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Q-1 - 14145047

Pseudostratified epithelium is found in

- (A) rectum
- (B) urinary bladder
- (C) wall of oesophagus
- (D) inner lining of bronchiole

CORRECT ANSWER: D

SOLUTION:

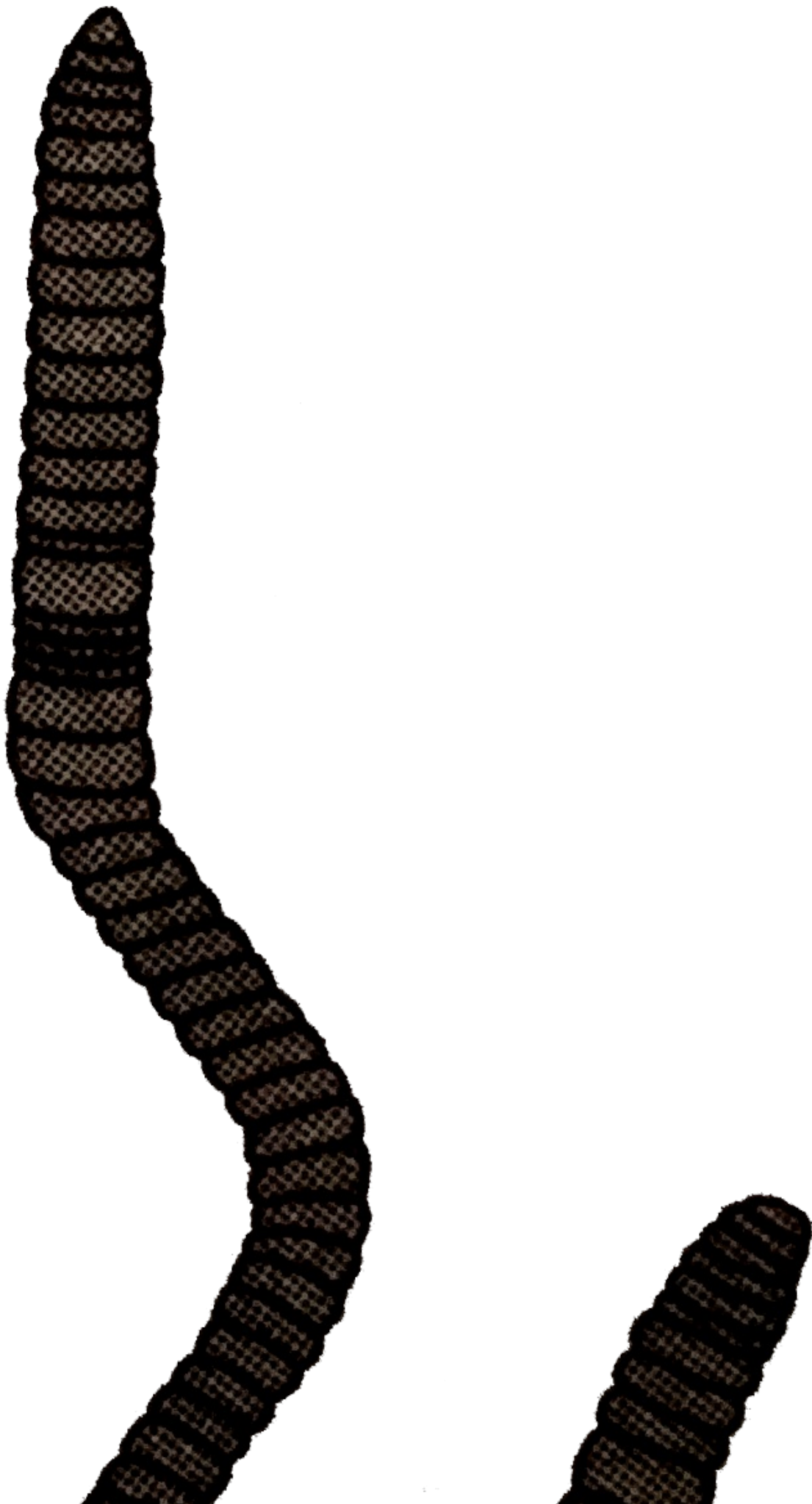
Pseudostratified epithelium is found in places where mucus is secreted. Thus inner lining of bronchioles has

pseudostratified epithelium.

