**TOPIC: STRUCTURAL ORGANIZATION IN ANIMALS AND ANIMAL HUSBANDRY**

**UNIT NO: B-04**

1. Secretion and absorption are the functions of

i. Stratified epithelium ii. Cuboidal epithelium

iii. Squamous epithelium iv. Columnar epithelium

1. Only ii 2. iii and iv 3. ii and iv 4. ii, iii and iv

1. With reference to EPITHELIAL TISSUE choose the correct statements.

i. This tissue has a free surface, which faces either a body fluid or the outside environment and thus provides a covering or a lining for some part of the body.

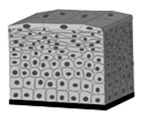
ii. There are two types of epithelial tissues namely simple epithelium and compound epithelium.

iii. Simple epithelium has protective function as it does in our skin whereas compound epithelium functions as a lining for body cavities, ducts, and tubes.

iv. The cells are compactly packed with little intercellular matrix. In nearly all animal tissues, specialized junctions provide both structural and functional links between its individual cells.

1. i, ii and iii 2. ii, iii and iv 3. i, ii and iv 4. ii, iii and iv

1. With reference to the given diagram, identify the TRUE statement/s.

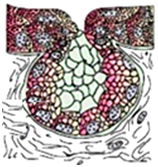
i. They form free surfaces lining cells of trachea and fallopian tubes.

ii. The main function is to provide protection against chemical and mechanical stresses.

iii. They cover the dry surface of the skin, the moist surface of buccal cavity, pharynx, inner lining of ducts of salivary glands and of pancreatic ducts.

iv. They play limited role in secretion and absorption

1. All except i 2. ii and iii 3. iii and iv 4. i and iv

1. Identify the correct words from the structure given below related to the diagram. Choose the alphabet which gives the correct combination of answer.

i. Glandular epithelium ii. Multicellular gland

iii. Endocrine gland iv. Exocrine gland

v. Epithelial tissue vi. Connective tissue

vii. Salivary gland

1. All except ii, iii and vi 2. i, ii, iii, v and vii

3. ii, iv, vi and vii 4. i, ii, iv, v, vii

1. In nearly all animal tissues, specialized junctions provide both structural and functional links between its individual cells. Three types of junctions are called cell junctions. Match the types of cell junctions with their functions and select the correct combination.

|  |  |
| --- | --- |
| **Column I** | **Column II** |
| 1. Tight junctions | 1. Transfer of ions |
| 1. Gap junctions | 1. Cementing cells together |
| 1. Adhering junctions | 1. Prevent leakage across the tissue |

1. A-p, B-r, C-q 2. A-p, B-q, C-r 3. A-r, B-p, C-q 4. A-r, B-q, C-r

1. If A and D are the skeletal muscles, B and C are the bones, the connective tissues that connect these four alphabets are

1. The tissue that connects A and B is tendon; the tissue that connects B and C, C and D are ligament.

2. The tissue that connects A and D, B and D are tendon; the tissue that connects B and C is ligament.

3. The tissue that connects A and C, A and D are tendon; the tissue that connects B and D is ligament.

4. The tissue that connects A and B, C and D are tendon; the tissue that connects B and C is ligament.

1. Study the given table and identify A, B, C and D. Choose the alphabet which gives the correct combination of answers.

|  |  |  |  |
| --- | --- | --- | --- |
| **Type of epithelium** | **Cell Structure** | **location** | **Function** |
| **A** | Single thin layer of flattened cells with irregular boundaries. | walls of blood vessels and air sacs of lungs | diffusion |
| Cuboidal epithelium | **B** | ducts of glands and tubular parts of nephrons in kidneys | secretion |
| Columnar epithelium | Single layer of tall and slender cells. Their nuclei are located at the base | **C** | absorption |
| Ciliated epithelium | columnar or cuboidal cells bear cilia on their free surface | bronchioles and fallopian tubes | **D** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | A | B | C | D |
| 1. | Simple columnar | Pillar like tall cells with cilia | Muscularis of stomach | secretion |
| 2. | Simple squamous | Single layer of tall and slender cells. Their nuclei are located at the centre | Thin segment of Henle’s loop | absorption |
| 3. | Simple columnar | unicellular, consisting of isolated glandular cells | intestine | Movement of air |
| 4. | Simple squamous | A single layer of cube-like cells.  nuclei are spherical in shape and centrally located | Stomach and intestine | move particles or mucus in a specific direction over the epithelium |

1. Mark the odd combinations in these series:

i. Loose connective tissue: Areolar tissue, Adipose tissue; collagen tissue

ii. Fluid connective tissue: plasma, RBC, WBC, platelets

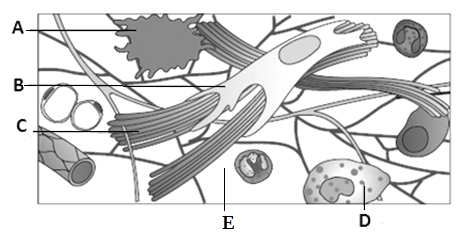
iii. Dense connective tissue: Tendon, bone, ligament, muscle.

iv. Epithelial tissue: Exocrine, endocrine, salivary gland, goblet cells.

v. Specialized connective tissue: Cartilage, bone, blood, lymph.

1. i and iii 2. iv and v 3. ii and iii 4. i, iii and v

1. In the following figure of areolar connective tissue identify the parts labeled with alphabets from A to E. Choose the alphabet which gives the correct combination of answers.

1. A- Mast Cell, B-Fibroblast,

C-Elastin, D- Macrophage,

E- Ground substance

2. A-Macrophage, B- Collagen Fibres,

C- Fibroblast, D-Mast Cell,

E-Ground substance

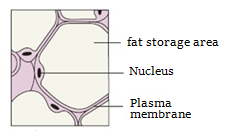
3. A-Macrophage, B-Fibroblast,

C-Collagen Fibres, D-Mast Cell, E-Matrix

4. A-Neutrophil, B-Fibroblast, C-Elastin,

D-Mast Cell, E-intercellular space

1. Identify the Correct statements related to the following diagram.

i. It is a tissue located mainly beneath the skin.

ii. The excess of nutrients which are not used immediately are converted into fats and are stored in this tissue.

iii. It is an example for dense regular connective tissue.

iv. The cells and fibres are loosely arranged in a semi-fluid ground substance in this tissue.

