inside.

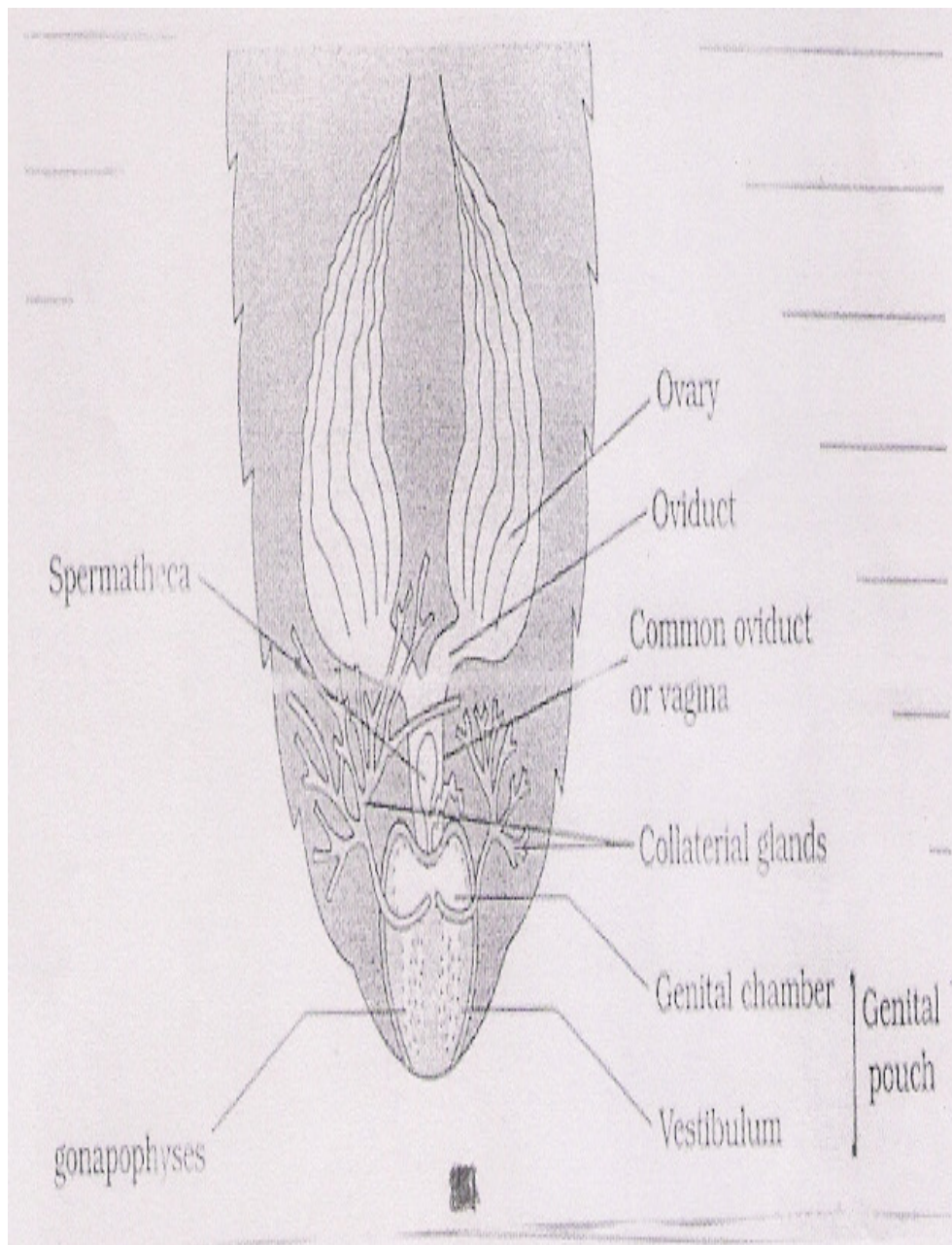
Q6) Draw a neat sketch of male reproductive system of cockroach

Ans



Q 7) Describe female reproductive system of cockroach

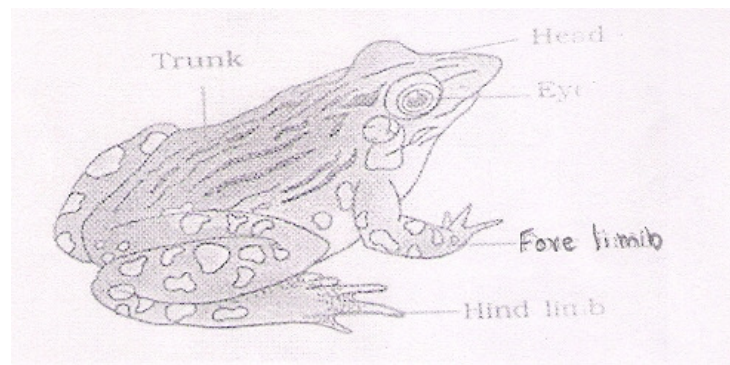
Ans



Ans Female reproductive system consist of two large ovaries, lying laterally in the 2nd to 6th abdominal segments. Each ovary is formed of a group of eight ovarian tabules or ovarioles, containing a chain of developing ova. oviducts of each ovary unite into a single median oviduct which open into genital chamber. A pair of spermatheca is present in the 6th segment which open into genital chamber.