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Q-2 - 14145110

Which of the following is incorrect for Pheretima ?





- (A) Genital papillae are present on 17th and 19th segment
- (B) Male genital pores are present on 18th segment
- (C) Clitellum is present on segments 24, 25 and 26
- (D) Segments of earthworm are called somites.

CORRECT ANSWER: C

SOLUTION:

Clitellum or cingulum is a prominent circular band of glandular skin found from the 14th to 16th segments. It secretes mucus and albumen which helps in the formation of cocoon, and is used of fertilisation of the eggs.

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Q-3 - 15219623

which of the following is not a function of areolar connective tissue ?

- (A) Storing nutrients as fat
 - (B) Defending the body against infection
 - (C) Movement of body parts
 - (D) Holding body fluids
-

CORRECT ANSWER: A

SOLUTION:

N / A

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Q-4 - 23702305

When the glandular cells breakdown completely , the gland is known as

- (A) Holocrine gland
- (B) Apocrine gland
- (C) Merocrine gland
- (D) None of the above.

CORRECT ANSWER: A

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Q-5 - 23702341

Calcified cartilage is found in humans in

- (A) Head of femur
 - (B) Pectoral girdle
 - (C) Ribs and sternum
 - (D) Both A and B .
-

CORRECT ANSWER: A

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Q-6 - 23702368

Muscles get fatigued due to accumulation of

- (A) Adenosine triphosphate

(B) CO_2

(C) Lactic acid

(D) Phosphate molecules.

CORRECT ANSWER: C

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Q-7 - 23702417

Power of regeneration is poor in

(A) Brain cell

(B) Bone cell

(C) Chondroblasts

(D) Striated muscles.

CORRECT ANSWER: A

Q-8 - 40376747

Epithelial tissues lie on the basement membrane. It is made up of

- (A) Basal lamina composed of mucopolysaccharides and glycoproteins secreted by epithelial cells
- (B) Fibrous lamina composed of collagen and reticular fibers of underlying connective tissue
- (C) Both (1) and (2)
- (D) Cellular layer

CORRECT ANSWER: C

Q-9 - 34100228

Formation of cartilage bones involves

- (A) deposition of bony matter by osteoblasts and resorption by chondroclasts
 - (B) deposition of bony matter by osteoclasts and resorption by chondroblasts
 - (C) only deposition of bony matter by osteolasts only
 - (D) deposition by bony matter by osteoblasts only
-

CORRECT ANSWER: D

SOLUTION:

Osteoblasts are bone forming cells while osteoclasts are bone-destroying cells . Ossification or osteogenesis is the process of bone formation.

Chondroblasts are cartilage forming cells.

Q-10 - 34100222

Stratum germinativum is an example of which kind of epithelium ?

- (A) Cuboidal
- (B) Ciliated
- (C) Columnar
- (D) Squamous

CORRECT ANSWER: C

SOLUTION:

Stratum genninativum (Stratum Malpighi/Stratum cyhndricum) consists of columnar cells resting upon a common basement membrane.

Q-11 - 34100235

Haversian canal occurs in

(A) humerus

(B) pubis

(C) scapula

(D) clavicle

CORRECT ANSWER: A

SOLUTION:

Haversian canal, named after Clopton Havers' are fine channels parallel to the long axis of mammalian bone containing blood vessels, nerve fibres, connective tissue and occasionally lymphatic vessels. Haversian system is

found in long bones of mammals (humerus among given options) and absent in spongy bones of mammals.

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Q-12 - 23702421

Number of nuclei present in striped muscle fibre is

- (A) One
- (B) Many
- (C) Two
- (D) None.

CORRECT ANSWER: B

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Q-13 - 15219630

Tissue which is found in abdomen, around kidneys and under skin is called.

(A) nerve tissues

(B) Cardiac tissues

(C) skeletal issues

(D) adipose tissues

CORRECT ANSWER: D

SOLUTION:

N / A

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Q-14 - 14145120

Male cockroach differs from female cockroach in having

(A) antennae

(B) labrum

(C) maxillae

(D) anal styles

CORRECT ANSWER: D

SOLUTION:

Males bear a pair of short, thread-like anal styles which are not present in females.