1. i, ii and iii 2. ii, iii and iv 3. i, ii and iv 4. ii and iv

1. Functions of connective tissue include

i. [Transcellular transport](https://en.wikipedia.org/wiki/Transcellular_transport), [secretion](https://en.wikipedia.org/wiki/Secretion), regeneration,

ii. Diffusion, [absorption](https://en.wikipedia.org/wiki/Absorption_(chemistry)), sensation, protection against mechanical stress.

iii. Attachment, support, transport, defense and scavenging

iv. Shock-proof cushions, storage, packing materials

1. i, ii and iv 2. iii and iv 3. ii and iii 4. i, ii and iii

1. Which one is connected with connective tissue alone?

1. Blood, bone and skin 2. Blood, bone and epidermis

3. Bone, tendon and muscle 4. Cartilage, adipose tissue and blood

1. Fill the blanks A to F with the correct words. Choose the alphabet which gives the correct combination of answers.

i. The intercellular material of cartilage is **……..A……..**and resists compression. Cells of this tissue (chondrocytes) are enclosed in small cavities within the matrix secreted by them.

ii. Most of the cartilages in**…….B……..**embryos are replaced by bones in adults.

iii. Cartilage is present in the**……..C……..,** outer ear joints, between adjacent bones of the vertebral column, limbs and hands in adults.

iv. Bones have a **……..D……..**ground substance rich in calcium salts and collagen fibres which give bone its strength. It is the main tissue that provides structural frame to the body.

v. The bone cells are present in the spaces called**…….E…...**

vi. Functions of bone include structural frame work, weight bearing, support, protection of soft tissue and organs, movement and **…..F…….**

1. A- hard and non-pliable, B- vertebrate, C- lips, D- solid and pliable, E- osteocytes, F-blood cell production.

2. A- hard and non-pliable, B- chordate, C- lips, D- solid and pliable, E-osteocytes, F-[secretion](https://en.wikipedia.org/wiki/Secretion).

3. A-solid and pliable, B- chordate, C- tip of nose, D- hard and non-pliable, E- lacunae, F-blood cell production.

4. A-solid and pliable, B- vertebrate, C- tip of nose, D- hard and non-pliable, E- lacunae, F-blood cell production.

1. Read the statements given below.

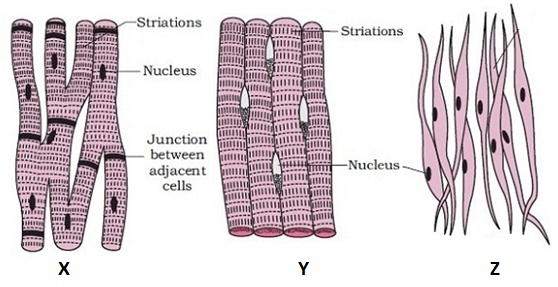
A. It is made of numerous fine fibrils, called myofibrils.

B. In a typical muscle such as the biceps, muscle fibres are bundled together in a parallel fashion. A sheath of tough connective tissue encloses several bundles of muscle fibres.

C. The muscle fibres taper at both ends (fusiform) and do not show striations. Cell junctions hold them together and they are bundled together in a connective tissue sheath.

D. The wall of internal organs such as the blood vessels, stomach and intestine contains this type of muscle tissue.

E. We usually are not able to make it contract merely by thinking about it.

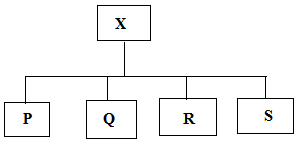
F. Cell junctions fuse the plasma membranes of muscle cells and make them stick together. Communication junctions (intercalated discs) at some fusion points allow the cells to contract as a unit, i.e., when one cell receives a signal to contract, its neighbors are also stimulated to contract.

G. We usually able to make it contract merely by thinking about it.

These statements are related to the X, Y and Z diagrams given here. Each diagram shares many characters from these statements. Choose the alphabet which gives the correct combinations of characters related to the structure and properties of these diagrams.

1. X-A, E, G; Y-A, B, C; Z-C, D, F, G 2. X-A, E, F; Y-A, B, G; Z-A, C, D, E.

3. X-A, E, G; Y-A, B, C; Z-A, C, D, G. 4. X-A, E, F; Y-A, B, G; Z-B, C, D, E.

1. In the following diagram if X is the animal tissue, P is a muscle tissue, Q is epithelial tissue, R is nervous tissue and S is connective tissue, place the following examples given below in their respective categories. Choose the alphabet which gives the correct combination of answers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | P | Q | R | S |
| 1. | Cartilage | skin | neurons | ligament |
| 2. | Tendon | lining cells of buccal cavity | glial cells | bone |
| 3. | Wall of blood vessels | alveoli | glial cell | blood |
| 4. | Intestinal wall | adipose tissue | neurons | areolar tissue |

1. Which type of tissue correctly matches with its location?

1. Tissue: Smooth muscle; Location: Wall of intestine

2. Tissue: Areolar tissue; Location: Tendons  3. Tissue: bone; Location: Tip of nose

4. Tissue: Cuboidal epithelium; Location: Lining of stomach

1. Match the items given in column I with the column II. Choose the alphabet which gives the correct combination of answers.

|  |  |  |  |
| --- | --- | --- | --- |
|  | column I |  | column II |
| A | Skin | p | Special connective tissue |
| B | Adipose tissue | q | Dense irregular connective tissue |
| C | Ligament | r | Loose connective tissue |
| D | Cartilage | s | Dense regular connective tissue |
|  |  | t | Fluid connective tissue |