Q 8) Give an account on morphology of frog

Ans Body of frog is divisible into head and trunk. Neck and tail is absent. Above the mouth, a pair of nostrils is present. Eyes are bulged and covered by a nictating membrane that protect the eye while in water. On either side of eyes, membranous tympanum (ear) receive sound signals. Forelimbs and hindlimbs help in swimming , walking, leaping , and borrowing. Hind limbs end in five digits and they are larger and muscular than forelimbs that end in four digits Feet have webbed digits that help in swimming. Male frogs have vocal sacs and copulatory pad which are absent in female.



Q 9) Describe vascular system of frog.

Ans Blood vascular system involves heart, blood vessels and blood. Heart is a muscular structure which has three chambers, two atria and one ventricle, Heart is covered by a membrane called pericardium, Sinus venosus joins right atrium and it receives blood through major veins called venacava, Ventricle open into conus arteriosus. Blood from heart is carried to all parts of the body by arteries. Veins collect blood from different parts of body to the heart and from venous system. Special venous connection between liver and intestine as well as kidney and lower parts of the body occur. Former is called Hepatic Portal system and latter is called renal portal system. Blood is composed of Plasma and cells. Blood cells are RBC, WBC and platelets.

Blood carries nutrients, gases and water to the respective sites during circulation of blood is achieved by pumping action of muscular heart.

Q 10) Describe excretory system in frog

Ans Excretory system consist of a pair of kidneys, ureters, cloaca and urinary bladder. There are compact , dark red and bean like structures present on both sides of vertebral column. Each kidney is composed of several structural and functional units called nephrons. Two ureters emerge from kidneys in male frogs. Ureters act as urinogenital duct which open into cloaca. In females ureters and oviducts open separately in cloaca. Thin walled urinary bladder is present which get opened into cloaca. Frog excretes urea and thus it is a ureotelic animal. Excretory wastes are carried by blood into kidney where it is separated.

Q 11) Mentioning different endocrine glands, give the structure of Nervous system of frog.

Ans Control and co-ordination in frog includes both neural system and endocrine glands, chemical co-ordination of various organs of the body is achieved by hormones which are secreted by endocrine glands like pituitary, thyroid , parathyroid, Thymus, Pineal body, adrenals and gonads. The nervous system is organized into a central nervous system (Brain and spinal cord), a peripheral nervous system (Cranial and spinal nerves) and autonomic nervous system (sympathetic and para sympathetic). There are ten pairs of cranial nerves arising from brain.

Brain is enclosed in CraniumThe brain is divided into forebrain, mid-brain and hind brain. Forebrain includes olfactory lobes, paired cerebral hemispheres and unpaired diencephalons, midbrain is characterized by a pair of optic lobes. Hind brain consist of cerebellum and medulla oblongata passes out through

the foramen of magnum and continues into spinal cord, which is enclosed in vertebral column.

Q 12) Write a note on sense organs in frog

Ans Frog has different type of sense organs, namely organs of touch (sensory Papillae) taste (taste buds) smell (nasal epithelium) vision (eyes) and hearing (tympanum and internal ears) out of these, eyes and internal ears are well developed structures and the rest are cellular aggregation around nerve endings. Eye in a frog are a pair of spherical structures, situated in the orbit in the skull. These are simple eyes. External ear is absent and tympanum is seen externally. Ear is an organ of hearing as well as balancing (equilibrium)