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Q-15 - 14145068

Consider the following statements (i) - (iii), each with one or two blanks

(i) Bones have a hard and non-pliable ground substance rich in 1

and 2 which give bone its strength

(ii) Some of the columnar or cuboidal cells get specialised for secretion and are called 3 epithelium

(iii) 4 junctions help to stop substances from leaking across a tissue

Which one of the following options, gives the correct fills ups for the respective blanks from (1) to (4) in the statements ?

(A) (3)-glandular, (4)-Tight

(B) (1)-calcium salts, (2)-collagen fibres, (3)-compound, (4)-Excretory

(C) (3)-glandular, (4)-Adhering

(D) (1)-magnesium salts, (2)-elastic fibres, (3)-compound

CORRECT ANSWER: A

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Which one of the following structures in Pheretima is correctly matched with its function ?

(A) Clitellum - Secretes cocoon

(B) Gizzard - Absorbs digested food

(C) Setae - Provides defence against predators

(D) Typhlosole - Storage of extra nutrients

CORRECT ANSWER: A

SOLUTION:

Clitellum - secretes cocoon where fertilisation and development takes place

Gizzard - grinds the food

Setae - help in locomotion

Typhlosole - increases area of absorption in intestine.

Q-17 - 23702336

Volkmann's canal connects

- (A) Osteocyte with matrix
- (B) Different bones
- (C) Haversian canal with matrix
- (D) Haversian canal with other Haversian canals.

CORRECT ANSWER: D

Q-18 - 23702385

Which of the following possesses nodes of Ranvier ?

(A) Medullated nerve fibre

(B) Non - medullated nerve fibre

(C) Muscle fibre

(D) Medullated and non-medullated nerve fibres.

CORRECT ANSWER: A

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Q-19 - 23702442

Harversian canals are found in

(A) Muscle

(B) Nerve

(C) Cartilage

(D) Bone .

CORRECT ANSWER: D

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Q-20 - 40376753

Ciliated columnar epithelium called ependyma is present in the lining of

- (A) Fallopian tubes
- (B) Ventricles of brain
- (C) Nasal passage
- (D) Bronchioles

CORRECT ANSWER: B

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Q-21 - 34100234

Histamine secreting cells are found in

(A) connective tissue

(B) lungs

(C) muscular tissue

(D) nervous tissue

CORRECT ANSWER: A

SOLUTION:

Histamine is a vasodilator, involved in allergic and inflammatory reactions. It is secreted by mast cells, these are modified basophils of blood that occur in areolar tissue i.e. the loose connective tissue

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The functional unit of contractile system in a striated muscle is

- (A) myofibril
 - (B) sarcomere
 - (C) Z-lines
 - (D) cross bridges
-

CORRECT ANSWER: B

SOLUTION:

Skeletal muscle is also called striated muscle because the regular arrangement of the myofilaments creates as repeating pattern of light and dark bands. Each repeating unit is a sarcomere, the basic functional unit of muscle.

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Which of the following epithelia covers the inner linings of trachea, large bronchi, and helps to remove mucus?

- (A) Ciliated columnar
 - (B) Pseudo-stratified epithelium
 - (C) Compound epithelium
 - (D) Cuboidal epithelium
-

CORRECT ANSWER: B

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Simple epithelium is a tissue in which cells are

- (A) hardened and provide support to the organ

(B) cemented directly to one another to form a single layer

(C) continuously dividing to provide form to an organ

(D) loosely connected to one another to form an irregular organ

CORRECT ANSWER: C

SOLUTION:

Simple epithelium is a tissue in which the cells are cemented directly to one another to form a single layer .

An epithelium is a sheet or tube of firmly adherent cells with minimum (practically negligible) material and space between them.

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Vitamin K is required for

- (A) formation of thromboplastin
 - (B) conversion of fibrinogen to fibrin
 - (C) conversion of prothrombin to thrombin
 - (D) synthesis of prothrombin
-

CORRECT ANSWER: D

SOLUTION:

Vitamin-K (phylloquinone) is required for the synthesis of prothrombin necessary for blood clotting. It is synthesised by bacteria in the colon. Vitamin-K is commonly called anti-haemorrhagic vitamin. Its deficiency leads to bleeding, i.e. no coagulation or clotting.