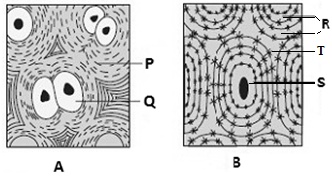
1. A-r, B-t, C-p, D-q 2. A-r, B-t, C-p, D-s

3. A-q, B-r, C-s, D-p 4. A-q, B-r, C-s, D-t

1. Study the given table and identify A,B,C and D

|  |  |
| --- | --- |
| **Tissue** | **Location** |
| **A** | Tendons and ligaments |
| **B** | Blood vessel, stomach |
| Dense irregular connective tissue | **C** |
| **D** | oil, milk, saliva |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** |
| 1 | Dense regular connective tissue | Non striated muscle fibre | skin | Exocrine gland |
| 2 | Dense irregular connective tissue | Striated muscle | dermis | glandular tissue |
| 3 | Dense regular connective tissue | Cardiac muscle | Renal corpuscles | Columnar epithelium |
| 4 | Dense irregular connective tissue | Smooth muscle | dermis | Aerolar tissue |

1. The following figures A represent a type of connective tissues. Identify them and choose the alphabets which give the correct combination of answers.

1. P- osteocyte, Q- bone tissue

2. P- bone tissue, Q- osteocyte

3. P- chondrocyte, Q- collagen fibres

4. P- collagen fibres, Q-chondrocyte

1. Read the following statements related to nerve tissue.

**Statement 1:** The neuroglial cells make up more than one-half volume of the neural tissuein human body.

**Statement 2**: When a neuron is suitably stimulated, an electrical disturbance is generated which swiftly travels along its plasma membrane.

1. Statement 1 is true and 2 is false 2. Both the statements are true

3. Both the statements are false 4. Statement 1 is false and 2 is true.

1. Locomotion in earthworm is directly facilitated by

1. Mucous secreted from epidermis 2. Extensible or retractable S-shaped setae

3. Rhythmic movements of parapodia

4. Movement of anterior prostomium and middle clitellum

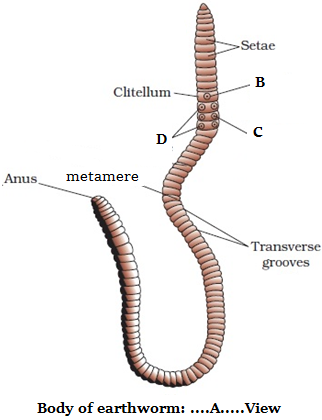
1. An organ system is a\_\_\_\_ (A). Example: \_\_\_ (B). Identify the option which gives the correct combination of answers.

1. A- Group of two or more kinds of tissue united structurally and coordinated in their activities. B- heart

2. A-Group of similar cells that function together in a specialized activity, B-pancreas

3. A- Multilayered sheet of cells, B- Tentacles in Coelenterate

4. A- The different tissues organize to form organs which in turn associate to perform coordinated activities in the multicellular organisms, B-Circulatory system

1. The following diagram shows the morphological features of earthworm. Identify the Alphabets from A to D. Choose the alphabet which gives the correct combination of answer.

1. A-Ventral, B-a mid-ventral female genital aperture, C-a pair of ventro-lateral male genital pore, D-genital papillae.

2. A-Dorsal, B-a mid-ventral female genital aperture, C-a pair of ventro-lateral male genital pore, D-genital papillae.

3. A-Ventral, B-a mid-ventral male genital aperture, C-a pair of ventro-lateral female genital pore, D-genital papillae.

4. A-Dorsal, B-a mid-dorsal male genital aperture, C-a pair of dorso-lateral female genital pore, D-annuli.

1. Body wall of earthworm has several layers. Arrange these layers from outer region towards inner region. Choose the correct alphabet of answers.

1. Cuticle-columnar epithelium-circular muscle-coelomic epithelium-longitudinal muscle.

2. Cuticle-columnar epithelium-circular muscle-longitudinal muscle-coelomic epithelium.

3. Columnar epithelium-cuticle-longitudinal muscle-circular muscle-coelomic epithelium.

4. Columnar epithelium-cuticle-longitudinal muscle-circular muscle-coelomic epithelium.

1. Identify the correct words for alphabets A-F related to the structures and functions of some anatomical features of earthworm.

I. Extending from 8-9 segments for grinding the soil particles and decaying leaves A .

II. Structure present in the alimentary canal helps to neutralize the humic acid in humus B .

III. Structure present on the 4th, 5th and 6th segments which produce phagocytic cells C .

IV. Extending from 9-14 segments where decaying leaves & organic matter mixed with soil D .

V. Produced by clitellum for the deposition of mature sperm, egg cells and nutritional fluid E .

F. Small narrow tube extending from 5th to 7th segments in the alimentary canal F .

G. The structure that serve as a wedge to force open cracks in the soil G .

Choose the alphabet which gives the correct combination of answers

1. A-Clitellum, B-blood glands, C- calciferous gland, D-intestine, E-stomach, F- oesophagus, G-peristomium

2. A-Gizzard, B-calciferous gland, C-gland cells, D-stomach, E-cocoons, F- oesophagus, G-peristomium

3. A- Clitellum, B-blood gland, C-gland cells, D- intestine, E-stomach, F- oesophagus, G-prostomium

4. A-Gizzard, B-calciferous gland, C-blood glands, D-stomach, E-cocoons, F- oesophagus, G-prostomium

1. **Assertion** **(A):** The earthworm intestine between 26-35 segments contain internal median fold of dorsal wall called intestinal caecae.

**Reason (R)**: The intestinal caecae increases the effective area of absorption in the intestine.

1. A and R are correct and R is the correct explanation to A.

2. A and R are correct and R is not the correct explanation to A.

3. A is correct and R is wrong 4. Both A & R are wrong

1. In *Pheritima*, the pharyngeal nephredia are present as three paired tufts in the segments, A, B and C. The prominent circular band of glandular tissue called Clitellum is present on D, E and F segments. Identify the alphabets which gives the correct segments of the earthworm.

