CBSE Class 11 Biology

Important Questions

Chapter 7

Structural Organisation in Animals

1 Marks Questions

1. Name the tissue which contains Have risen canals.

Ans. Mammalian bone.

2. Mention two special properties of nervous tissues.

Ans. Excitability and conductivity.

3. Name the large cells present in adipose tissue.

Ans. Adipocytes.

4. Name the cells responsible for clotting of blood.

Ans. Blood platelets.

5. What am exocrine glands?

Ans. Glands which discharge their secrctions into ducts.

6. Differentiate between tendon and ligament.

Ans. Tendon: Attach skeletal muscles to bones

Ligament: Attach bone to bone

7. Where are RBC s fornic4?

Ans. Bone narrow

8.Name the kind of tissue which forms the lining of blood vessels?

Ans. Squamous epithelium.

9.Name the chemical which helps in transmitting nerve impulse at the synapse?

Ans. Acetylcholine.

10.What is the main function of WBCs?

Ans. They protect the body from infection & diseases.

11.What are the organs of excretion in insects?

Ans. Malphigian tubules.

12.Which tissue has fat globules?

Ans. Adipose tissue.

13.Name two anticoagulants of blood of man?

Ans. Heparin & antiprothrombin.

14.Name the type of epithelium that lines the inner surface of stomach?

Ans. Columnar epithelium.

15.What causes fatigue of the muscle fibres?

Ans. Due to accumulation of lactic acid or due to prolonged contraction

16.Name the type of epithelium lines the buccal cavity?

Ans. Stratified squamous epithelium

17.Why muscle cells are usually called muscle fibres?

Ans. Muscle cells are usually called muscle fibres because muscle cells are thin & elongated into thread like structures.

18.Define glands.

Ans. Glands are secretary structures formed of epithelial tissues.

19.How many spermathecae are present in earthworms.

Ans. Four pairs of spermathecae are found in each of 6 to 9 segments of earthworm

20.Name the proteins which constitute muscle fibres.

Ans. Actin & myosin

21.Which type of epithelium is found in urinary bladder.

Ans. Transitional epithelium.

22.From which germ layers do the following organs originate

(a) kidney (b) urinary bladder.

Ans. (a) Mesoderm (b) Endoderm.

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2 Marks Questions

1.What are the two typos of fibres of connective (issues? Distinguish between the two.

Ans. White and yellow fibres. White fibres are thin, wavy, unbranched, inelastic, occur in bundles and formed of protein collagen. Yellow fibres are thick, straight, elastic, branched, occurring singly, formed of protein elastin.

2.To which tissue do the following to

(a) Osteocytes(b) Chondrocytes

(e) Ncuroglia(d) Intercalated discs

Ans. (a) Bone tissue(b) Cartilage

(b) Neural tissue(d) Cardiac musele

3.Name the locomotory appendages of cockroach on the basis of external morphology.

Ans. Three pairs of legs and 2 pairs of wings.

4.Give the characteristic of epithelial tissues?

Ans. Epithelial tissue forms a layer on the free surface i.e. external surface of animal body & internal surface of visceral organs, body cavity & blood vessels. Cells of epithelium are set closely, separated by very thin film of extracellular material. Adjacent cells are held together by cell junctions.

5.How many types of nephridia are found in earthworm based on their location?

Ans. Nephridia are of three types:-

(i)SEPTAL NEPHRIDIA:- Those present on both the sides of intersegmental septa & open into intestine

(ii)INTEGUMENTAL NEPHRIDIA:- Those found attached to the lining of the body wall & open on the body surface.

(iii)PHARYNGEAL NEPHRIDIA:- Those found on the 4^{th}, 5^{th}, & 6^{th} segment in the form of three paired tufts are pharyngeal nephridia.

6.What do you mean by haemopoiesis?

Ans. Haelmopoeisis is the formation of new erythrocytes from the haemopoietic tissue. The haemopoietic tissues in the young foetus in liver & spleen whereas in the adults, it is the bone marrow of long bone. The haemopoitic tissue synthesizes millions of RBC's every minute & its excess lot is stored in the spleen.

7.Differentiate between blood & lymph?

Ans.

BLOOD	**LYMPH**
i) It is vascular tissue	i) It is white (straw coloured) vascular tissue
ii) It is found in blood vessels.	ii) It is found in lymph vessels.
iii) It is made of plasma, erythrocytes, leucocytes & platelets. Neutrophils are most abundant.	iii) It is made of plasma, leucocytes, erythrocytes & platelets are absent. Lymphocytes are most abundant.
iv) It has haemoglobin	iv) Haemoglobin is absent
v) It helps in transport of materials inside the body.	v) It functions as middle man between blood & body cells.