QUESTIONS CARRYING FIVE MARKS

Q 1) Describe briefly Epithelial tissue

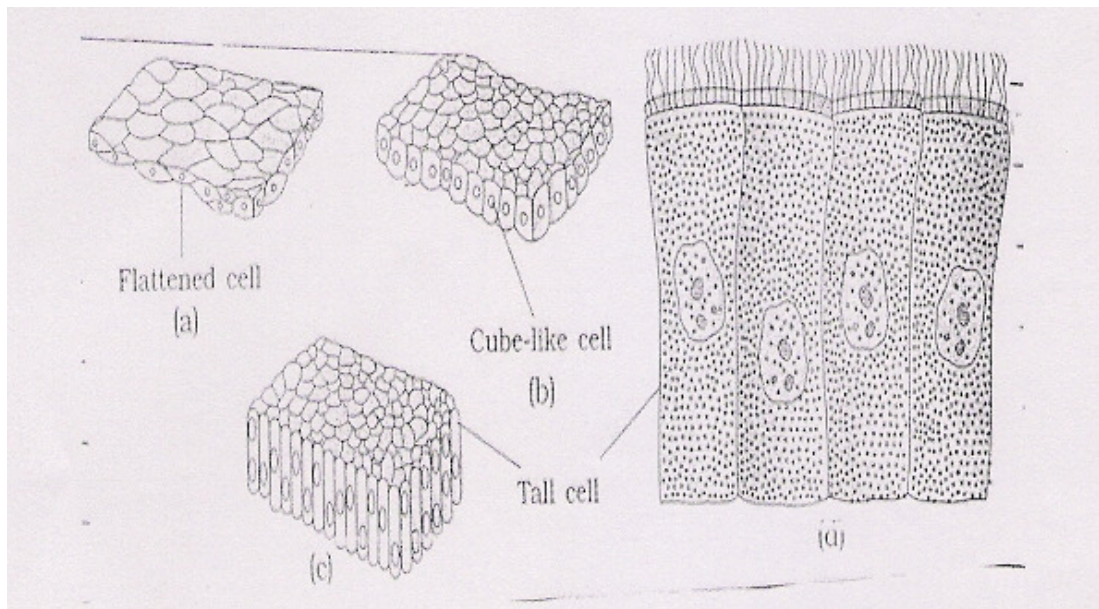
Ans It is the tissue which provides a covering or a lining for some part of the body. Cells are compactly packed. There are two types of epithelium as simple and compound. Simple epithelium is composed of a single layer of cells and compound epithelium consist of two or more cell layers. Simple epithelium is of three types as (i) squamous ii) cuboidal iii) columnar

Squamous epithelium is made up of single thin layer of flattened cells with irregular boundaries, found in lungs and blood vessels cuboidal epithelium is composed of single layer of cube like cell found in nephrons. Columnar epithelium is composed of single layer of tall and slender cells found in lining of stomach and intestine. If the columnar or cuboidal cells bear cilia on their free surface they are called ciliated epithelium, which help in moving

particles present in bronchioles. Some of the columnar or cuboidal cells get specialised for secretion called Glandular Epithelium which may be unicellular or multicellular . Glands may be exocrine (duct less) or Endocrine (duct bearing). Compound epithelium is made of more than one layer of cells which provide protection against chemical and mechanical stresses. Cell-junctions may be tight junctions or Adhering junctions or Gap junctions.

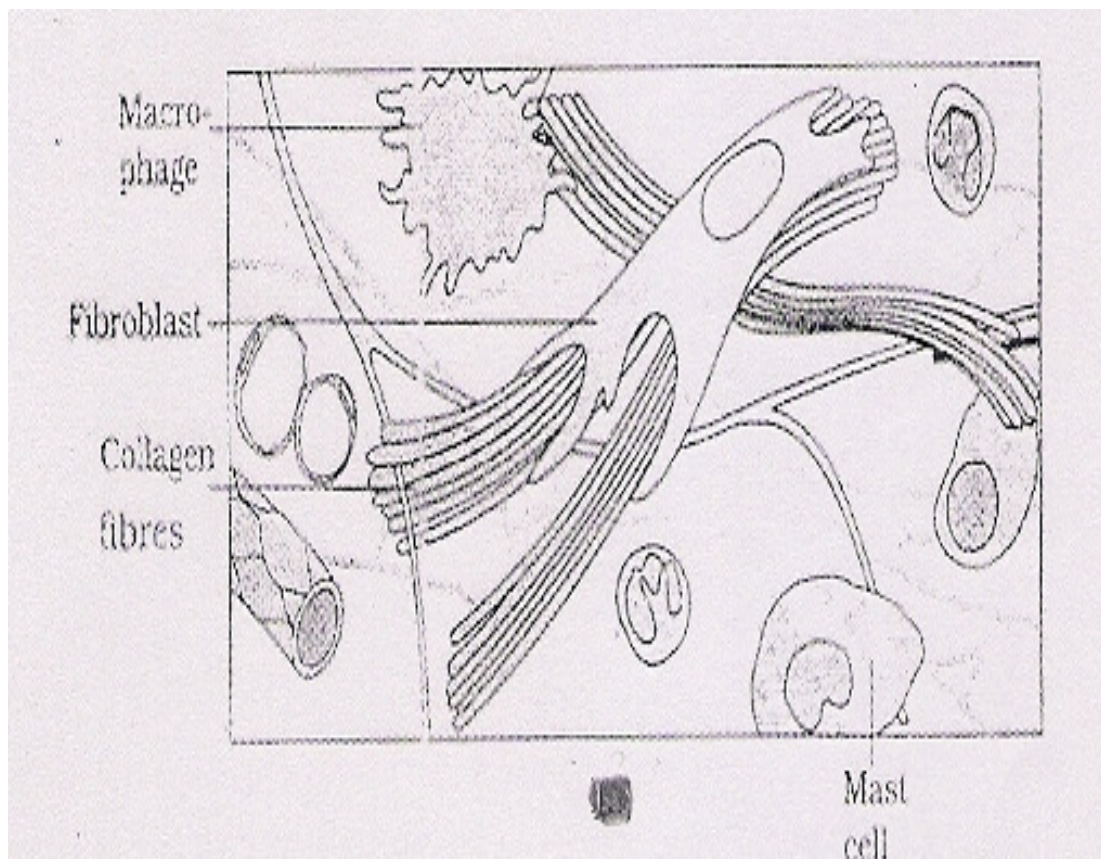
Figures :