1. A-4, B-5, C-6, D-15, E-16, F-17 2. A-4, B-5, C-6, D-14, E-15, F-16

3. A-3, B-4, C-5, D-14, E-15, F-16 4. A-3, B-4, C-5, D-15, E-16, F-17

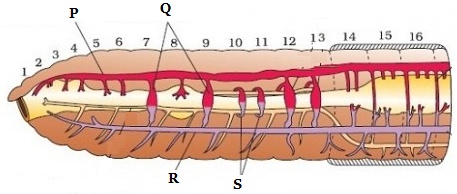
1. Match the items given in column I with the column II. Choose the alphabet which gives the correct combination of answer.

|  |  |
| --- | --- |
| Structure (Column I) | Location (Column -II |
| 1. Spermathecal aperture | p. 6th to 9th segment. |
| B. testes | q. 14-16 segment |
| C. Setae | r. All segments except peristomium, 14th, 15th ,16th and anal segment |
| D. Accessory glands | s. 10th and 11th segments |
| E. Ovaries | t. Intersegmental septum of the 12th and 13th segments. |
|  | u. 17th to 19th segment. |

1. A-p, B-s, C-r, D-u, E-t 2. A-p, B-u, C-q, D-r, E-t

3. A-p, B-u, C-r, D-q, E-t 4. A-p, B-u, C-r, D-q, E-s

1. The diagram given below represents the circulatory system of *Pheretima*. Identify the labels from P to S. Choose the alphabet which gives the correct combination of answers.

1. P-ventral vessel, Q-lateral heart, R-dorsal vessel, S- ventral vessels.

2. P-ventral vessel, Q-lateral oesophageal heart, R-dorsal vessel, S-ventral vessels.

3. P-dorsal vessel, Q-lateral heart, R-ventral vessel, S-anterior loops.

4. P-dorsal vessel, Q-lateral oesophageal heart, R-ventral vessel, S-dorsal loops.

1. Read the following keys related to the digestive system of *Pheritima*-X and *Periplanata* Y. If A–oesophagus, B-gizzard, C-crop, D-stomach, E-intestine, F-midgut, identify the correct position of gizzard in X and Y using the correct alphabets.

1. X:A-B-F, Y: A-B-D 2. X: C-B-F, Y: A-B-D

3. X: A-B-D, Y: C-B-F 4. X: A-B-D, Y: C-B-E

1. Nephridiopores present over the body of earthworm belong to

1. Integumentary nephridia 2. Pharyngeal nephridia

3. Septal nephridia 4. All these

1. **Assertion (A):** Blood of the earthworm is red in colour.

**Reason (R):** Earthworm blood lacks RBCs, but it contains haemoglobin dissolved within the blood plasma which gives red colour to the blood.

1. Both A and R are true and R is the correct explanation of A

2. Both A and R are true but R is not the correct explanation of A

3. A is true but R is false 4. Both A and R are false

1. In Earthworm the digestive system and nervous system are

i. Found on the ventral and dorsal surfaces respectively

ii. The alimentary canal is a straight tube and runs between first to last segment of the body.

iii. Nerve chord is paired and ventral

iv. Nerve chord is single, hollow and ventral

Choose the Correct statements.

1. i and iii 2. i and iv 3. ii and iii 4. ii and iv

1. **Assertion (A):** Respiratory exchange occurs through moist body surface into their blood stream.

**Reason (R):** Earthworms skin contains specialized breathing devices called spiracles.

1. Both A and R are true and R is the correct explanation of A

2. Both A and R are true but R is not the correct explanation of A

3. A is true but R is false 4. Both A and R are false

1. W.r.to the digestive system of Cockroach P is Haepatic caecae and Q is Malpighian tubules. Identify the Correct statements from the following.

i. P is a ring of 6-8 blind tubules present at the junction of foregut and midgut for absorption.

ii. P is a ring of 6-8 blind tubules present at the junction of proventriculus and mesenteron which secrete digestive juice.

iii. Q is a ring of 100-150 yellow coloured thin filamentous structure at the junction of ileum and colon help in removal of excretory products from haemolymph.

iv. Q is a ring of 100-150 yellow coloured thin filamentous structure at the junction of midgut and hindgut help in removal of excretory products from haemolymph.

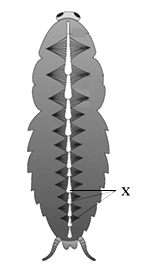
1. i and iii 2. ii and iv 3. ii and iii 4. i and iv

1. Earthworm is highly useful as

1. Their burrows make the soil loose

2. They make burrows in the soil and make it porous which helps in respiration and penetration of the developing plant roots.

3. They are used as fish meal.

4. They kill the birds due to biomagnification of chlorinated hydrocarbons

1. With reference to the following diagram, identity ‘X’.

1. Network of trachea with spiracles

2. Heart chambers

3. Alary muscles

4. Thin tracheal tubes.

1. The terga, sterna and pleura of cockroach body are joined by

1. Arthrodial membrane 2. Cartilage  3. Cementing glue 4. Muscular tissue

1. Consider the following statements related to the morphology of cockroach and select the option that correctly identifies the true (T) and false (F) ones.

I. Prothorax is the I thoracic segment and contain I pair of legs but devoid of wings.

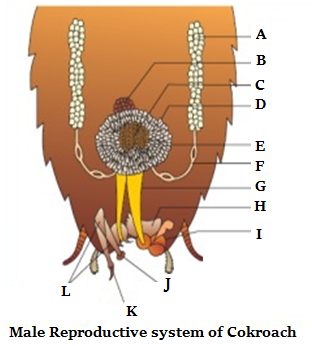
II. Metathorax is the II thoracic segment and contains II pair of legs and a pair of tegmina.

