



BIOLOGY

BOOKS - AAKASH SERIES

STRUCTURAL ORGANISATION IN ANIMALS

Exercise I Introduction Epithelial Tissue

1. Tissues are made up of with

- A. cells & extracells
- B. cells & intracellular fluid
- C. cells & extracellular matrix
- D. cells & body fluids

Answer: C



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2. Organ system is formed by the physical & chemical interaction of

- A. one organ.
- B. two organs
- C. 2 or more organs
- D. all the above

Answer: C

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3. Epithelial tissues are

- A. loosely arranged with no intercellular matrix
- B. compactly arranged with more intercellular matrix
- C. randomly arranged without intracellular matrix

D. compactly arranged with little intercellular matrix

Answer: D



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4. The layer of basement membrane which lies close to the epithelial cells is

A. Basal lamina

B. Reticular lamina

C. Endothelium

D. Mesothelium

Answer: A



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5. Body cavities, ducts and tubes are lined by

- A. simple epithelium
- B. compound epithelium
- C. transitional epithelium
- D. pseudo stratified

Answer: A



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6. Flat epithelial cells with irregular boundaries are

- A. Cuboidal
- B. Squamous
- C. Columnar
- D. Transitional

Answer: B



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7. Tile like flat cells line the following

- A. pleura, DCT
- B. DCT & PCT of nephron
- C. lining of intestine
- D. pleura and alveoli

Answer: D



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8. Long and non motile cilia like process, in epidydimis and internal ear are

A. Cilia

B. Stereocilia

C. flagella

D. microvilli

Answer: B



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9. Formation of diffusion boundary is the chief function of

A. Tile like cells

B. Cube like cells

C. Pillar like cells

D. All the above

Answer: A



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10. Secretion and absorption are the main functions

- A. pavement epithelium of vein
- B. tall and slender cells of intestine
- C. cuboidal cells of ducts of glands & tubes of nephrons
- D. both B and C

Answer: C



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11. The non cellular membrane on which epithelial cells lie and gives attachment to connective tissue is

- A. Plasma membrane
- B. Pellicle
- C. Basement membrane

D. Fibrous layer

Answer: C



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12. Mucus secreting goblet cells of alimentary canal are the examples of

A. unicellular isolated glandular cells

B. multicellular glandular cells

C. multicellular isolated cells

D. langerhan cells

Answer: A



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13. Which type of epithelium has limited role in secretion and absorption?

- A. simple epithelium
- B. compound epithelium
- C. transitional epithelium
- D. pseudostratified epithelium

Answer: B

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14. Ciliated epithelial lining of mammalian trachea help in

- A. pushing mucus out
- B. pushing expired air out
- C. pushing inspired air in
- D. perceiving smell of inspired air

Answer: A

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15. Match the following.

List-I

I) Tight junctions

II) Gap junctions

III) Adhering junctions

IV) Epithelia

List-II

A) Cement neighbouring cells

B) Stop leakage of substances

C) rapid transfer of ions

D) Upon growing

A. I-B, II-C, III-D, IV-A

B. I-B, II-C, III-A, IV-D

C. I-D, II-B, III-C, IV-A

D. I-C, II-B, III-D, IV-A

Answer: B



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16. Match the following.

List-I

I) Glands without ducts

II) Isolated unicellular glands

III) Glands with ducts

IV) Glands that produce wax

List-II

A) Cerimunous gland

B) Islets of langerhans

C) Goblet cells

D) Salivary glands

A. I-D, II-B, III-C, IV-A

B. I-C, II-A, III-B, IV-D

C. III-D, II-C, IV-A, I-B

D. I-A, II-B, III-C, IV-D

Answer: C



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17. Pseudostratified epithelium is found in

A. Trachea

B. Epididymis

C. Gland ducts

D. Both 1 & 2

Answer: D

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18. Epithelium that covers dry surface of skin and moist surface of pharynx respectively are

A. stratified keratinized squamous and stratified non keratinized

squamous

B. stratified non keratinized squamous & stratified keratinized

squamous

C. simple cuboidal epithelium

D. simple columnar epithelium

Answer: A

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19. When the discharge from a secretory cell involves no cytoplasmic damage to the cell itself, such a glandular cell is known as

- A. acrine
- B. apocrine
- C. merocrine
- D. Holocrine

Answer: C

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20. The germinal epithelium of mammalian ovary is lined by

- A. squamous epithelium .
- B. cuboidal epithelium

C. columnar epithelium

D. pseudo stratified epithelium

Answer: B



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21. All cells in contact with basement membrane and nuclei at different levels, is the feature of

A. compound epithelium

B. transitional epithelium ..

C. lining of epidydimis

D. lining of urinary bladder

Answer: C



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22. Skin is made water tight due the presence of _ in the epithelial cells

- A. Desmosomes
- B. microvilli
- C. tight junctions
- D. gap junctions

Answer: C



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23. For rapid conduction of impulses or depolarizations, heart muscles possess.