- a) Squamous epithelium
- b) Cuboidal epithelium
- c) Columnar epithelium
- d) Ciliated columnar epithelium



Q 2) Define connective tissue and draw a neat labelled diagram of Areolar tissue.

Ans Connective tissue is the tissue which links and supports other tissue or organs of the body and this tissue contains cells and fibres with a ground substances.



Q 3)

Describe smooth muscle and cardiac muscle tissues :

Ans

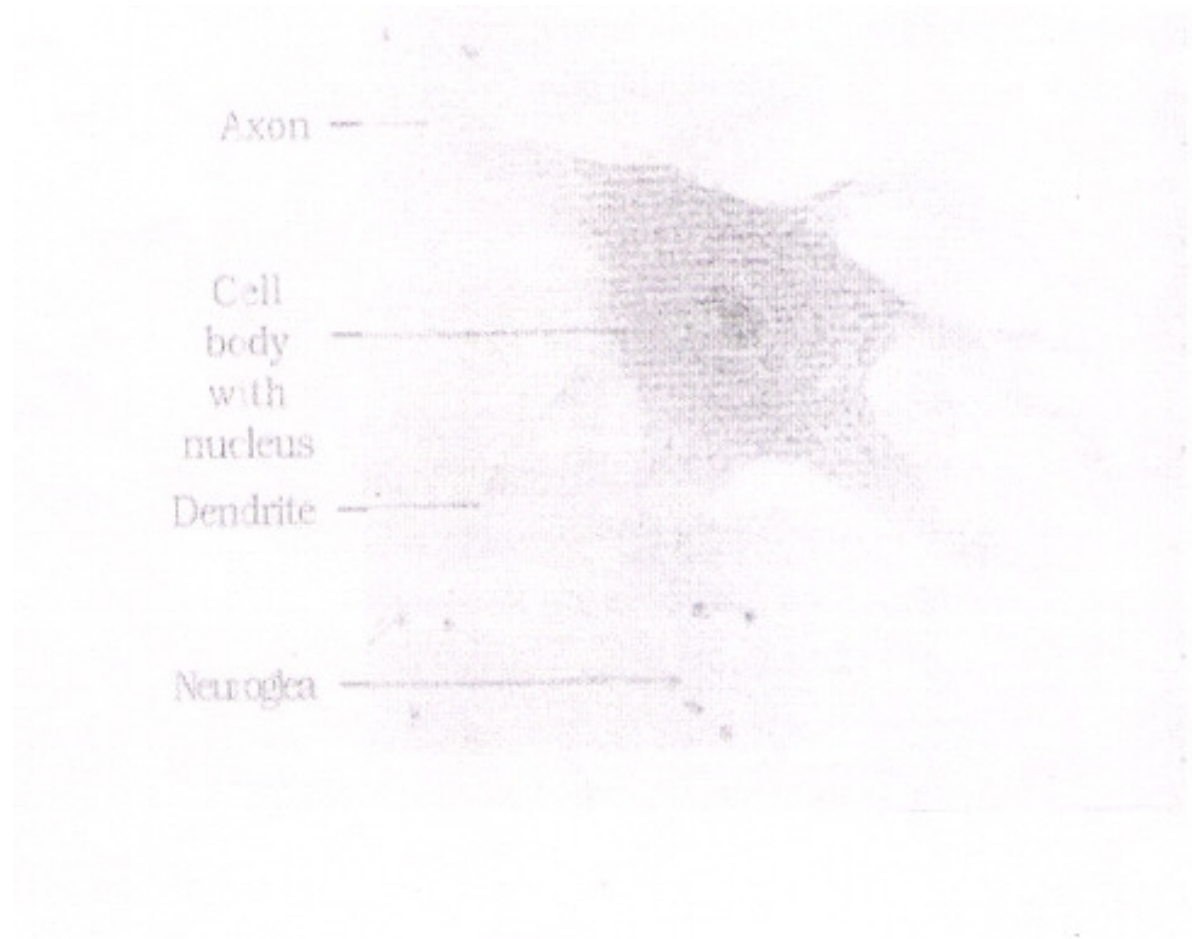
Smooth muscle tissue has fibres which taper at both the ends and do not show striations. Cell junctions hold them together and they are bundled together in a connective tissue sheath. The wall of internal organs such as blood vessels, stomach and intestine contain this type of muscle tissue. Smooth muscles are 'involuntary' as their functioning cannot be directly controlled.