III. Mesothorax is the III thoracic segment and contains III pair of legs and a a pair of hind wing.

IV. The hind wings are transparent, membranous and are used in flight.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | I | II | III | IV |
| 1. | T | T | T | F |
| 2. | T | T | T | T |
| 3. | T | F | F | T |
| 4. | T | F | F | F |

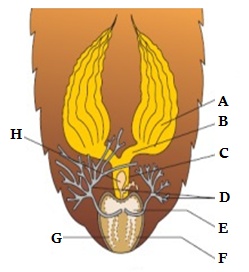
1. With reference to the diagram identify the alphabet from A-L. Choose the alphabet which gives the correct combination of answers.

1. A-testis, B-Phallic gland, C-small tubules, D-large tubules, E-seminal vesicle, F-vas deferens, G-Ejaculatory duct, H-right phallomere, I ventral phallomere, J- pseudopenis, K- left phallomere, L-titilator.

2. A-testis, B-Phallic gland, C-small tubules, D-large tubules, E-seminal vesicle, F-vas deferens, G-Ejaculatory duct, H-right phallomere, I-ventral phallomere, J-pseudopenis, K-titilator, L-left phallomere.

3. A-testis, B-Phallic gland, C- large tubules, D- small tubules, E-seminal vesicle, F-vas deferens, G-Ejaculatory duct, H- left phallomere, I ventral phallomere, J- right phallomere, K-pseudopenis, L-titilator

4. A-testis, B-Phallic gland, C- large tubules, D- small tubules, E- vas deferens, F- seminal vesicle, G-Ejaculatory duct, H- left phallomere, I ventral phallomere, J- right phallomere, K-pseudopenis, L-titilator

1. Identify the following parts in the diagram.

i. Paired structures lying laterally in the 2nd to 6th abdominal segments formed by a group of eight ovarian tubules

ii. Duct that arises from ovary unites into a single median duct which opens into the genital chamber.

Choose the alphabet which gives the correct definition and answers.

1. i-A-ovaries, ii-C-vagina

2. i-D-ovaries, ii-B-oviduct

3. i-E-genital chambers, ii-G-gonapophyses

4. i-A-oviduct, ii-H-spermatheca

1. Consider the following statements related to the development of cockroach and select the option that correctly identifies the true (T) and false (F) ones.

I. The fertilized eggs are encased in dark reddish brown capsules called oothecae.

II. The development of *Periplanta americana* is paurometabolous.

III. The young ones are called larvae which resemble very much like adult.

IV. Oothecae are glued to crevice of high relative humidity near a food source.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | I | II | III | IV |
| 1. | *T* | F | T | F |
| 2. | T | T | F | T |
| 3. | T | T | F | F |
| 4. | T | F | F | T |

1. The male and female cockroaches are externally distinguished

i. In male, the 9th abdominal segment bears laterally a pair of hair like unsegmented out growth called Anal style and the 10th segment bears a pair of jointed filamentous structures called anal cerci

ii. In male, the 9th abdominal segment bears laterally a pair of hair like unsegmented out growth called anal cerci and the 10th segment bears a pair of jointed filamentous structures called Anal style

iii. In female, the 9th abdominal segment lacks anal style and the 10th segment bears a pair of jointed filamentous structures called anal cerci

iv. In female, the 9th abdominal segment lacks anal cerci and the 10th segment bears a pair of jointed filamentous structures called anal style.

1. i and iv 2. i and iii 3. ii and iii 4. ii and iv

1. Match the following

|  |  |
| --- | --- |
| **Column -I** | **Column -II** |
| A. Hermophrodite | i. nucleated RBCs. |
| B. Direct development | ii. testis and ovary in the same animal. |
| C. Malpighian tubule | iii. Larval form absent. |
| D. Frog | iv. reabsorption of water. |

1. A-ii, B-iii, C-iv, D-i

2. A-iii, B-ii, C-iv, D-i

3. A-i, B-iii, C-ii, D-iv

4. A-ii, B-iv, C-iii, D-i

1. Match the organisms given in column I with their blood given in the column II. Choose the alphabet which gives the correct combination of answers.

|  |  |
| --- | --- |
| Column I | Column II |
| A. Man | p. Plasma and cells are colourless |
| B. Earthworm | q. Plasma colourless and nucleated RBC |
| C. Cockroach | r. Plasma colourless and enucleated RBC |
| D. Frog | s. Plasma red with leucocytes |
|  | t. Plasma and RBCs have haemoglobin |

1. A-r, B-s, C-p, D-q

2. A-r, B-t, C-p, D-q

3. A-q, B-s, C-p, D-t

4. A-q, B-s, C-p, D-r

1. Features different to *Pheretima* and *Periplaneta* are

1. Presence of appendages, and metamerism

2. Color of the blood, type of blood circulation and sexuality.

3. Complete Digestive system 4. All these

1. Blood of Cockroach contains corpuscles known as \_\_\_\_\_\_\_

1. Haemocytes 2. Plasmocytes 3. Coagulocytes 4. All the above.

1. With reference to frog morphology identify the WRONG statement/s?

1. Frogs undergo aestivation and hibernation to overcome from extreme heat and cold.

2. Frogs are cold blooded or poikilotherms.

3. They show protective colouration.

4. The frogs never absorb water through the skin but drinks water

1. Consider the following statements related to Frog and select the correct option starting which are true and which are false.

I. The hind limbs end in five digits and they are larger and muscular than fore limbs that end in four digits.

II. Male frogs can be distinguished by the presence of sound producing vocal sacs and also a copulatory pad on the first digit of the hind limbs which are absent in female frogs.