- A. Anchoring junctions
- B. Tight junctions
- C. Hemi desmosomes
- D. Communicating junctions

Answer: D

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24. Ventricles of brain, central canal of spinal cord, bronchi and lining of stomach & intestine have

- A. columnar epithelium and cuboidal
- B. flagellated columnar & ciliated cuboidal
- C. squamous & columnar
- D. ciliated columnar & non ciliated columnar Connective Tissue

Answer: D

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1. The abundantly and widely distributed tissues in higher animals are

- A. muscular
- B. epithelial
- C. nervous
- D. connective

Answer: D



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2. The tissues that are derived from mesoderm are:

- A. neural
- B. muscular
- C. connective
- D. both 2 & 3

Answer: D



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3. The main function of the connective tissue is to

- A. bind & support the other tissue
- B. bind & support the same tissue
- C. control and coordination
- D. cover surface and lines organ

Answer: A



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4. Connective tissue differs from epithelial tissue in having

- A. basement membrane

- B. large extracellular matrix
- C. cells arranged apart from each other
- D. both 2 & 3

Answer: D

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5. The combination of fibres in connective tissue is

- A. Collagen, keratin, reticular fibres
- B. Collagin, elastic & tubulin
- C. Collagen, elastic & reticular fibres
- D. Elastin, myosin & actin

Answer: C

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6. The matrix of connective tissue includes

- A. water, lipids, proteins
- B. proteins, polysaccharides and water
- C. polysaccharides, monosaccharides and water
- D. proteoses, polysaccharides and water

Answer: B



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7. Cells and fibres are loosely arranged in the semifluid matrix in

- A. cartilage
- B. dense connective tissue
- C. loose connective tissue
- D. blood

Answer: A



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8. The matrix of the connective tissue is

- A. modified polysaccharide secreted by the cells of connective tissue
- B. modified polysaccharide secreted by blood cells
- C. unchanged monosaccharides secreted by epithelial cells
- D. broken down products of connective tissue cells

Answer: A



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9. The connective tissue that acts as supporting framework for epithelium is

- A. Adipose tissue
- B. Dense connective tissue
- C. Areolar tissue
- D. Dense irregular connective tissue

Answer: C

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10. The most widely distributed tissue that forms packing in all organs is

- A. Epithelial tissue
- B. compound epithelium
- C. Areolar tissue
- D. Adipose tissue

Answer: C

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11. The fibres of connectives tissues are secreted by

- A. mast cells
- B. fibroblasts
- C. fibrocytes
- D. fibrinogen

Answer: B



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12. Find out the phagocytic cells from the following

- A. macrophages and mast cells
- B. mast cells and plasma cells
- C. macrophages and neutrophils

D. neutrophils and plasma cells

Answer: C



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13. By nature heparin, bradykinin and serotonin respectively are

A. vaso constrictor, vasodilator and anti coagulant

B. anticoagulant, vasodilator and vaso constrictor

C. vasodilator, anticoagulant & vasoconstrictor

D. vasodilator, vasoconstrictor & anticoagulant

Answer: B



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14. The substance that cause inflammation as a response to injury and infection are

- A. Heparin
- B. Histone
- C. Serotonin
- D. Histamine

Answer: B



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15. The phagocytic internal scavengers are

- A. Monocytes of blood
- B. Mast cells
- C. Plasma cells
- D. Adipocytes

Answer: A



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16. Tissue fixed macrophages are called

- A. Adipocytes
- B. Histocytes
- C. Choanocytes
- D. Plasma cells

Answer: B



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- | | Cells | Functions |
|-----|------------------|------------------------|
| 17. | I) Fibroblast | A) Histamines |
| | II) Plasma cells | B) secretion of fibres |
| | III) Adipocytes | C) Storage of fat |
| | IV) Macrophages | D) Antibodies |
| | V) Mast cells | E) Phagocytosis |

A. I - B, II - D, III-A, IV-C, V-E

B. I-D, II - B, III- E, IV.C, V-A

C. I -B, II - D, III-C, IV - E, V-A

D. I-B, II - C, III-D, IV-A, V-E

Answer: C



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18. White fibres and reticular fibres are composed of

A. elastin

B. keratin

C. fibrin

D. collagen, reticulin

Answer: D



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19. Strength and support to bone marrow is provided by

A. collagen fibres

B. elastin fibres

C. reticular fibres

D. none of these

Answer: C



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20. Thin fibres which form network in connective tissue are made up of

- A. elastin
- B. collagen
- C. fibrin
- D. all the above

Answer: B



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21. Elasticity of the ligaments is due to

- A. yellow branched fibres
- B. white unbranched fibres
- C. white fibres in bundles
- D. white fibres that form network

Answer: A



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22. Adipose tissue beneath the skin of sea cow and whale acts as

- A. thermo receptor
- B. thermo transmitter
- C. thermoinsulator
- D. all the above

Answer: C



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23. Adipose tissue store

- A. the excess of nutrients which are not used immediately are converted into lipids
- B. in excess nutrients used immediately and converted into glycogen
- C. glucose
- D. proteins that are used immediately

Answer: A



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24. Adipose tissue in palms and soles acts as

- A. supporting tissue
- B. packing tissue
- C. shock absorber
- D. contractile tissue

Answer: C



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25. Fat with adipocytes which are metabolically inactive are

- A. multilocular
- B. alocular
- C. solid
- D. monolocular

Answer: D



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26. Type of fat found in foetuses and infants is