Read the following statements and select the correct option

- (i) Blood cells secrete fibres of structural proteins called collagen and elastin
- (ii) Neuroglial cells protect and support the nephrons
- (iii) Osteocytes are present in spaces called lacunae
- (iv) Striated muscle fibres are bundled together in a parallel fashion
- (v) Biceps are involuntary and striated.

- (A) Statements (iii) and (iv) are incorrect
- (B) Statement (ii) and (iv) are incorrect
- (C) Statement (i) and (iii) are incorrect
- (D) Statements (i),(ii) and (v) are incorrect.

CORRECT ANSWER: D

SOLUTION:

The structural proteins collagen and elastin are present in white collagen fibres and yellow elastic fibres respectively, which are connective tissue fibres.

Neuroglial cells are specialised cells found in the brain and spinal cord supporting the neurons and their fibres.

The muscles of biceps are voluntary and striated.

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Q-27 - 15219632

Which of the following is not a type of tissue ?

(A) Muscle

(B) Embryonic

(C) Nervous

(D) Epithelial

CORRECT ANSWER: B

SOLUTION:

N / A

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Q-28 - 23702327

Formulation of antibodies is the function of

(A) Monocytes

(B) Neutrophils

(C) Basophils

(D) Lymphocytes.

CORRECT ANSWER: D

Q-29 - 23702365

Chemical ions responsible for muscle contraction are

(A) Ca^{++} and K^{+}

(B) Na^{+} and K^{+}

(C) Na^{+} and Ca^{+}

(D) Ca^{++} and Mg^{++} ions.

CORRECT ANSWER: D

Q-30 - 23702437

Bundles of striated muscle fibres are enclosed in

(A) Periosteum

(B) Epimysium

(C) Perimysium

(D) Endomysium.

CORRECT ANSWER: B

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Q-31 - 40376750

Which of the following epithelia forms the inner lining of lung alveoli, blood vessels and peritoneum of body cavity ?

(A) Cuboidal

(B) Squamous

(C) Columnar

(D) Ciliated columnar

CORRECT ANSWER: B

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Q-32 - 34100224

Basement membrane is made up of

(A) only epidermal cells

(B) only endodermal cells

(C) Both (a) and (b)

(D) no cell at all, but is a product of epithelial cells

CORRECT ANSWER: D

SOLUTION:

The cells of epithelial tissues rest upon a thin layer

composed of protein bound mucopoly- saccharides and glycoproteins, both secreted by P.epithelial cells (hence, product of epithelial cell) along with a layer of collagen fibres of the underlying connective tissue.

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Q-33 - 34100231

Characteristics of smooth muscle fibres are

(A) spindle-shaped , unbranched , unstriated , uninucleate and involuntary

(B) spindle-shaped , unbranched , unstriated , multinucleate and involuntary

(C) cylindrical , unbranched , unstriated , multinucleate and involuntary

(D) cylindrical , unbranched , unstriated , multinucleate

and voluntary

CORRECT ANSWER: A

SOLUTION:

Smooth muscle fibres are spindle-shaped, thick in the middle and thin at either ends, uninucleated, no sarcolemma, contraction is slow, involuntary under the control of autonomous nervous system These muscles are also known as visceral muscles, non-striated, non-skeletal or involuntary muscles.

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Q-34 - 23702392

Apocrine secretion of gland means

(A) When the product is released but the cell remains

intact

(B) When entire contents of cell is discharged with the destruction of the cell

(C) When part of apical cytoplasm is lost

(D) None of these.

CORRECT ANSWER: C

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Q-35 - 14145095

Which of the following layers you will find in the body wall of earthworm (from outside to inside) ?

(A) Non-cellular cuticle, epidermis, circular muscles, longitudinal muscles, coelomic epithelium

(B) Cuticle, epidermis, longitudinal muscles, circular

muscles, coelomic epithelium

(C) Non-cellular cuticle, epidermis, coelomic epithelium,
circular muscles, longitudinal muscles