III. Eyes are bulged and covered by a nictitating membrane that protects them while in water.

IV. Male frogs can be distinguished by the presence of sound producing vocal sacs and also a copulatory pad on the first digit of the fore limbs which are absent in female frogs.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | I | II | III | IV |
| 1. | T | T | T | F |
| 2. | F | T | F | F |
| 3. | T | F | T | T |
| 4. | T | F | F | T |

1. With reference to the excretion, choose the correct statement.

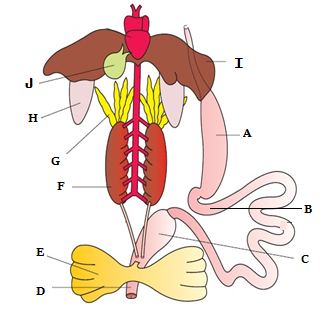
1. *Periplaneta* is uricotelic and *Rana* is ureotelic

2. *Periplaneta* is ureotelic and *Rana* is uricotelic

3. *Periplaneta* is ammonotelic and *Rana* is ureotelic

4. *Periplaneta* and *Rana* are ureotelic

1. The following diagram represents internal organs of frog. Identify these organs:

I. Bile storage organ

II. Organ with partly digested food called chyme,

III. Organ which receives bile, pancreatic juice and chyme

IV. Storage site for undigested solid waste

V. Organ for pulmonary respiration.

Choose the alphabet which gives the correct combination of answers.

1. I-I, II-A, III-C, IV-D, V-G

2. I-I, II-A, III-C, IV-D, V-F

3. I-J, II-A, III-B, IV-C, V-H

4. I-J, II-A, III-B, IV-D, V-H

1. **Assertion (A):** In frogs, digested food is absorbed by the numerous finger-like folds in the inner wall of intestine called villi and microvilli.

**Reason (R):** The alimentary canal is short because frogs are carnivores and hence the length of intestine is reduced.

1. Both A and R are true and R is the correct explanation of A

2. Both A and R are true but R is not the correct explanation of A

3. A is true but R is false 4. Both A and R are false

1. W.r.to respiration in frogs, select the correct option starting which are true and which are false.

I. In water, skin and buccal cavity act as aquatic respiratory organs.

II. On land, the buccal cavity, skin and lungs act as the respiratory organs.

III. During aestivation and hibernation gaseous exchange takes place through lungs.

IV. Dissolved oxygen in the water is exchanged by diffusion.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | I | II | III | IV |
| 1. | F | T | F | T |
| 2. | F | T | T | F |
| 3. | T | T | F | T |
| 4. | T | F | T | T |

1. Choose the wrong statement regarding the circulatory system of frog.

1. Frogs lack lymphatic system.

2. A triangular structure called sinus venosus joins the right atrium which receives blood through the major veins called vena cava

3. The ventricle opens into a sac-like conus arteriosus on the ventral side of the heart. The blood from the heart is carried to all parts of the body by the arteries (arterial system). The veins collect blood from different parts of body to the heart and form the venous system.

4. Special venous connection between liver and intestine called hepatic portal system is present.

1. Select the correct route for the passage of sperms in male frogs.

1. Testes → Bidder's canal → Kidney → Vasa efferentia → Urinogenital duct → Cloaca

2. Testes → Vasa efferentia → Kidney → Seminal Vesicle → Urinogenital duct → Cloaca

3. Testes → Vasa efferentia → Bidder's canal → Ureter → Cloaca

4. Testes → Vasa efferentia → Kidney → Bidder's canal → Urinogenital duct → Cloaca

1. Which of the following statements are TRUE with reference to excretory systems in frog?

i. Each kidney is composed of several structural and functional units called malphigian tubules.

ii. Two ureters emerge from the kidneys in the male frogs. The ureters act as urinogenital duct which opens into the cloaca.

iii. In females the ureters and oviduct open separately in the cloaca. The thin-walled urinary bladder is present ventral to the rectum which also opens in the cloaca.

iv. The frog excretes uric acid and thus is a uricotelic animal.

1. ii and iv 2. iii and iv 3. ii and iii. 4. All are true

1. The chances of contracting bird flu from a properly cooked (above 100•C) chicken and eggs are

1. Very high 2. High 3. Moderate 4. None

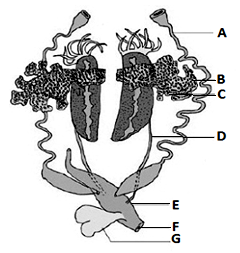
1. Mesorchium in frog is a /an

1. Tissue by which ovaries are attached to the peritoneal cavity.

2. Part of the forebrain

3. Peritoneal fold which adheres the testis to the upper part of the kidneys.

4. Epithelial lining of buccal cavity.

1. In the diagram of female reproductive system of frog, identify the correct alphabets. Choose the answer which gives the correct combination of answers.

1. A-Ovary, B- oviduct, C-ova, D-ureter, E-cloaca,

F-cloacal aperture, G-urinary bladder

2. A-oviduct, B-Ovary, C-ova, D-ureter, E-cloaca,

F- urinary bladder, G- cloacal aperture.

3. A-oviduct, B- ova, C- Ovary, D-ureter, E-cloaca,

F-cloacal aperture, G-urinary bladder.

4. A-oviduct, B-Ovary, C-ova, D-ureter, E-cloaca,

F-cloacal aperture, G-urinary bladder

1. Frog has different types of sense organs. Out of these which of the following are well-organized structures?

1. Sensory papillae, taste buds and nasal epithelium

2. Eyes and tympanum with internal ears.

3. Eyes, taste buds and tympanum with internal ears.

4. Sensory papillae, taste buds, nasal epithelium, Eyes and tympanum with internal ears.

1. Read the statements with regard to frog. Which of the following statement (s) is /are correct and incorrect?

i. There are twelve pairs of cranial nerves arising from the brain.

ii. The medulla oblongata passes out through the foramen magnum and continues into spinal cord.

iii. The ear is an organ of hearing as well as balancing (equilibrium).

iv. The ovaries are situated near kidneys and have functional connection with kidneys.