8.What are nissl's granules? Where are they found?

Ans. Nissl's granules are the small basophilic bodies found in the cytoplasm of soma &

dendrites. They are found in nervous tissues.

9.Discuss the structure of haversian system in the histology of bone?

Ans. Bone consists of connective tissue having matrix surrounded by periosteum. In mammalian bone haversian canal which carry blood vessels & nerves of the bone are surrounded by a number of concentric lamellae of intercellular matrix & bone.

10.Distinguish between myosin & actin filament?

Ans.

MYOSIN FILAMENT	**ACTIN FILAMENT**
i) It is found in only A- band	i) It is found in I band & also projects in A-band.
ii) It is thicker (100A)	ii) It is thinner (50A)
iii) Cross bridges are present	iii) Cross bridges are absent
iv) About 1500 myosin filaments are found per myofibril	iv) About 3000 actin filament are found per myofibril.

11.What are chondriocytes? Where are they found?

Ans. In the matrix of cartilage, in chondrin there lay some large, bluntly angular cartilage cells called chondriocytes. They lie scattered in chondrin. Chondriocytes occurs in clusters of 2 or 3 cells in small spaces called the lacunae.

12.Name the major class of plasma protein & mention their functions.

Ans. Three major classes of plasma proteins are:-

(a) Serum **(b)** Serum globulin **(c)** Fibrinogen

FUNCTIONS OF PLASMA PROTEINS:-

(i) Providing body immunity

(ii) Prevention of blood loss.

(iii) Retention of fluids in the blood.

(iv) Transport of material

(v) Maintaining PH of blood.

(vi) Conducting heat to skin for dissipation.

13.What is the function of nephridia ?

Ans. Annelids have long & coiled excretory tubes called nephridia. They lie in body cavity & collect excretory wastes like NH_3, uric acid, urea etc, from body fluids. Nephrostome is called ciliated funnel. It then passes them into looped, coiled ducts. They are removed out from the body through small apertures called nephridiopores.

14.Distinguish between smooth & striated muscles.

Ans.

SMOOTH MUSCLES	**STRIATED MUSCLES**
i) They are called involuntary muscles.	i) they are called voluntary muscles
ii) They are found in hollow organs	ii) They are mostly attached to bones by tendons
iii) They are uninucleate.	iii) They are multinucleate.
iv) They do not show any striation	iv) They show striated appearance i.e. alternate light & dark bands.

15.What are the functions of mast cells?

Ans. Mast cells are granular large irregularly shaped cells present in areolar connective tissue

a)They store inflammation producing substance histamine. When histamine is released inflammation is caused due to some reason.

b)They also release heparin which prevent activation of prothrombin this preventing coagulation of blood.

16.How can a male frog be distinguished from a female frog ?

Ans. The male frogs may be distinguished by presence of sound producing vocal sacs. They also has a copulatory pad on the first digit of the forelimbs. Vocal sacs & copulatory pads are absent in female frogs.

17.Give reason why earthworms are known as friends of farmers.

Ans. Earthworms are known as “friends of farmers” since it makes burrows in the soil. Due to it, soil becomes porous. It facilitates respiration as well as penetration for the developing roots of the plants, the earthworm eats decaying vegetation & in the burrows, it enriches the soil.

18.Write short note on adipose tissues.

Ans. It is a specialized form of aerolar tissue where it contains mainly fat cells or adipocytes. The matrix contains fibroblasts, macrophages, collagen fibres & elastin fibres. This tissue lies beneath the skin, around kidney & in mesentery & bone marrow. It synthesizes, stores & mebabolises fat & forms insulating layer beneath the skin.

19.What are neuroglia cells?

Ans. Neuroglia cells are cells that hold the neurons together.

20.How does saltatory conduction takes place along a nerve fibre.

Ans. Along a myelinated nerve fibre, the conduction of impulse is called salutatory conduction. This is so because the ionic changes & consequent depolarization taking place only.

21.Write short note on gaseous exchange in cockroach.

Ans. Cockroach is an insect & has a system of trachea. Hence tracheal respiration occurs in these animals. It is a complicated system of air tubes. They divide & form tracheoles. Tracheoles are connected to the spiracles located in the segments of thorax & abdomen. The body cells or fluid come in direct communication of air.

22.Draw a well labelled diagram of a nerve cell.