Cardiac muscle tissue is a contractile tissue present only in the heart. Cell junctions fuse the plasma membranes of cardiac muscle cells and make them stick together. Communication junctions and intercalated discs at some fusion points allow cells to contract as a unit i.e., when one cell receives a signal to contract, its neighbours are also stimulated to contract.

(Fig as in 2 mark questions)

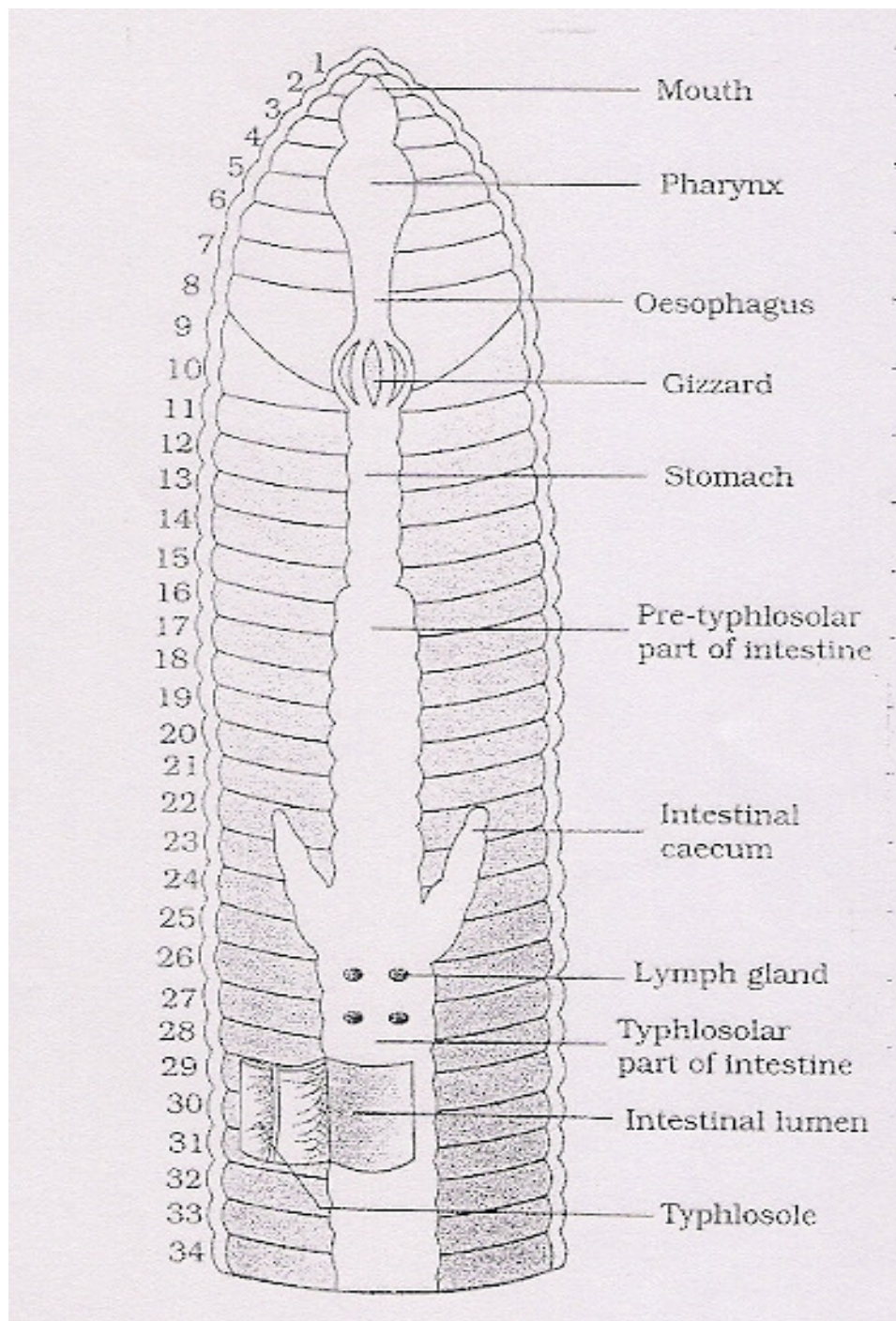
Q 4) What are Neurons and Neuroglia ? Draw labelled diagram of Neural tissue.

Ans Neurons, are the unit of neural system and they are excitable cells. Neuroglial cells constitute the rest of the neural system which protect and support neurons.