- A. red adipose tissue
- B. white adipose tissue
- C. brown adipose tissue

D. all the above

Answer: C



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27. Temperature maintenance in infants is the function of

A. White adipose tissue

B. Brown adipose tissue

C. Yellow adipose tissue

D. None

Answer: B



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28. The fibres that form an interconnecting network are secreted by

- A. fibrocytes
- B. reticulocyte
- C. endothelium
- D. reticular cells

Answer: D

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29. Reticular tissue forms the supporting framework of

- A. Bone marrow, spleen and WAT
- B. Lymph nodes, spleen & bone marrow
- C. Spleen, liver & WAT
- D. BAT, lymph nodes & spleen

Answer: B

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30. Presence of more fibres few cells and little matrix are the features of

- A. connective tissue proper
- B. supporting tissue
- C. dense fibrous connective tissue
- D. reticular tissue

Answer: C



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31. BAT is brown in colour due to

- A. more no. of lipid droplets
- B. numerous mitochondria
- C. numerous pigmented cells

D. numerous blood vessels

Answer: D



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32. If collagen fibrous bundles are arranged parallel to one another then, it forms

- A. dense regular connective tissue
- B. reticular tissue
- C. dense irregular connective tissue
- D. connective tissue proper

Answer: A



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33. Bones are attached to skeletal muscle by

- A. areolar tissue
- B. tendons
- C. dense irregular tissue
- D. ligaments

Answer: B



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34. Two bones are attached to each other by

- A. tendons
- B. adipose tissue
- C. ligaments
- D. dense irregular tissue

Answer: C



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35. Extension and recoiling of elastic connective tissue is due to

- A. collagen fibres
- B. yellow elastin fibres
- C. tendons
- D. actin

Answer: B



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36. Which cartilage is present in trachea , larynx and bronchi ?

- A. reticular tissue

B. skeletal tissue

C. elastic connective tissue

D. cartilage

Answer: C



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37. The firm, pliable matrix is seen in

A. Bone

B. Elastic connective tissue

C. Gristle

D. Dense connective tissue

Answer: C



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38. The matrix of cartilage (except elastic) is mainly composed of

- A. collagen fibres
- B. elastin fibres
- C. both 1 & 2
- D. none

Answer: A



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39. Matrix of cartilage is secreted by

- A. osteoblasts
- B. chondroblasts
- C. osteocyte
- D. fibroblast

Answer: B



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40. Though cartilage is avascular, it draws nourishment from the blood vessels of

- A. periosteum
- B. perichondrium
- C. dense fibrous tissue
- D. elastic connective tissue

Answer: B



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41. Perichondrium is made up of

A. Fibrous connective tissue

B. fluid connective tissue

C. elastic tissue

D. reticular tissue

Answer: A



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42. The cartilage near the knee bones is non regenerative due to

A. absence of perimysium

B. absence of periosteum

C. absence of perichondrium

D. absence of chondroblasts

Answer: C



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43. Perichondrial cells are concerned with

- A. growth, differentiation and dedifferentiation
- B. growth, development and differentiation
- C. growth, regeneration and repair
- D. growth, redifferentiation and development

Answer: C



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44. Weakest, the most common and strongest cartilages respectively are

- A. Hyaline & fibrous cartilages
- B. elastic & fibrous cartilage
- C. elastic & hyaline

D. fibrous & elastic cartilage

Answer: A



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45. Free surfaces of long bones that form joints, sternal parts of ribs have

A. articular cartilage and nasal septal cartilage

B. perichondrium and articular cartilage

C. articular cartilage & costal cartilage

D. costal cartilage & collagenous

Answer: C



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46. Tracheal rings are made up of SA

- A. fibrous connective tissue
- B. elastic cartilage
- C. fibrous cartilage
- D. hyaline cartilage

Answer: D



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47. Endoskeleton of bony vertebrates, jawless vertebrates is formed by

- A. Hyaline cartilage
- B. Bones
- C. Bones & cartilage
- D. Fibrous cartilage

Answer: A



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48. Elastic cartilage is yellowish due to

- A. keratin
- B. collagen
- C. elastin
- D. all the above

Answer: C



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49. The fibres of elastic cartilage are

- A. collagen & keratin

B. keratin & fibrin

C. fibrin & collagen

D. elastin & collagen

Answer: D



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50. Mammalian bone differs from cartilage in the presence of

A. Lymph vessels

B. Collagen fibres

C. Haversian canals

D. Elastin fibres

Answer: C



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51. In bone, the bone lamellae are interconnected by

- A. Haversian canals
- B. Volkman's canals
- C. Canaliculi
- D. Bone marrow

Answer: C



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52. Slightly pliable and non pliable matrix is found respectively in

- A. ligament & tendon
- B. tendon & ligament
- C. cartilage & bone
- D. bone & cartilage

Answer: C



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53. The strength of the bones is due to

- A. calcium salts & collagen fibres
- B. sodium salts & elastin
- C. collagen & potassium salts
- D. reticular fibres & collagen fibres

Answer: A



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54. The bones become brittle in aged people due to

- A. increased organic material

- B. decreased organic material
- C. increased inorganic material
- D. decreased inorganic material

