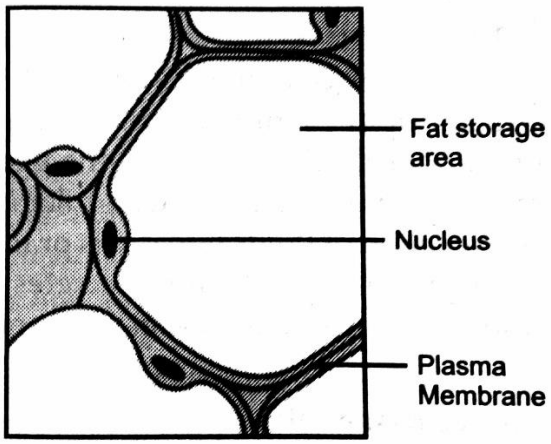
Short Answer Type Questions-II

Q.1. Where do you find adipose tissues in human body? Describe its structure only through diagram. Give its important function.

Ans. Adipose tissues are located beneath skin. Fats are stored in them.



Q. 2 Name the tissues which perform the following functions:

(i) Haemopoiesis,

(ii) Formation of antibodies,

(iii) Coagulation

(iv) Locomotion,

(v)Transmission of message,

(vi) Protection against mechanical shocks,

Ans. (i) Bone marrow
(ii) Lymphocytes (Kind of W.B.Cs.)
(iii) Thrombocytes (Kind of blood cell)
(iv) Muscular tissue
(v) Nervous tissue
(vi) Epithelial tissue

Q.3. Differentiate between epithelial tissue and connective tissue.

Ans.

S.No.	Epithelial tissue	Connective tissue
(i)	They are formed of same types of cells in a particular subtype e.g., squamous, cubodial or columnar.	They are different types of cells in a sub-type e.g., histocytes, mast cells, adipocytes.

(ii)	No intercellular space between the cells are present.	There are large intercellular space between the cell.
(iii)	Basement membrane is present.	Absent in them.
(iv)	Their functions are covering, protection, secretion and sensory.	They function as intercommunication of various tissues.

Q.4. What are leucocytes? Mention their different kinds. [Imp.]

Ans. Leucocytes are known as white blood cells (WBC). They are oval/rounded or irregular in shape. WBCs have nuclei but are devoid of haemoglobin. They are of two kinds: (1) granulocytes, and (2) agranulocytes. Granulocytes possess granules of varying sizes and have lobed nuclei. They are of three kinds: (1) basophils, (2) acidophils, (3) neutrophils based on the staining feature. Monocytes and lymphocytes are two types of agranulocytes. They are non-granular and always have only one nuclei in individual cell.

Q. 5. write the functions of blood plasma.

Ans. The functions of blood plasma are:

(i) Transport.

(ii) Retention of fluid in blood.

(ii) Maintenance of blood pH.

(iv) Body immunity.

(v) Prevention of blood loss.

(vi) Conducting heat to skin for dissipation.

(vii) Uniform distribution of heat all over the body.

Q.6. Differentiate between the fibres of connective tissue.

Ans. Differences between the fibres of connective tissue:

S.No.	Nature	Collagen fibres	Elastic fibres	Reticular fibres
(i)	Colour	White	Yellow	White
(ii)	Protein	Formed of protein collagen	Elastin protein.	Protein reticulin
(iii)	Occurrence	In bundles	Singly	Singly
(iv)	Nature	Unbranched	Branched and anastomosing	Branched and framework
(v)	Fibres	Thick, long and wavy	Thin, long and straight	Short
(vi)	Elasticity	Tough and non-elastic	Elastic	Delicate
(vii)	Location	Most abundant in tendons	Most abundant in ligaments	Most abundant in the embryo, in lymphoid blood forming tissues.

Q. 7. What is the difference between blood and lymph ?

Ans.

S.No	Blood	Lymph
(i)	It is red vascular tissue.	It is white vascular tissue.
(ii)	Found in blood vessels, tissue.	Found in lymph vessels; around body.
(iii)	Made of plasma, erythrocytes, leucocytes and platelets. Neutrophils are most abundant.	Made of plasma and leucocytes. Erythrocytes and platelets are absent. Lymphocytes are most abundant.

Q.8. Describe briefly the structure of voluntary muscle. [Imp.]

Ans. (i) A voluntary muscle is a bundle of numerous striated muscle fibre..

(ii) Each fibre is long, unbranched and enclosed in a membrane called sarcolemma and its cytoplasm called sarcoplasm. Just beneath the sarcolemma in each fibre many nuclei occur, thus these fibres are multi-nucleated.

(iii) The sarcoplasm contains many myofibrils that are long, thin and unbranched.

(iv) Each myofibril consist of alternating thick 'A' and thin 'I' band.

(v) The thick filaments lie parallel to each other while thin filaments extend between them.

(vi) At the centre of the I-band is a fine, dense dark band called Z-line. It forms a contractile unit called sarcomere.