Q 5) Draw a neat labelled diagram of Alimentary canal of earthworm

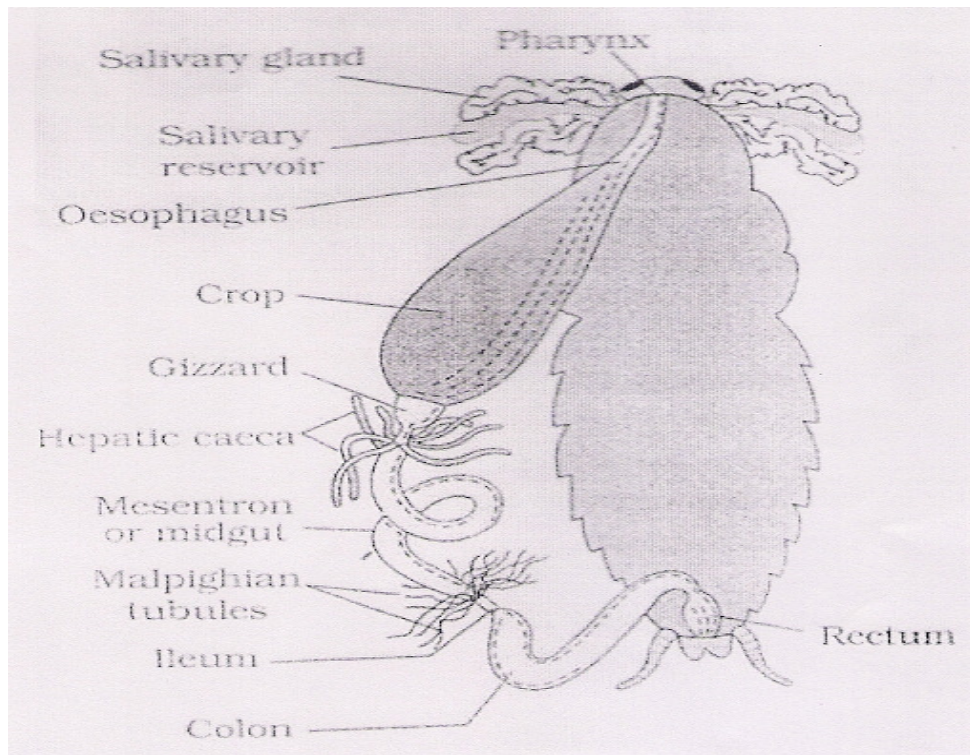
Ans



Q 6) Describe Alimentary canal of cockroach

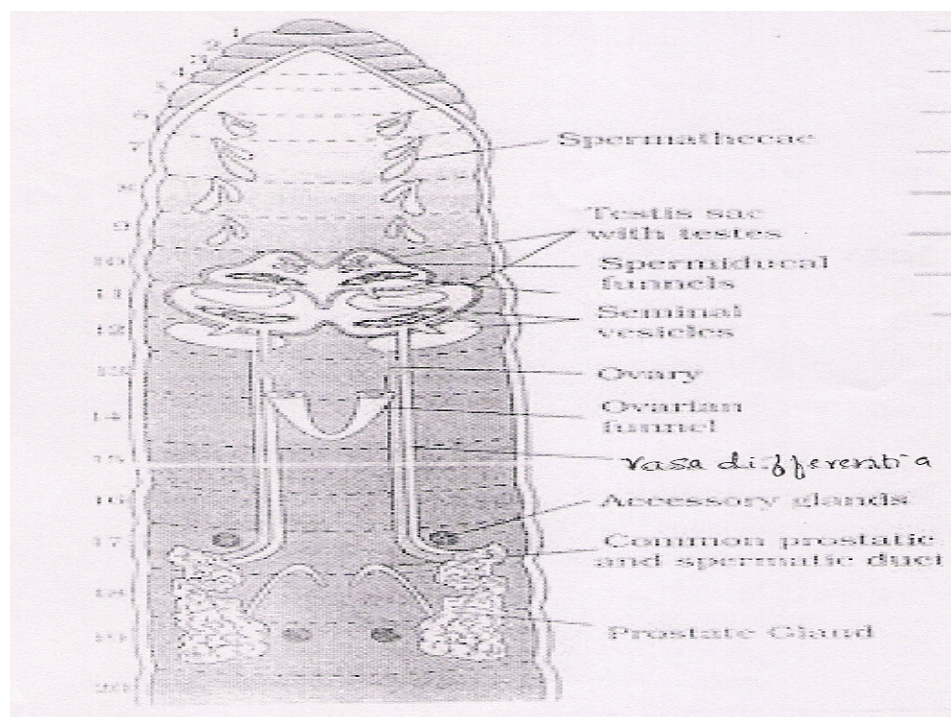
Ans. Alimentary canal present in body, cavity is divided into three regions as foregut, midgut and hindgut .Mouth opens into a short tabular pharynx, leading to a narrow tabular passage called oesophagus. This in turn opens into a sac like structure called crop which continues as Gizzard which helps in grinding food. A ring of 6 to 8 blind tubes called hepatic caecae are present at the junction of foregut and midgut which secrete digestive juice. At

the junction of midgut and hindgut is present another ring of 100-150 yellow coloured malpighian tubules which remove excretory products. Hindgut is differentiated into ileum, colon and rectum.