(D) Cuticle, epidermis, peritoneal muscles

CORRECT ANSWER: A

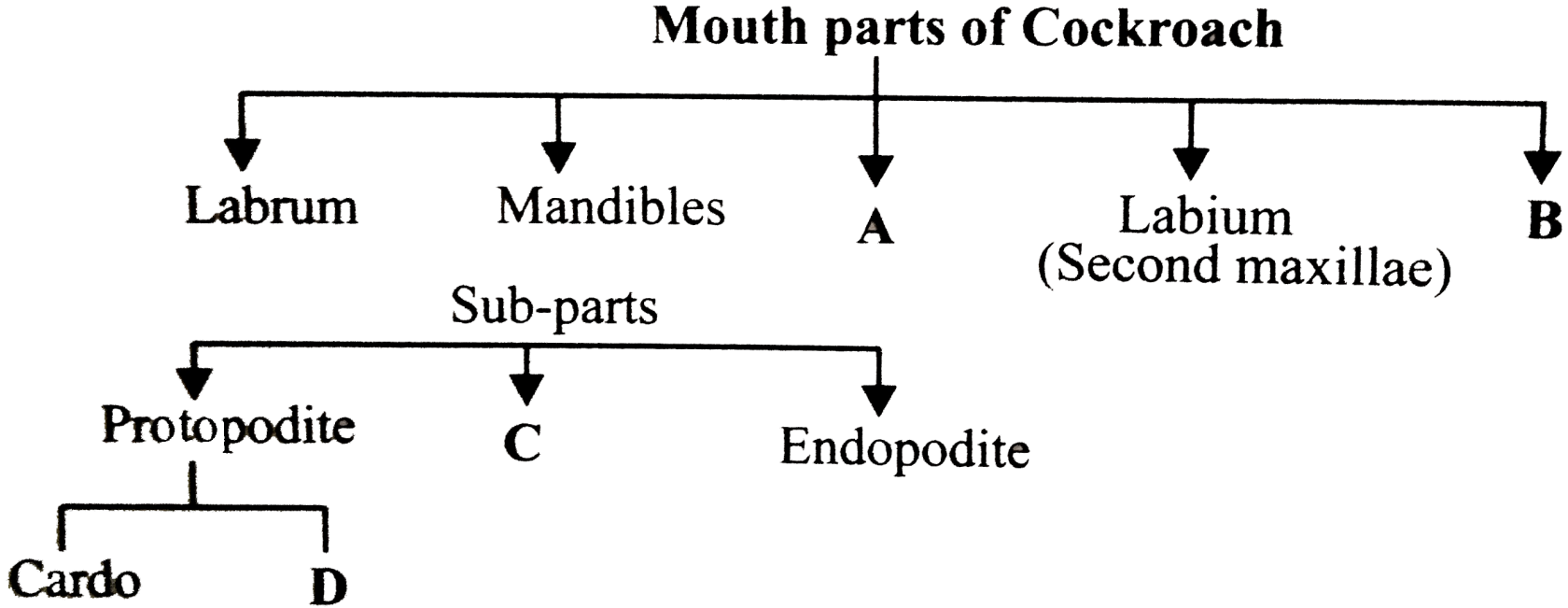
SOLUTION:

Externally the body wall of earthworm is covered by a thin non cellular cuticle below which lies the epidermis, two muscle layers (circular and longitudinal) and innermost coelomic epithelium.

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Q-36 - 14145117

Complete the following flowchart by selecting the correct option



(A)

	A	B	C	D
Stipes	Hypopharynx	Exopodite	First maxillae	

(B)

	A	B	C	D
Stipes	Exopodite	Hypopharynx	First maxillae	

(C)

	A	B	C	D
First maxillae	Hypopharynx	Exopodite	Stipes	

(D)

	A	B	C	D
First maxillae	Exopodite	Hypopharynx	Stipes	

CORRECT ANSWER: C

In a frog, if a hole is punched in the floor of its buccal cavity, then the frog will not die as

- (A) buccal respiration does not stop
 - (B) pulmonary respiration occurs
 - (C) it can store oxygen for future use
 - (D) respiration other than lungs will continue
-

CORRECT ANSWER: B

SOLUTION:

In addition to buccopharyngeal respiration, frog also respire through lungs (pulmonary respiration). So, if a hole is punched in the floor of its buccal cavity the frog doesn't die.

Q-38 - 15219637

The articular cartilage is characterized by all of the following features except : —

- (A) It is devoid of perichondrium
- (B) It has a rich blood supply
- (C) It is avascular
- (D) It lacks the capacity to regenerate

CORRECT ANSWER: B

SOLUTION:

N / A

Diapedesis means

- (A) Movement of the food in gut
 - (B) Formation of W.B.C.
 - (C) The process by which leucocytes squeeze through thin capillary wall
 - (D) Formation of R.B.C.
-

CORRECT ANSWER: C

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Which of the following mammalian tissues is associated with filtration and diffusion?