Q.9. Write a note on glandular epithelium. [V. Imp.]

Ans. Glandular epithelium is the membranous tissue made up of cells that covers all the glands in the body. The main function of glandular epithelium is the secretion of fluids into ducts or fluids of the body. Glandular epithelium secretes enzymes, hormones, milk, mucus, sweat, wax and saliva.

Q.10. Explain the cell type and structure as well as functions of connective tissue cells.

Ans.

S. No.	Cell type	Structure	Functions
(i)	Fibroblast	Flatted, large; stellate cell with oval nucleus.	They secrete fibres and matrix.
(ii)	Macrophages	Large, amoeboid cells with ovoid nucleus; processes are short and branched.	They ingest cell debris, bacteria, foreign matter
(iii)	Lymphocytes	Migrated blood cells; small and rounded, moved by pseudopodia.	They ingest cell debris, bacteria, foreign matter and form antibodies.
(iv)	Plasma cells	Similar to lymphocytes but large.	Plasma cells produce antibodies.
(v)	Mast cells	Occur near blood vessels, lymphatics and nerves; large, round, oval or polygonal cell.	Make histamine, serotonin, heparin. The histamine dilates while serotonin constricts blood vessels.

(vi)	Adipose cells	These are specialised fibroblasts with a large droplet of fat; nucleus shifted to one side.	They store fat.

Q.11. Point out differences between:

(i) Neuron and Neuroglia,

(ii) Nerve fibre and muscle fibre,

(iii) Myelinated nerve fibres and non-myelinated nerve fibres.

Ans. (i) Differences between Neuron and Neuroglia:

S.No	Neuron	Neuroglia
(i)	They have two types of processes: axon and dendron.	Processes are of only one type.
(ii)	They may have synapse.	Do not have synapse.
(iii)	They have no power of division.	Have power of division.
(iv)	Conduct nerve impulses.	Serve as packing cells but nutritive and defensive in function.

(Any three)

(ii) Differences between nerve fibre and muso fibre:

S. No.	Nerve fibre	Muscle fibre
(i)	Nerve fibres are made up of cells called neurons.	Muscles fibres are made up of striated cells, cardiac or unstriated cells.
(ii)	Never fibres are involved in the trans - mission of nerve impulses.	Contraction of muscles fibers leads to lo- comotion and movement.

(iii) Differences between myelinated and nonmyelinated nerve fibres:

S. No.	Myelinated nerve fibres	Non-myelinated nerve fibres
(i)	They have a myelin sheath over them.	Myelin sheath is absent in them.
(ii)	It acts as insulator and the speed of nerve impulse is faster.	Speed of nerve impulse is slower in them.
(iii)	Found in white matter of brain.	Found in autonomic nerves.

Q.12. What are tendons and ligaments ? Also give their function.

Ans. Tendon : The white fibrous connective tissues forms cords called tendons which connect the skeletal muscles with bones.

Function of Tendons: This tissue provides strong attachment between various structures.
Ligament : The yellow elastic connective tissue forms cords called ligament which joins bone to bone.
Function of Ligament : The tissue allows stretching of various organs as it has considerable strength and elasticity.

Q.13.Differentiate between a bone and cartilage by citing two points.

OR

What are the main difference between cartilage and bone ? [V. Imp.]

Ans. Differences between cartilage and bone :

S. No.	Cartilage	Bone
(i)	The matrix is soft, transparent or semi-transparent.	The matrix is hard due to the deposition of inorganic salts such as calcium, phosphate, calcium carbonate, magnesium phosphate etc.
(ii)	In the matrix; there are delicate network of collagen or elastic fibres, in which chondrocytes and lacunae are scattered irregularly.	In the matrix, there are osteocytes, lacunae, canaliculi which remain arranged in definite rows known as lamellae.

Q. 14. (i) Name the connective tissue that lacks fibre in its matrix.

(ii) Write two differences between male and female cockroach.

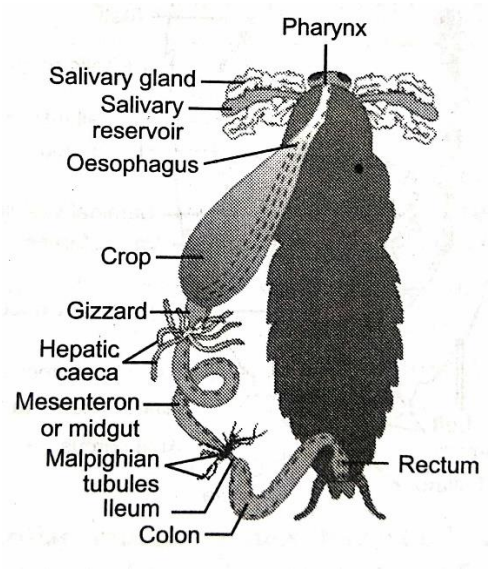
Ans. (i) Vascular tissue - Blood and lymph.