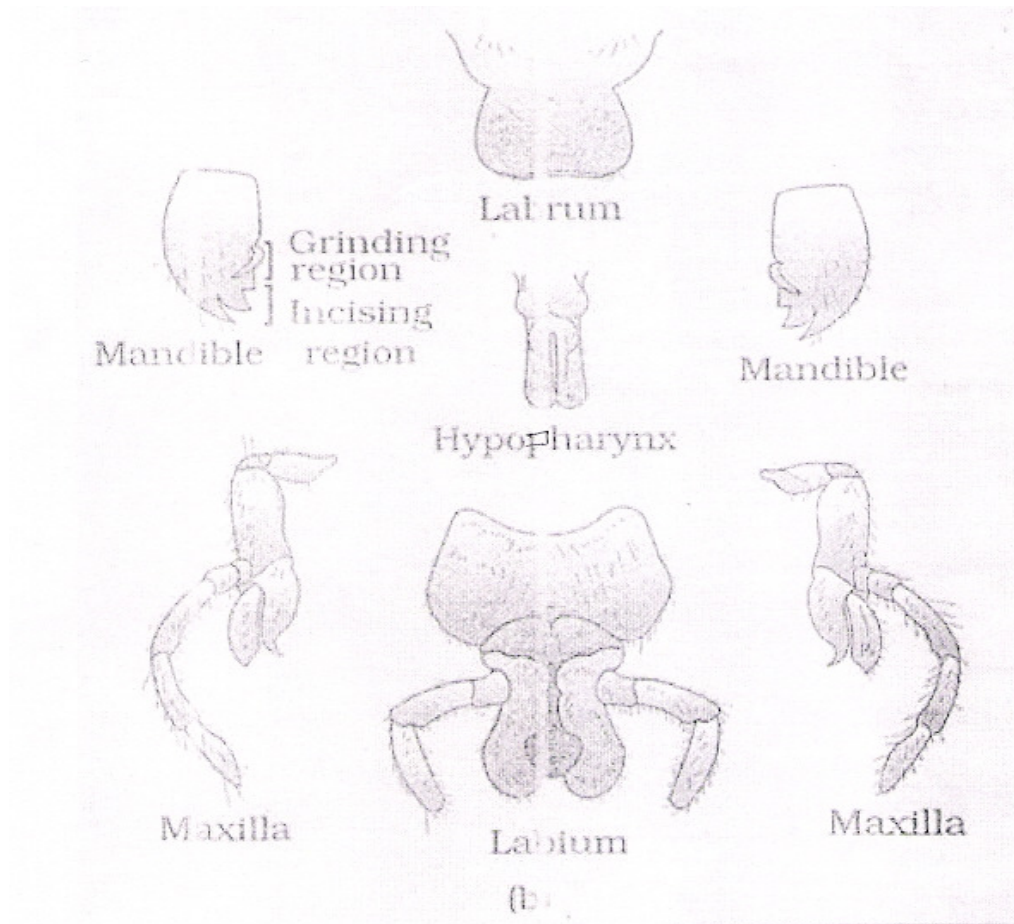
Q7) Draw a neat labeled sketch of Reproductive system of earthworm