Answer: C



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55. Bone is the homeostatic reservoir of

- A. (NPK) sodium, phosphoran & potassium
- B. calcium, soidum, phosphorous
- C. calcium, magnesium & zinc
- D. calcium, magnesium & phosphorous

Answer: D



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56. The difference between bone and cartilage in terms of blood supply is

- A. bone is a vascular, cartilage is highly vascular
- B. bone is highly vascular, cartilage is avascular
- C. both bone & cartilage are avascular
- D. both bone & cartilage are highly vascular

Answer: B



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57. The supporting tissue that contains non-living extracellular matrix is

- A. cartilage
- B. bone
- C. both (1) & (2)
- D. none

Answer: B

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58. Osteocytes and chondrocytes are similar in

- A. mature cells enclosed in fluid filled lacunae
- B. immature cells present outside the lacunae
- C. osteocytes are mature cells & chondrocytes are immature
- D. none

Answer: A

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59. Demineralisation of bone is caused by the phagocytosis of

- A. neutrophils

B. eosinophils

C. osteoclasts

D. osteoblasts

Answer: C



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60. Immature bone cells that secrete collagen fibres and cause mineralization of bone are

A. osteoclasts

B. osteoblasts

C. osteocyte

D. all the above

Answer: B



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61. Outermost layer of bone, inner lining of bone marrow cavity are lined respectively by

- A. endosteum, periosteum
- B. Periosteum, endosteum
- C. Perichondrium & endosteum
- D. periosteum, endochondrium

Answer: B



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62. Match the following

Type of bone	Formed by	Examples
I) Investing bone	A) Soft tissues	P) OS cordis, OS penis
II) Sesamid bone	B) Ossification of embryonic mesenchyme	Q) Patella
III) Visceral bone	C) Ossification of tendons	R) Cranial bones
IV) Endo-chondral bone	D) Cartilage	S) limb bones & girdles

A. I-A-Q,II-B-S,III-C-R,IV-D-P

B. 1-B-R,II-C-Q,III-A-P,IV-D-S

C. I-B-R,II-C-Q,III-D-P,IV-C-R

D. I-C-P,II-B-Q,III-A-S,IV-D-R

Answer: B



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63. The glans penis of rodents and bats possess,

- A. os penis
- B. os cordis
- C. both 1 & 2
- D. none

Answer: A



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64. Trabecular bone is present in

- A. epiphyses and diaphysis
- B. diaphysis and diastema
- C. Epiphysis and metaphysis of long bones
- D. metaphysis and diaphysis of long bones

Answer: C



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65. The matrix of compact bone differs from the matrix of cancellous bone in

- A. irregular interspaces with red bone marrow
- B. regular interspaces with white bone marrow
- C. dense continuous lamellar matrix between periosteum and endosteum
- D. All the above

Answer: C



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66. Elongation of bone occurs due to

- A. Spongy bone
- B. hyaline cartilage of diaphysis
- C. hyaline cartilage of epiphysis
- D. All the above

Answer: C

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67. Hollow cavity of diaphysis is

- A. endosteum
- B. periosteum
- C. both 1 & 2
- D. marrow cavity

Answer: D

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68. Trace out the different parts of the bone from outside to inside.

A) Haversian, canal B) Concentric lamellae

C) Interstitial lamellae D) Endosteum

E) Inner circumferential lamellae

F) Endosteum

G) Outer circumferential lamellae

H) Bone marrow

I) Periosteum

A. A-E-B-C-H-I-F-D

B. I-G-C-B-A-E-F-H

C. A-B-C-D-E-F-G-H-I

D. B-C-D-E-G-H-F-A-I

Answer: B



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69. The canals that interconnect haversian canals and with marrow cavity

- A. canaliculi
- B. lacunae
- C. volkmann's canals
- D. all the above

Answer: C



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70. Calcium phosphate in the bone is found as

- A. Colloids of hydroxy phosphate
- B. Crystals of hydroxyapatite
- C. Crystals of calcium carbonate
- D. Colloidal solution

Answer: B

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71. Fractured bones can be rejoined by the reactivation of

- A. osteoblasts
- B. osteoclasts
- C. osteocytes
- D. all the above

Answer: A

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72. If a bone is kept in HCl, for some time, its mineral materials are dissolved and only organic matter is left behind, such a left over bone is called

- A. dried bone
- B. calcified bone
- C. decalcified bone
- D. none

Answer: C

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73. The study of the tissue that circulates to body parts through cardiovascular system is

- A. Histology
- B. Microanatomy
- C. Haematology
- D. Internal anatomy

Answer: C

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74. The percentage of blood plasma and cells respectively are

- A. 40%, 60%
- B. 45%, 55%
- C. 55%, 45%
- D. 60%, 45%

Answer: C

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75. PCV / haematocrit value is total percentage of volume occupied by

- A. Lymphocytes
- B. WBC
- C. Platelets

D. RBC

Answer: D



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76. Blood clotting proteins and anticoagulants are produced in

A. bone marrow

B. lymph

C. liver

D. lymph nodes

Answer: C



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77. The most abundant, smallest serum protein that maintains colloidal osmotic pressure is