(ii) Difference between male cockroach and female cockroach :

S. No.	Male Cockroach	Female Cockroach
(i)	It has anal styles at posterior end of abdomen.	Anal style are absent.
(ii)	Male genital aperture lies below anus.	Female genital aperture lies on 8th sternum.

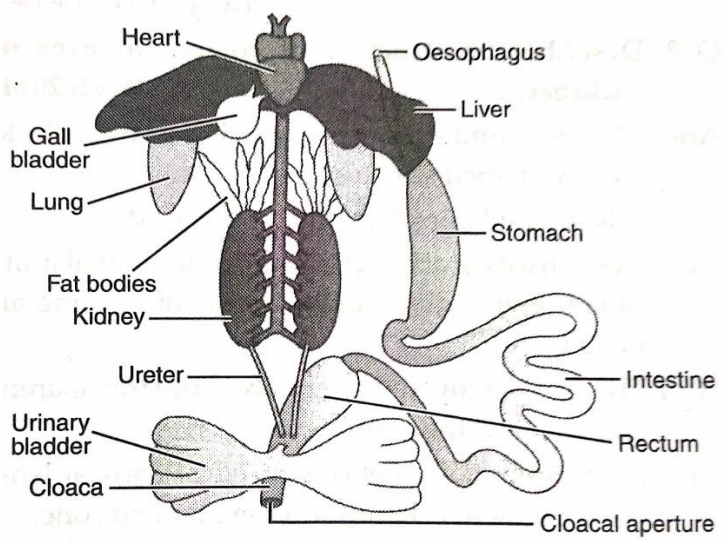
Q. 15. Draw a well labeled diagram of alimentary canal of a cockroach.

Ans.



Q. 16. Give an account of alimentary canal of frog.

Ans. Alimentary Canal of Frog : It is a short tube starting from mouth to cloaca. Mouth opens into buccopharyngeal cavity. It has many maxillary teeth at the margin of upper jaw. Vomerine teeth lie at the floor of this cavity. The tongue is bilobed and muscular. It is used to capture the prey. Gullet opens into the oesophagus which is distended into stomach. Stomach follows small and large intestine. The rectum opens into the cloaca. Liver and pancreas are digestive glands.



Q. 17. Draw labelled of alimentary canal of cockroach and write the role of hepatic caeca and malpighian tubules. [DDE Practice paper]

Ans. Refer to SAQ-II/Q 2

Role of hepatic caeca: Secretes digestive juices.

Role of malpighian tubules: It is the main excretory organ.

Q. 18. Explain sexual dimorphism exhibited in frog.

Ans. Frog exhibits sexual dimorphism. This means that the male and female frog can be distinguished by their external features.
The male frog possesses vocal sacs which are most developed during the breeding season and also a copulatory pad on the first digit of the fore limbs which are absent in female frogs.

Q. 19. What are malpighian tubules? What is its function?

Ans. Malpighian tubules are fine, unbranched yellow tubules that lies more or less in the haemocoel, and open into alimentary canal.

Function:

(i) They absorb nitrogenous waste products.

(ii) They convert the nitrogenous waste products into uric acid which is excreted out.

Q. 20. Differentiate between male and female cockroach.

Ans.

S.No.	Male cockroach	Female cockroach
(i)	Larger in size	Smaller in size
(ii)	Narrow abdomen	Broad abdomen
(iii)	Anal style present	Absent
(iv)	Brood Pouch absent	Present
(v)	Wings extend beyond the tip of abdomen	Wings extend up to abdomen

(Any three)

Q. 21. Describe the structure of compound eyes of cockroach. [KVS 2014]

Ans. (i) Compound eyes of cockroach are large, black, kidney-shaped structure.

(ii) It is situated dorsolaterally on the head.

(iii) Eye consists of about 2000 similar hexagonal units called ommatidium, each capable of forming an image.

(iv) The eyes are covered externally with a transparent cuticle called the cornea.

(v) Each ommatidium is composed of corneal lens, distal pigment cells around the pigment cone.

(vi) It has retinule forming rhabdome and optic nerve.

Q. 22. What is hepatic portal system ?

Ans. Hepatic portal system :

(i) It carries blood from the alimentary canal and its associated glands to the liver.

(ii) It consists of a large hepatic portal vein that receives a number of tributaries.

(iii) The tributaries are namely oesophageal, gastric, duodeno-pancreatic, intestinal, splenic and rectal.

Q.23. What type of development occur in Periplaneta americana ? Write about nymphs.

Ans. The development of Periplaneta americana is hemimetabolous.

Nymph:

(i) Nymph look very much like adult cockroaches, which are given no parental care.

(ii) The hatching cockroaches are left to feed for themselves.

(iii) They grow by moulting, comprises 13 moults before it reaches an adult form**.**

(iv) Last nymphal stage possesses wing pads but no wings.