Ans



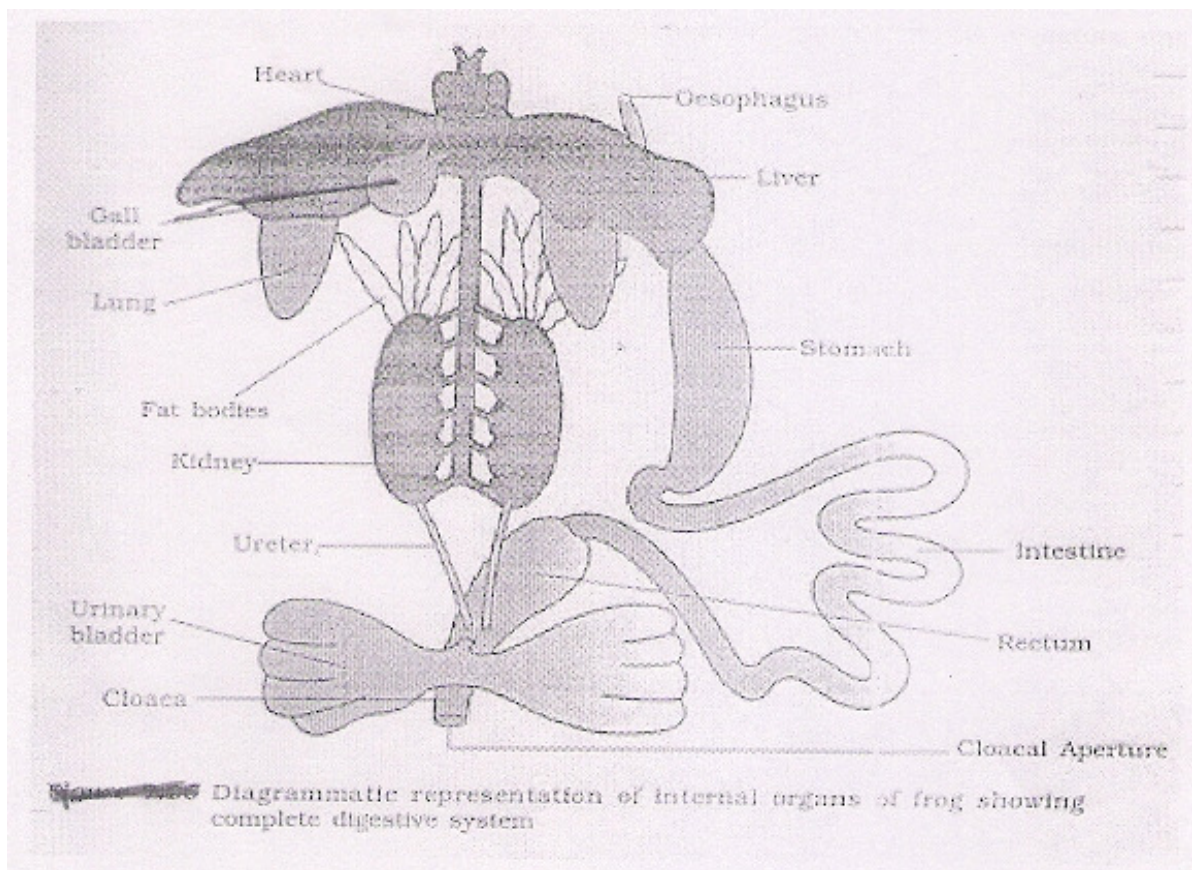
Q 8) Draw neat labeled sketch of mouth parts of cockroach

Ans



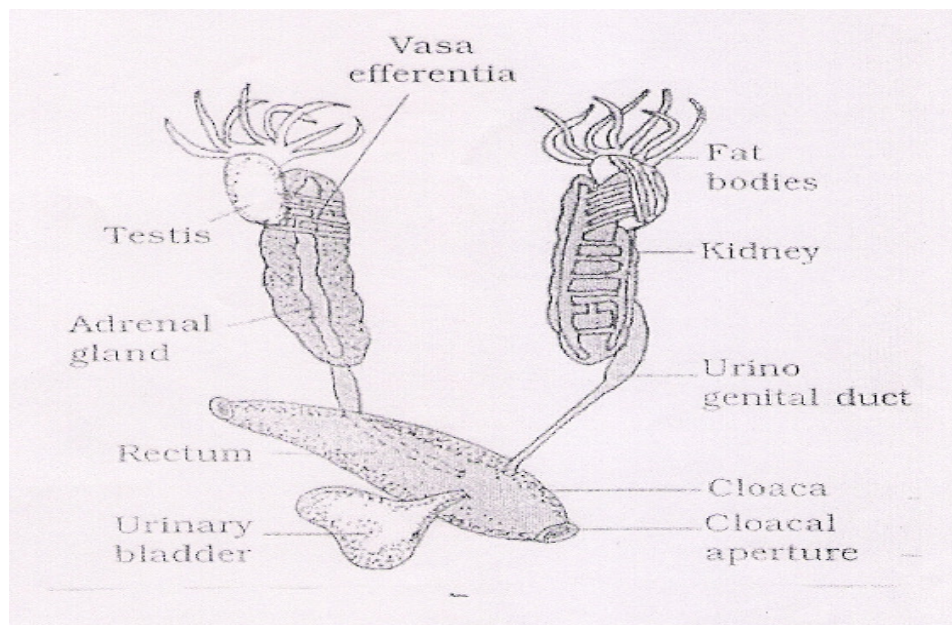
Q 9) Give a diagrammatic representation of internal organs of frog showing complete digestive system.

Ans



Q 10) Describe Male reproductive system in frog.

Ans Male reproductive organs consist of a pair of yellowish ovoid testes which are attached to upper part of kidneys by a double fold of peritoneum called mesorchium. Vasa efferentia are 10 to 12 in number that arise from testes. They enter the kidneys on their side and open into Bidder's canal. Finally it communicates with urinogenital duct that comes out of kidneys and opens into cloaca through which faeces, urine and sperms are sent out.



Q 11) Describe female reproductive system in Frog.

Ans Female reproductive organs include a pair of ovaries which are situated near kidneys and there is no functional connection with kidneys. A pair of oviduct arises from ovaries which open into cloaca separately.