1. i and ii are correct while iii and iv are incorrect

2. ii and iii are correct while i and iv are incorrect

3. ii and iv are correct while i and iii are incorrect

4. i and iii are correct while ii and iv are incorrect

1. Poultry is the class of domesticated fowl (birds) used for food or for their eggs. The important components of poultry farm management do not include

1. Selection of disease free and suitable breeds

2. Mechanical processes of maintaining hygiene and health care of birds.

3. Proper and safe farm conditions, 4. Proper feed and water

1. Inbreeding is carried out in animal husbandry because it

1. Increases vigour 2. Improves the breed

3. Increases heterozygosity 4. Increases homozygosity

1. In management of diary animals, Milk yield is primarily dependent on the

1. Quality of breeds in the farm having high yielding potential, combined with resistance to diseases.

2. The feeding of cattle with special emphasis on the quality and quantity of fodder.

3. Stringent cleanliness and hygiene

4. Housing, adequate water and disease free management.

1. Animal breeding aims at

I. Increasing the yield of animals

II. Improve the desirable qualities.

III. Use of mechanized processes in the management of domestic animals

IV. Care and breeding of domestic animals

1. I and II 2. I and III 3. I and IV 4. II and IV

1. Animal husbandry includes

i. Care and breeding of livestock like buffaloes, cows, pigs, horses, cattle, sheep, camels, goats.

ii. Keeping threatened species in enclosures to prevent them from extinction.

iii. Rearing, catching, selling, etc., of fish, molluscs and crustaceans.

iv. Use of bees, silk-worm, prawns, crabs, fishes, birds, pigs, cattle, sheep and camels for products like milk, eggs, meat, wool, silk, honey, etc.

1. ii, iii and iv. 2. i, ii and iv. 3. i, iii and iv. 4. i, ii and iii.

1. Which statement about breeding is wrong?

1. By inbreeding pure lines cannot be evolved.

2. Continued inbreeding, especially close inbreeding, reduces fertility and productivity.

3. Cross breeding allows desirable qualities of two different breeds to be combined.

4. Inbreeding exposes harmful recessive genes that are eliminated by selection.

1. Match the items given in column I with column II. Choose the alphabet which gives the correct combination of answers.

|  |  |
| --- | --- |
| Column I (terminologies) | Column II (Definitions) |
| A. Inbreeding | p. This is the practice of mating of animals within the same breed, but having no common ancestors on either side of their pedigree up to 4-6 generations. |
| B. Out-breeding | q. Mating of more closely related individuals within the same breed for 4-6 generations. |
| C. Out-crossing | r. In this method, superior males of one breed are mated with superior females of another breed. |
| D. Cross breeding | s. Is the breeding of the unrelated animals, which may be between individuals of the same breed (but having no common ancestors), or between different breeds or different species |

1. A-q, B-r, C-p, D-s 2. A-p, B-r, C-q, D-s 3. A-q, B-s, C-p, D-r 4. A-p, B-q, C-s, D-r

1. “Hisardale” is a new breed of sheep developed in Punjab by crossing (……X………) and is an example for …(Y)….

1. X: Bikaneri ewes and Marino rams Y: cross breeding

2. X: Bikaneri ewes and Marino rams Y: out breeding

3. X: Bikaneri rams and Marino ewes Y: cross breeding

4. X: Bikaneri rams and Marino ewes Y: out breeding

1. Apiculture is associated with which of the following groups of plants

1. Grapes, Maize. Potato 2. Sugarcane, Paddy, Banana

3. Sunflower, *Brassica*, apple and pear 4. Pineapple, Sugarcane, strawberry

1. Following are the differences between out crossing and cross breeding. Choose the alphabet which shows correct and incorrect differences.

|  |  |  |
| --- | --- | --- |
|  | Out crossing | Cross breeding |
| i | mating of animals within the same breed, but having no common ancestors on either side of their pedigree up to 4-6 generations | Mating of superior males of one breed with the superior female of another breed. |
| ii | It is the best breeding method for animals that are below average in productivity in milk production, growth rate in beef cattle, etc. | It allows the desirable qualities of two different breeds to be combined in one individual |
| iii | The progeny animals may themselves be used for commercial production. | A single breeding often helps to overcome inbreeding depression. |

1. i is correct while ii and iii are incorrect 2. i and ii are correct but iii is incorrect

3. ii and iii are correct but i is incorrect 4. All the differences are correct

1. Artificial insemination means

1. The fertilized eggs at 8–32 cells stages, are recovered nonsurgically and transferred to surrogate mothers.

2. Transfer of sperms of a healthy donor to a test tube containing ova

3. Transfer of zygote to a uterus of a female

4. The semen is collected from the male that is chosen as a parent and injected into the reproductive tract of the selected female by the breeder.

1. In Controlled breeding experiments, for herd improvement and to improve chances of successful production of hybrids a programme called **Multiple Ovulation Embryo Transfer Technology (MOET)** is used. Read the statements given below (A-F) related to MOET.

A. FSH induce follicular maturation and super ovulation

B. A cow is administered hormones, with FSH-like activity,

C. 6-8 eggs per cycle are produced. D. Embryo transfer

E. Cow is artificially inseminated

F. The fertilized eggs at 8–32 cells stages are recovered non-surgically.

Choose the alphabet which gives the correct sequences of events.

1. A – B – C – E – F –D 2. A – B – C – E – D –F

3. B – A – C – E – F –D 4. B – C – A – E – F –D

1. Identify the fresh water fishes from the following

1. *Catla* and Rohu 2. Mackerel and *Hilsa*

3*.* Sardines and Pomfrets 4. Sardines and Mackerel

1. Bee-keeping or apiculture is the maintenance of hives of honeybees for the production of honey. Choose the CORRECT statements related to apiculture.

i. It has been an age-old, labour-intensive, cottage industry.

ii. Beeswax, which finds many uses in indigenous systems of medicine and also in industry, such as in the preparation of cosmetics and polishes of various kinds.

iii. *Apis indica* is the most common species used in apiculture

iv. Knowledge of the nature and habits of bees, location for keeping the beehives, catching of swarms, management during different seasons and collection of honey and of beeswax are important for successful bee-keeping.