(A) Simple columnar

(B) Simple squamous

(C) Stratified squamous

(D) Stratified columnar

CORRECT ANSWER: B

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Q-41 - 34100213

Which of the following cells do not form layer and remain structurally separate ?

(A) Epithelial cells

(B) Muscle cells

(C) Nerve cells

(D) Gland cells

CORRECT ANSWER: C

SOLUTION:

Only nerve cells do not form layers, they also remain structurally separate from each other (though communicate with each other through synapse).

Nerve cells or neurons are the cells specialised to conduct an electrochemical current, nerve tissue is made up of these cells and supporting cells.

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Q-42 - 34100230

Component of blood responsible for producing antibodies is

(A) thrombocytes

(B) monocytes

(C) erythrocytes

(D) lymphocytes

CORRECT ANSWER: D

SOLUTION:

Lymphocytes (20-25%) are the second most abundant leucocytes . These protect us from pathogens and are involved in the production of antibodies . These lymphocytes are of two types , which are known as B-lymphocytes and T-lymphocytes.

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Q-43 - 34100208

Extremities of long bones possess cartilage

(A) Calcified cartilage

(B) Hyaline cartilage

(C) Elastic cartilage

(D) Fibrous cartilage

CORRECT ANSWER: B

SOLUTION:

Hyaline cartilage is present at the end of long articular bones . It provides a smooth articular surface to permit movement at joints. Elastic cartilage is found where support with flexibility is needed such as in external ears. Fibrous cartilage is a very tough substance and is used in places of the body where shock absorbers are needed e.g., discs between the vertebrae and in the knee joint .

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Which of the following is not exclusively supplied with involuntary muscles ?

(A) Muscular coats of blood vessels

(B) Muscles of the ducts of glands

(C) Muscles of iris

(D) Muscles of urethra

CORRECT ANSWER: B

SOLUTION:

Muscles of the ducts of glands are not exclusively supplied with involuntary muscles. Smooth muscles are involuntary muscles and are found in the posterior part of oesophagus, stomach, urinogenital tract, blood vessels, iris of eye and dermis of skin.

Q-45 - 40376754

Brush-bordered cuboidal epithelium is present in

- (A) Intestine
 - (B) Proximal convoluted tubule
 - (C) Stomach
 - (D) Gall bladder
-

CORRECT ANSWER: B

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Q-46 - 34100206

Which one of the following contains the largest quantity of extracellular material ?

(A) Myelinated nerve fibres

(B) Striated muscle

(C) Areolar tissue

(D) Stratified epithelium

CORRECT ANSWER: C

SOLUTION:

Loose connective tissue, also called areolar connective tissue, is the 'packing material' of the body that anchors blood vessels, nerves and body organs. It contains fibroblasts that synthesise the fibres and ground substance of connective tissue and wandering macrophages that phagocytise pathogens or damaged cells. The different fibre types include strong collagen fibres and thin elastic fibres formed of the protein elastin.

Adipose. (fat) tissue is considered a type of loose connective tissue

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Q-47 - 34100211

Nasal septum gets damaged . Its recovery requires cartilage called

- (A) Hyaline cartilage
- (B) Elastic cartilage
- (C) Calcified cartilage
- (D) Fibrous cartilage

CORRECT ANSWER: A

SOLUTION:

Hyaline cartilage forms nasal septum, larynx, trachea

and hyoid apparatus

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Q-48 - 40376756

Germinal epithelium of testis and ovary is made up of

- (A) Columnar epithelium
- (B) Squamous epithelium
- (C) Cuboidal epithelium
- (D) Stratified epithelium

CORRECT ANSWER: C

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Q-49 - 34100226

Epithelial tissue with thin flat cells appearing like packed tiles

occurs on

- (A) inner lining of cheek
 - (B) inner lining of stomach
 - (C) inner lining of Fallopian tubes
 - (D) inner lining of ovary
-

CORRECT ANSWER: D

SOLUTION:

Epithelial tissue with thin flat cells appearing like packed tiles occurs on inner lining of ovary. It is called germinal epithelium.