- A. Globulin
- B. Fibrinogen
- C. both 1 & 2
- D. Albumin

Answer: D



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78. Oedema is caused due to

- A. rise in globulin
- B. fall in fibrinogen
- C. fall in albumin
- D. all the above

Answer: C



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79. PH of blood is maintained at 7.4 due to

- A. buffering activity of plasma proteins
- B. lipo proteins of cell membrane
- C. fibrin
- D. none

Answer: A



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80. Temporary haemopoietic tissues are

- A. Spleen & bone marrow

B. Liver & bone marrow

C. Kidney & liver

D. Liver & spleen

Answer: D



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81. Find out the correct sequence of haemopoietic tissues from early embryonic stage, after birth and an adult stages is:

A. Amniotic mesoderm, liver, kidney, red bone marrow

B. Chorionic epithelium, liver, spleen, red bone marrow

C. Yolk sac mesoderm, liver, spleen and red bone marrow

D. allantois, liver, kidney, spleen

Answer: C



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82. The purpose of biconcave shape of RBC is

- A. low surface area, volume ratio to give more area are for gaseous exchange
- B. large surface area to volume ratio to facilitate greater surface area for gas exchange
- C. equal ratio of surface area, volume ratio
- D. less surface area

Answer: B



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83. Abnormal rise in RBC count is called

- A. Anaemia
- B. hematoma

C. Polycythemia

D. Erythrocytopenia

Answer: C



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84. The condition that stimulates the kidney to secrete erythropoietin is

A. shortage of carbondioxide

B. shortage of oxygen

C. increased carbondioxide

D. increased oxygen

Answer: B



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85. Maturation of RBC requires

- A. Cynocobalamine and folic acid
- B. Vitamin B_{12} & B_6
- C. Vitamin biotin and folic acid
- D. Pantotheric acid and folic acid

Answer: A



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86. Rouleaux is a roll of

- A. WBC
- B. Platelets
- C. RBC
- D. All the above

Answer: C



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87. Life span of human RBC is

- A. 110 days
- B. 10 days
- C. 120 days
- D. 150 days

Answer: C



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88. Worn out RBC are destroyed by : –

- A. liver & spleen

B. liver & kidney

C. kidney & spleen

D. spleen & lymph node

Answer: A



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89. The ameboid movement exhibited by leucocytes into extravascular spaces is known as

A. exocytosis

B. pseudopodial movement

C. diapedesis

D. all the above

Answer: C



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90. Slight increased production of WBC, slightly, during infection and allergy is called

- A. leucopoiesis
- B. leucocytopenia
- C. leucocytosis
- D. none

Answer: C



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91. Abnormal increase in number of WBC is

- A. leucocytosis
- B. leucocytopenia
- C. leukemia

D. all the above

Answer: C

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92. Fall in WBC number is

A. leucocytopenia

B. leukemia

C. leucocytosis

D. all the above

Answer: A

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93. Nucleus of the granulocytes is divided into many lobes so it is called

- A. Mononuclear leukocytes
- B. Polymorphonuclear leukocytes
- C. leukocytes
- D. none

Answer: B

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94. The cells with few and irregular cytoplasmic granules are

- A. Acidophils
- B. Basophils
- C. Neutrophils
- D. Monocytes

Answer: B

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95. The type of WBC that has nucleus with irregular lobes secretes

- A. eosin
- B. erythropoitein
- C. heparin & histamine
- D. plasma

Answer: C



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96. The kind of WBC that has bilobed nucleus and large cytoplasmic granules are

- A. neutrophils
- B. basophils
- C. eosinophils

D. monocytes

Answer: C



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97. The number of acidophils increase during

A. bacterial infection

B. viral infection

C. protozoan infection

D. Allergic reaction & flat worm infections

Answer: D



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98. Antigen and antibody complexes are removed from blood by

A. WBC with irregular lobed nucleus

B. WBC with multi lobed nucleus

C. WBC with bilobed nucleus

D. WBC with reniform nucleus

Answer: C



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99. Certain neutrophils of female mammals possess

A. bilobed nucleus

B. multilobed nucleus attached with extra copy of X-chromosome

C. Spherical nucleus

D. irregularly lobed nucleus

Answer: B



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100. Due to the active role in phagocytosis, neutrophils are called

- A. microscopic policemen
- B. internal scavenger
- C. body guards
- D. none

Answer: A



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101. The WBC with large, spherical nucleus and scanty peripheral cytoplasm are

- A. reticulocytes
- B. lymphocytes
- C. monocytes

D. mast cells

Answer: B



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102. What is the function of lymphocytes

- A. a. role in immunological reaction and production of 'B' lymphocytes
- B. b. removal of antigen - antibody complexes from blood
- C. c. production of antibodies and participation in immunological reaction
- D. d. all the above

Answer: C



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103. Largest, phagocytic WBC with reniform nucleus is

- A. lymphocyte
- B. mast cell
- C. neutrophil
- D. monocyte

Answer: D



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104. When WBC with kidney shaped nucleus enter into connective tissue, they transform into

- A. Microphages
- B. Macrophages
- C. Microcytes
- D. All the above

Answer: C



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105. Average life span of RBC and blood platelets respectively are