Ans.

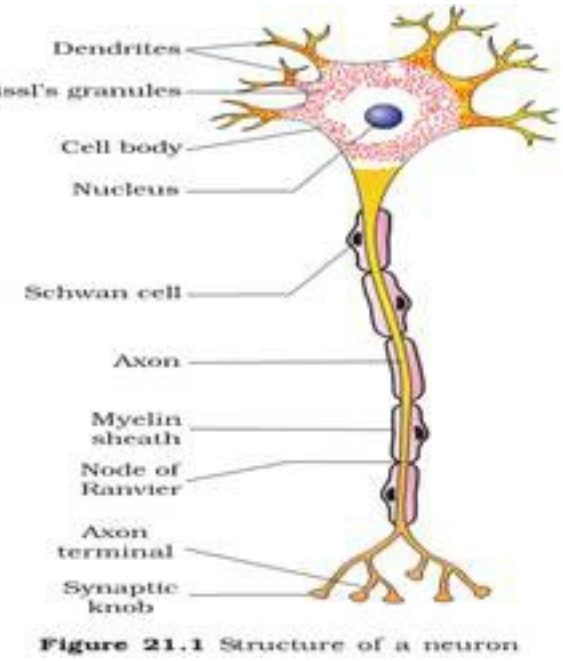

Figure 21.1 Structure of a neuron

23.Distinguish between tendon & ligament.

Ans.

TENDON	**LIGAMENT**
i) It is formed of white fibrous connective tissue	i) It is formed of yellow fibrous tissues
ii) Fibroblasts are arranged in rows between the bundles of white fibres	ii) Fibroblasts are scattered in matrix
iii) It is tough & non flexible	iii) It is elastic & flexible.
iv) It joins muscles to bones	iv) It joins bones together.

24What is mucosa?

Ans. Mucosa is the mucous secreting epithelial tissue alongwith the supporting connective tissue beneath it. It lines some hollow organs or cavities of the body eg. alimentary canal, nose, trachea & lungs etc

CBSE Class 12 Biology

Important Questions

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3 Marks Questions

1.(a) Give the common name of Periplaneta Americana.

(b) How many spermathecae found in cockroach?

(c) What is the position of ovaries in cockroach?

(d) How many segments are present in the abdomen of cockroach?

(e) Where do you find malpighian tubules?

(f) What is mosaic vision?

Ans. (a) American Cockroach.

(b) One pair, present in 6th segment.

(c) Between 2^{nd} and 6^{th} abdominal terga.

(d) 10 segments.

(e) At the be of ileum in cockroach.

(f) Vision where several images of an object arc formed by compound eye. Helps to detect movement of objective very efficiently.

2. (i) Give three differences between frogs & toads?

(ii) What do you understand by open type of circulatory system?

Ans. (a)

FROGS	TOADS
i) Scientific name of frog is Rana tigrina	i) Scientific name of toad is Bufo melanostictus
ii) Frogs are diurnal	ii) Toads are nocturnal
iii) Parotid glands absent	iii) Parotid glands present
iv) Skin moist & slipper	iv) Skin dry & rough.
V) amphibious animals	v) Terrestrial for egg laying.

(b) In open circulatory system the blood vessels are poorly developed & open into spaces rather capillaries. All the vesceral organs are bathed in blood (haemolymph) e.g. cockroach.

3.What are the cellular components of blood?

Ans. The blood consists of two parts- plasma (liquid part) & corpuscles (solid parts). The blood corpuscles float in the plasma & are of three major types:-

(a) Red Blood cells or Erythrocytes:- They are circular disc–shaped biconcave cells without nucleus. They contains a pigment haemoglobin which has great affinity towards oxygen. In normal healthy individuals, the number of RBCs / mm^3 ranges between 4.5-5 millions in females & 5.5-6.0 millions in males.

(b) White Blood cells or Leucocytes :- These are colourless nucleated corpuscles & can pass through the capillary walls into lymph & tissue fluid. Their count is 6000 to 10,000 per mm^3 of blood. Their main function is protection against any foreign substance. Leucocytes are further of two types:-

(i)AGRANULOCYTES:- They have clear cytoplasm without granules & a bilobed nucleus they are further divided into two types lymphocytes & monocytes.

(ii) GRANULOCYTES:- They are of three main types

Basophils :- which are stained with basic dye (methylene blue) & have a bilobed nucleus.

Neutrophils:- which are stained with neutral dye & have multilobed nucleus.

Eosinophils :- which are stained with acidic dye (eosin) & have bilobed nucleus.