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One very special feature in the earthworm is that

- (A) fertilisation of eggs occurs inside the body
- (B) the typhlosole greatly increases the effective absorption area of intestine
- (C) the S-shaped setae embedded in the integument are the defensive weapons used against the enemies
- (D) it has a long dorsal tubular heart

CORRECT ANSWER: B

SOLUTION:

From the 27th segment upto 23 - 25 segment in front of the anus in intestine of earthworm, lies a highly glandular and vascular part called typhlosole. It greatly increases the effective absorption area for digested food in the intestine.

Q-51 - 15219639

Haversian canals are found in : —

- (A) Aves bones
- (B) Mammalian spongy bone
- (C) Mamalian compact bone
- (D) All bones

CORRECT ANSWER: C

SOLUTION:

N / A

Q-52 - 40376758

All the statements about stereocilia are correct except

- (A) They are non-motile
 - (B) These are found in epididymis and vas deferens
 - (C) It has 9 + 2 ultra structure
 - (D) The basal granule is absent
-

CORRECT ANSWER: C

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Q-53 - 34100217

Polysaccharide found in cartilage matrix is

- (A) cartilagin
- (B) ossein
- (C) chondroitin

(D) casein

CORRECT ANSWER: C

SOLUTION:

The chief component of ground substances of cartilage is chondromucoprotein which is formed of chondriotin sulphate , keratin sulphate and hyaluronic acid .

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Q-54 - 14145094

Earthworms have no skeleton but during burrowing, the anterior end becomes turgid and acts as a hydrauluc skeleton. It is due to

(A) gut peristalsis

(B) setae

(C) coelomic fluid

(D) blood

CORRECT ANSWER: C

SOLUTION:

Hydraulic skeleton is the system of support found in soft bodied invertebrates, which relies on the incompressibility of fluids contained within the body cavity. In earthworms, the coelomic fluid is under pressure within the coelom and therefore provides support for internal organs, Due to hydraulic skeleton, during burrowing, the anterior end becomes turgid and aids in relaxation of longitudinal muscles.

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Q-55 - 14145126

Select the correct statement from the ones given below with respect

to *Periplaneta americana*.

(A) Nervous system located dorsally, consists of segmentally arranged ganglia joined by a pair of longitudinal connectives.

(B) Males bear a pair of short thread like anal styles

(C) There are 16 very long Malpighian tubules present at the junctions of midgut and hindgut

(D) Grinding of food is carried out only by the mouth parts.

CORRECT ANSWER: B

SOLUTION:

In male cockroach, from the sides of the 9th sternum, there arises a paired, small unjoined outgrowths called anal styles. These structures are sensitive to touch.

These are absent in female cockroach. Nervous system is located ventrally. There are 100-150 Malpighian tubules. Grinding of food is carried out by mouth parts and gizzard.

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Q-56 - 15219618

Name the tissue which covers the external surface of animal body and internal surface of the visceral organs : —

- (A) epithelial tissues
- (B) connective tissue
- (C) muscular tissue
- (D) nervous tissue

CORRECT ANSWER: A

SOLUTION:

N / A

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Q-57 - 15219624

Which of the following tissues lines the majority of digestive tract ?

- (A) Simple columnar
 - (B) Simple squamous
 - (C) Pseudostratified ciliated columnar
 - (D) Stratified cuboidal
-

CORRECT ANSWER: A

SOLUTION:

N / A

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Loose connective tissue is made of which three essential components : —

- (A) Cells ground substance and carbohydrates fibers
- (B) Cell ground substance and protein fibers
- (C) Collagen, ground substance and protein fibers
- (D) Matix , ground substance and fluid.

CORRECT ANSWER: B

SOLUTION:

N / A

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Which of the following is absent in the coelomic fluid of earthworm ?

(A) Salts

(B) Haemoglobin

(C) Corpuscles

(D) Proteins

CORRECT ANSWER: B

SOLUTION:

Coelomic fluid of earthworm is alkaline, colourless fluid containing water, salts, some proteins and corpuscles.

Haemoglobin is not present in coelomic fluid. It is found dissolved in blood plasma giving red colour to blood.

Blood is confined to heart and vessels in closed circulatory system.