- A. 100, 5-9 days
- B. 200, 15-19 days
- C. 120, 5-9 days
- D. 180, 20-30 days

Answer: C



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106. Non nucleated blood cells in human blood are

- A. WBC & platelets

B. Platelets & neutrophils

C. RBC & platelets

D. Platelets & monocytes

Answer: C



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107. Platelets are produced from

A. Reticulocytes

B. Lymphocyte progenitors

C. Megakaryocytes

D. dendritic cells

Answer: C



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108. Thrombocytes secrete

- A. fibrinogen
- B. prothrombin
- C. thromboplastin
- D. fibrin

Answer: C



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109. The cells involved in sealing the minor damaged vascular openings are

- A. megakaryocytes
- B. lymphocytes
- C. platelets
- D. mast cells

Answer: C

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110. The passage of water and its soluble compounds out of arteriolar end is due to

- A. collaidal osmotic pressure
- B. osmotic pressure
- C. hydrostatic pressure
- D. all the above

Answer: C

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111. Lymph capillaries of intestinal villi are called

A. lymphatic ducts

B. lymphatic venels

C. lacteals

D. all the above

Answer: C



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Exercise I Muscular Tissue

1. Muscles of iris and ciliary body are derived from

A. mesoderm

B. ectoderm

C. endoderm

D. chordamesoderm

Answer: B



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2. Muscles and nerves resemble in

- A. contractility and conductivity
- B. contractility
- C. excitability and conductivity
- D. all the above

Answer: C



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3. The mitochondria of muscle cells are called

- A. sarcoplasm

B. oxysomes

C. lysosomes

D. sarcosomes

Answer: D



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4. The striated appearance of the striped muscle is due to

A. irregular arrangement of actin and myosin

B. regular arrangement of actin and fibrin

C. regular arrangement of myosin and actin

D. irregular arrangement of myosin and fibrin

Answer: C



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5. The respiratory pigment of muscle is called

- A. immunoglobulin
- B. thyroglobin
- C. 1 & 2
- D. myoglobin

Answer: D



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6. Muscles are attached to the skeletal structures by

- A. connective tissue sheath
- B. ligaments
- C. tendons
- D. all the above

Answer: C



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7. Thin connective tissue sheath that surrounds skeletal muscle fibre

- A. perimysium
- B. epimysium
- C. endomysium
- D. sarcolemma

Answer: C



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8. A bundle of muscle fibres is called

- A. fasciculi

B. myotome

C. fascicle

D. aponeurosis

Answer: C



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9. Muscle (a group of fascicles) is covered by

A. Endomysium

B. Perimysium

C. Endometrium

D. Epithelium

Answer: B



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10. The covering of fascicle is

- A. Epithelium
- B. Perimysium
- C. Endomysium
- D. Sarcolemma

Answer: B



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11. If connective tissue layers extend beyond muscle, like a chord or sheet they are called respectively

- A. tendon & ligament
- B. ligament & tendon
- C. tendon & sarcomere
- D. tendon & aponeurosis

Answer: D



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12. The muscles that are innervated by somatic nervous system undergo fatigue

- A. quickly
- B. randomly
- C. slowly
- D. never

Answer: A



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13. Quiescent, mononucleate, myogenic cells with limited power of regeneration are

A. sarcomere

B. pericytes

C. satellite cells

D. none

Answer: C



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14. Muscles that undergo contraction for long periods without fatigue are

A. 1. uninucleated muscles

B. 2. straited muscles

C. 3. muscles with intercalated discs

D. 4. all the above

Answer: A

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15. Sudden sustained involuntary contraction of muscles is called

- A. fatigue
- B. twitch
- C. tonus
- D. spasm

Answer: D

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16. Smooth muscles are innervated by

- A. somatic nervous system
- B. autonomous nervous system
- C. both somatic and autonomous

D. none

Answer: B



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17. Cardiac muscles are found in __ of the heart

A. myometrium

B. myocardium

C. myotome

D. all the above

Answer: B



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18. Arrector pili muscles attached to hair follicles that produce 'Goose Bumps' are

- A. multinucleated, unbranched
- B. uninucleated, fusiform, involuntary
- C. short, cylindrical, mononucleate/binucleate, branched
- D. all the above

Answer: B



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19. The muscles that resemble striped muscles structurally and visceral muscles functionally are

- A. cardiac
- B. non striated
- C. striated

D. none of the above

Answer: A



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20. Myocardial cells are joined to adjacent myocardial cells by

A. tight junctions

B. desmosomes

C. gap junctions and electrical synapses

D. microvilli

Answer: C



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21. Communication junctions allow the cardiac muscles to

A. contract independently

B. to relax differently

C. contract as a unit

D. all the above

Answer: C



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22. The chief function of intercalated discs is

A. slow conduction of action potentials

B. conduction of resting potentials

C. slow conduction of resting potentials

D. rapid conduction of action potentials

Answer: D



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23. Cardiac muscles of vertebrates do not depend on nerve stimulus for contraction,because

- A. a. it has special patch of nerves
- B. b. auto-rhythmic pace maker
- C. c. both nerves and ganglia
- D. d. all the above

Answer: B



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24. Cardiac muscles are highly resistant to fatigue because

- A. a. numerous sarcosomes, high myoglobin and rich supply of blood vessels

- B. b. numerous sarcosomes, less myoglobin and low supply of blood vessels
- C. c. less sarcosomes, more sarcoplamic reticulum
- D. d. none of these

Answer: A

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25. Rate of heart beat is regulated by

- A. Somatic innervation and nor epinephrine
- B. autonomic innervation and nor epinephrine
- C. autonomic innervation and epinephrine
- D. somatic innervation and epinephrine

Answer: C

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26. The artery are made of which muscles.