1. iii and iv 2. ii and iv 3. i and iii 4. i and iv

1. Which of the following is the largest cell

1. Monocyte 2. Basophil 3. Neutrophil 4. Eosinophil

1. Match the columns and choose the correct option given below.

|  |  |
| --- | --- |
| Column I | Column II |
| a. Cartilage | p. Neurilemma |
| b. Bone | q. Sarcolemma |
| c. Muscle fibre | r. Perichondrium |
| d. Neuron | s. Periosteum |
|  | t. Pericardium |

1. a-r, b-s, c-q, d-p

2. a-r, b-t, c-q, d-p

3. a-r, b-s, c-q, d-t

4. a-r, b-s, c-p, d-q

1. Smooth muscle fibres are

1. Cylindrical, unbranched, striated, multinucleate and voluntary

2. Spindle shaped, unbranched, non striated, uninucleate and involuntary

3. Spindle shaped, branched and striated

4. Spindle shaped, unbranched, striated, uninucleate and involuntary

1. A cell in the blood shows amoeboid movements, multilobed nucleus, has granules in the cytoplasm and is phagocytic. Which of the following cells can it be

1. Lymphocyte 2. Eosinophil 3. Neutrophil 4. Monocyte

1. In the cockroach elytra are present on

1. Prothorax 2. Metathorax 3. Both 1 and 2 4. Mesothrax

1. Match the columns and choose the correct option given below.

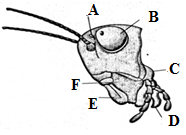
|  |  |
| --- | --- |
| Column I | Column II |
| a. Cuboidal | p. Intestine |
| b. Squamous | q. Oviduct |
| c. Columnar | r. Ovary |
| d. Ciliated | s. Bowmans capsule |
| e. Pseudostratified ciliated columnar | t. Trachea |

1. a-p, b-q, c-s, d-r, e-t

2. a-t, b-s, c-p, d-q, e-r

3. a-r, b-s, c-p, d-q, e-t

4. a-s, b-r, c-p, d-t, e-q

1. In the diagram the various parts of the cockroach head is indicated by alphabets. Choose the answer in which the alphabets are correctly matched with the parts.

1. A- ocellus, B- compound eye, C- maxilla, D-labium,

E-labrum, F-mandible

2. A- ocellus, B- compound eye, C- maxilla, D-labrum,

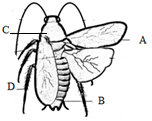
E-labium, F-mandible

3. A- antennal socket, B- compound eye, C- maxilla,

D-labium, E-labrum, F-mandible

4. A- ocellus, B- compound eye, C- mandible, D-labium,

E-labrum, F-maxilla

1. In the diagram the various parts of the cockroach are indicated by alphabets. Choose the correct answer.

1. A- tegmina, B- anal cerci, C- pronotum,

D- metathoracic leg

2. A- hindwing, B- anal style, C- pronotum,

D- metathoracic leg

3. A- tegmina, B- anal cerci, C- mesonotum,

D- mesothoracic leg

4. A- tegmina, B- anal cerci, C- metanotum,

D- metathoracic leg

1. Malpighian tubules of cockroach are found at the junction between

1. Crop and gizzard 2. Foregut and hindgut

3. Mesenteron and hindgut 4. Hindgut and foregut

1. In addition to malphigian tubules excretion in cockroach ia also carried out by

1. Fat body 2. Nephrocytes 3. Urecose glands 4. All of these

1. A mule is produced by

1. Cross-breeding 2. Out-crossing 3.Inbreeding 4. Interspecific hybridization

1. Which of the following statements are correct?

1. The maintenance of hives for the production of honey is called apiculture.

2. A group of animals related by descent and similar in most characters is called a breed.

3. The agricultural practice of breeding and raising livestock is called animal husbandry.

Choose the correct option

1. 1, 2, 3 2.1, 2 3. 1 4. 2, 3

1. Most common honeybee species in India

1. *Apis indica* 2.*Apis florae* 3.*Apis mellifera* 4.*Apis dorsata*

1. Chemically, the silk is

1. Cellulose 2. Resin 3. Protein 4. Lipid

1. The most popular breed of fowl in India is

1. White leg horn 2. Aseel 3. Plymouth 4. Langshan

**Topic: Structural organization in animals and Animal breeding**

**Unit: B-04**

**ANSWER KEY**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Q. No.** | **Ans.** | **Q. No.** | **Ans.** | **Q. No.** | **Ans.** | **Q. No.** | **Ans.** | **Q. No.** | **Ans.** |
| 1 | **3** | 2 | **3** | 3 | **1** | 4 | **4** | 5 | **3** |
| 6 | **4** | 7 | **4** | 8 | **1** | 9 | **3** | 10 | **3** |
| 11 | **2** | 12 | **4** | 13 | **4** | 14 | **2** | 15 | **3** |
| 16 | **4** | 17 | **3** | 18 | **1** | 19 | **4** | 20 | **2** |
| 21 | **2** | 22 | **4** | 23 | **1** | 24 | **2** | 25 | **4** |
| 26 | **4** | 27 | **2** | 28 | **1** | 29 | **3** | 30 | **3** |
| 31 | **1** | 32 | **1** | 33 | **3** | 34 | **3** | 35 | **2** |
| 36 | **2** | 37 | **2** | 38 | **1** | 39 | **3** | 40 | **2** |
| 41 | **1** | 42 | **2** | 43 | **2** | 44 | **1** | 45 | **1** |
| 46 | **2** | 47 | **1** | 48 | **4** | 49 | **3** | 50 | **1** |
| 51 | **3** | 52 | **2** | 53 | **1** | 54 | **1** | 55 | **4** |
| 56 | **3** | 57 | **4** | 58 | **3** | 59 | **4** | 60 | **2** |
| 61 | **2** | 62 | **2** | 63 | **4** | 64 | **1** | 62 | **1** |
| 66 | **3** | 67 | **1** | 68 | **3** | 69 | **1** | 70 | **3** |
| 71 | **2** | 72 | **4** | 73 | **3** | 74 | **1** | 75 | **1** |
| 76 | **1** | 77 | **1** | 78 | **2** | 79 | **3** | 80 | **4** |
| 81 | **3** | 82 | **1** | 83 | **1** | 84 | **3** | 85 | **4** |
| 86 | **4** | 87 | **1** | 88 | **1** | 89 | **3** | 90 | **2** |