4.How do erytherocytes transport oxygen & carbon dioxide in the blood?

Ans. During development of erythrocytes there is formation of special substance called haemoglobin which is capable of transporting oxygen. It is a complex protein & is composed of two components a) a protein called globin & b) a Fe^{2+} porphyrin ring called heme. This haemoglobin when exposed to high partial pressure of oxygen combines with oxygem to form oxy-haemoglobin which carries 4 molecules of oxygen loosely bound to four Fe^{2+} ions. When this oxy haemoglobin reaches the tissues where there is low oxygen pressure oxyhaemoglobin dissociates into oxygen & deoxyhaemoglobin. In this way, erythrocytes transports oxygen from lungs to tissue. Similarly haemoglobin also transports carbon dioxide from tissues to lungs.

5.Describe the different types of connective tissues & give examples?

Ans. On the Basis of matrix, connective tissues are of two main types:-

(I) Connective tissue proper:- It connects & supports many tissues & organs. Its matrix is dense. Eg.

(i) Areolar tissue :- It consists of three types of cells & types of fibres, all distributed in the matrix. Fiborblasts are irregularly shaped flat cells with long protoplasmic processes, they secrete collagen & elastin proteins for the fibres.

(ii) Adipose tissue:- It consists of collagen fibres, elastin fibres, fibroblast, maerophages, & adipocytes which stores fat. It prevents heat loss by forming one insulating layer beneath skin.

(II) Supportive connective tissues :- It consists of following types of connective tissue:-

(i) Cartilage:- It is the endoskeletal material of the vertebrates, it is in the form of solid matrix formed of chondrin with few collagen fibres & chondrioblast cells.

(ii) Bone:- The matrix consists of bone cells, osteocytes, fibres & a ground substance impregnated by calcium phosphate, calcium carbonate, magnesium phosphate & calcium

fluoride. Due to these salts, it becomes very hard & forms skeletal support of body.

6.Describe briefly the structure of voluntary muscles

Ans. A voluntary muscle is a bundle of numerous striated muscle fibres. Each fibres is long, unbranched measuring 40 mm in length & 20ym in thickness. Each fibre is enclosed in a membrane called sarcolemma & its cytoplasm is called sarcoplasm. The sarcoplasm contains many myofibrils that are long, thin, unbranched & cross striated. Each myofibril consists of alternating thick A & light I-band. A band is formed of protein myosin & I-band with actin protein. The thick filament bands lie parallel to one another. The thin filament extends between them upto a considerable distance in an orderly manner. At the center of the I-band is a fine, dense, dark, Z-line. Each segment of myofibril from one Z-band to the next functions as a contractile unit & is called sarcomere.

7.How does blood gets coagulated on coming out from an injured vessel. How coagulation is normally prevented uninjured vessels.

Ans. When a blood vessel is injured & blood comes out of it, the thrombocytes clump together, break & release the coagulation promoting substances called thromboplastin. Thromboplastin helps in the formation of enzyme thrombokinase. This enzyme thrombokinase hydrolyses prothrombin in the plasma into thrombin ca^{2+} ions are needed for both activation & functioning of thrombin. Thrombin catalyses the hydrolysis of soluble fibrinogen in the plasma into insoluble fibrin. The fibrin precipitates as a network of fibres & traps many blood cells to form a red solid mass called blood clot. The clot seals the wound in the blood vessel to stop bleeding.

However in uninjured tissues & blood vessels don't release thromboplastin. That's why coagulation is prevented in an uninjured vessel.

8.Name the various fibres of connective tissue & compare them.

Ans.

Nature	**Collagen fibres**	**Elastin fibres**	**Reticular fibres**
i) colour	White	Yellow	White

ii) Protein	Formed of protein, tropho- collagen	Elastin protein	Reticulin protein
iii) Occurrence	Found in bundles	Singly	Singly
iv) Nature	unbranched	Branched & anastomosing	Branched but form a network
v) fibres	Thick, long wavy	Thin, long straight	Short
vi) elasticity	Tough, non elastic	Elastic	Delicate
vii) Location	Abundant in tendon	Abundant in ligament	Abundant in ambryo in lymphoid as well as blood forming tissues.

9.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 as the margin of upper jaw. Vomerine teeth lie at the floor of this cavity. The tongue is bilobed & muscular. It is used to capture the prey. Gullet opens into the oesophagus which is distended into stomach. Stomach follows small & large intestine. The rectum opens into the cloaca. Liver & pancreas are digestive canals.