- A. skeletal muscles
- B. cardiac muscles
- C. smooth muscles
- D. all the above

Answer: C



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27. As functioning of smooth muscles can't be directly controlled, they are

- A. voluntary
- B. intermediate
- C. involuntary

D. none

Answer: C



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28. If one cardiac muscle cell receives stimulus for contraction, neighbouring cardiac muscle cells are also stimulated due to

- A. microvilli
- B. sarcoplasmic reticulum
- C. communication junctions
- D. tight junctions

Answer: C



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29. The non conducting supporting cells of nervous tissue is

- A. neurons
- B. nerves
- C. synapses
- D. neuroglial cells

Answer: D



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30. More than one half of the total volume of neural tissue of the body is made up of

- A. neurons
- B. axons
- C. perineurium
- D. neuroglial cells

Answer: D



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31. The Nissl's bodies of cyton represent

- A. Golgi complex of neuron
- B. RER, the sites of protein synthesis
- C. Nucleus, site of synthesis amino acids
- D. SER, the sites of lipids

Answer: B



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32. A group of neurons in PNS, CNS respectively are

- A. nuclei, ganglion

B. ganglion, nucleus

C. connectives, commissures

D. commissures, connectives

Answer: B



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33. Afferent processes of neuron are

A. dendrites

B. axons

C. axon terminals

D. synapse

Answer: A



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34. With the advancement of age, the products of cellular wear and tear are stored in lysosomes of neurons, as

- A. Nissi's granules
- B. myelin
- C. lipoprotein
- D. lipofuscin granules

Answer: D



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35. Plasmalemma and cytoplasm of axon are called respectively

- A. neurilemma, neuroplasm
- B. sarcoplasm, sarcoplasm
- C. axolemma, axoplasm
- D. all the above

Answer: C



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36. The bulb like structures into which the telodendria end up are

- A. synaptic knobs
- B. terminal boutons
- C. both 1 & 2
- D. none

Answer: C



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37. Afferent processes of neuron are

- A. synapse

B. dendrites

C. axon

D. all the above

Answer: C



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38. Groups of axons in CNS & PNS respectively are called

A. axons, dendrites

B. telodendrons, dendrites

C. tracts, dendron

D. tracts, nerves

Answer: D



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39. The soma of unipolar neuron is found in

- A. dorsal root ganglion
- B. ventral root ganglion
- C. visceral ganglion
- D. collateral ganglion

Answer: A



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40. Unipolar neuron possess

- A. dendrite only
- B. one axon only
- C. both 1 & 2
- D. none

Answer: B



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41. In bipolar neuron, 1 axon and 1 dendrite directly arise from

- A. cyton
- B. ganglion
- C. 1 & 2
- D. none

Answer: A



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42. The bipolar neurons are found in the

- A. retina, internal ear, olfactory epithelium

B. retina, external ear, olfactory epithelium

C. pupil, internal ear, olfactory epithelium

D. all the above

Answer: A



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43. Most of the human neurons are :

A. unipolar

B. bipolar

C. psedounipolar

D. multipolar

Answer: D



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44. How many cells are there in an embryo sac?

A. dendron

B. oligodendrocyte

C. axon

D. schwaan cell

Answer: B



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45. In the brain myelin sheath is formed by

A. internode

B. telodendria

C. node of Ranvier

D. all the above

Answer: C



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46. The non-myelinated neurons can be located in

- A. grey matter of CNS and preganglionic neurons of ANS
- B. white matter of CNS and postganglionic neurons of ANS
- C. grey matter of CNS and postganglionic neurons of ANS
- D. All the above

Answer: C



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47. Afferent neurons carry impulses from _ to _

- A. CNS to receptor

B. Receptors to CNS

C. PNS to receptor

D. All the above

Answer: B



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48. Muscles, glands (effectors) receive motor impulses from CNS through

A. motor neuron

B. sensory neuron

C. inter neuron

D. all the above

Answer: A



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49. Sensory neurons and motor neurons are inter connected in CNS by

- A. myelinated neuron
- B. non myelinated neuron
- C. interneuron
- D. all

Answer: C



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50. Nerve is a

- A. bundle of fibres in CNS
- B. bundle of fibres in ANS
- C. bundle of fibres in PNS
- D. All the above

Answer: C



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51. Arrange the connective tissue sheaths of nerve from inside to outside

A) endoneurium B) perineurium

C) fascicle D) epineurium

A. ABCD

B. ACBD

C. ADBC

D. BCAD

Answer: B



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52. The microenvironment for neuronal activity is provided by

A. fasciculi

B. axons

C. nerves

D. neuroglial cells

Answer: D



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53. Match the following.