Q-60 - 14145055

Areolar connective tissue joins

- (A) bone with bone
 - (B) fat body with muscles
 - (C) integument with muscles
 - (D) bone with muscles
-

CORRECT ANSWER: C

SOLUTION:

Areolar tissue is present under the skin as subcutaneous tissue in between and around muscles, nerves and blood vessels in submucosa of gastro-intestinal tract and

respiratory tract, in the bone marrow, between the lobes and lobules of compound glands and in mesenteries and omenta.

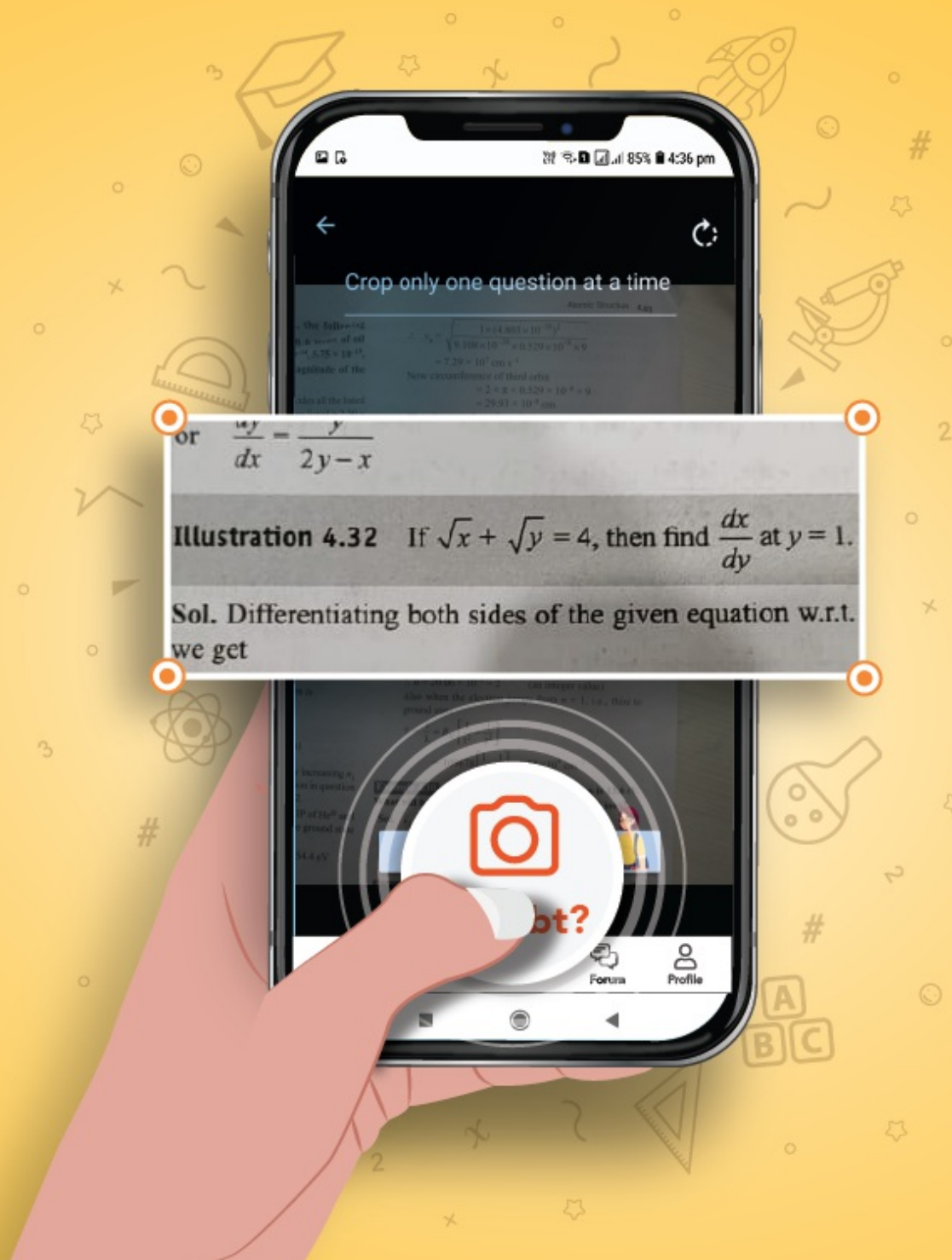
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