- | | |
|----------------------|--|
| I) Oligodendrocytes | A) Phagocytic cells |
| II) Astrocytes | B) Star shaped, form
blood brain barrier |
| III) Ependynal cells | C) Around cytons in ganglia |
| IV) Microglial cells | D) Ciliated cells that
line ventricles of brain |
| V) Satellite cells | E) secrete myelin |
| VI) Schwann cells | F) Neurilemma |

A. I-F, II-A, II-D, IV-C, V-B, VI-E

B. I-C, II-E, III-D, IV-A, V-B, VI-F

C. I-E, II-B, III-A, IV-D, V-C, VI-F

D. I-E, II-B, III-D, IV-A, V-C, VI-F

Answer: D



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54. Neuroglial cells of PNS are

A. dendrites and schwann cells

B. satellite cells and schwann cells

C. astrocytes and microglial cells

D. oligodendrocytes and dendrites

Answer: B



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55. When ever there is infection, the cells that are activated to phagocytes are

- A. a. astrocytes
- B. b. ependymal cells
- C. c. microglial
- D. d. oligodendrocytes

Answer: C



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56. Structural and functional gap between telodendrites of one neuron and dendrites of another neuron are

- A. synapse
- B. synaptic vesicle
- C. neurogimy

D. all the none

Answer: A



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57. The only cells that are derived from mesoderm in nervous tissue is

A. astrocytes

B. schwann cells

C. satellite cells

D. microglial cells

Answer: D



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1. Each organ in human body is made of

- A. many type of tissues
- B. one type of tissues
- C. one or more type of tissues
- D. similar type of tissues

Answer: C



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2. The types of major tissues that are present in human heart are

- A. only one type
- B. only two types
- C. only three types
- D. all four types

Answer: D



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3. In case of plants or microbes morphology refers to the study of

- A. form or externally visible features
- B. form or internally visible features
- C. structure and microscopic features
- D. none of these

Answer: A



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4. In case of animals morphology refers to the study of

- A. external appearance of the organs

B. external appearance of parts of the body

C. internal appearance of the organs

D. both 1 and 2 are correct

Answer: D



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Exercise I Earthworm External Characters

1. In earthworm the dorsal surface of the body is marked by a dark median mid-dorsal line called-

A. Dorsal pores

B. Nerve cord

C. Dorsal blood vessel

D. Ventral blood vessel

Answer: C



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2. Somites/metameres/segments present in the body of Earthworm are

- A. 10-120
- B. 50-100
- C. 100-120
- D. 200-250

Answer: C



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3. How do you distinguish between dorsal and ventral surface of the body of earthworm ?

- A. a. presence of clitellum
- B. b. dorsal pores
- C. c. presence of setae
- D. d. presence of 3 pairs of pores below clitellum

Answer: D

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4. The structure in earthworm which serves as a wedge to force open cracks in the soil is

- A. a. peristomium
- B. b. mouth
- C. c. prostomium
- D. d. pygidium

Answer: C

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5. The first body segment of earthworm is

- A. mouth
- B. peristomium
- C. prostomium
- D. pre anal segment

Answer: B

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6. The longest earthworm of India and world respectively are

- A. *Megascolides australis*, *Drawida grandis*
- B. *Drawida nilamburensis*, *megascolides australis*
- C. *Chaetogaster annandalei*, *Megascolides australis*

D. all the above

Answer: B



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7. Clitellar segments in earthworm are

A. 1-12, 13-15, 16- last

B. 1-13, 14-17, 18 - last

C. 1-11, 12-16, 17-last

D. 1-13,14-16, 17 - last

Answer: D



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8. The presence of earthworm in the garden soil can be traced out by

- A. moisture in soil
- B. burrows
- C. worm castings
- D. all the above

Answer: C

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9. In Earthworm, the male genital apertures are present ventrally on segment :

- A. male genital pore
- B. female genital pore
- C. spermathecal pore
- D. mouth

Answer: B

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10. The first segment with nephridiopores is

A. 5th

B. 4th

C. 2nd

D. 3rd

Answer: D

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11. The segments that lack nephridiopores are

A. first 2

B. last 2

C. clitellae segments

D. none

Answer: A



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12. The chaetae in setigerous sac are made up of

A. keratin

B. poryphyrin

C. chitin

D. globin

Answer: C



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13. The segments in which chaetae are lacking

A. 1st, 2nd, last

B. 2. 3rd, last, clitellar

C. 3. 1st, last, clitellar

D. 4. 5th, 6th, last

Answer: C

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14. In T.S. Pheretima, the correct sequence of body wall layers from outer to inner side (a) Circular muscles (b) Parietal peritoneum (c) Epidermis (d) Cuticle (e) Longitudinal muscles

A. E F D C A B

B. E F B D C A

C. E F C B D A

D. F E B A C D

Answer: A



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15. Hydrostatic skeleton is found in

- A. a. Coelom
- B. b. Splanchnic layer
- C. c. Seatae
- D. d. Coelomic fluid

Answer: D



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16. Common earthworms in India are

- A. Pheretima and Lumbricus

B. Periplaneta and Megascolex

C. Megascolex and Dravida

D. All the above

Answer: A



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17. Segment of earthworm which do not contain any apertures

A. segment 2

B. segment 1 and prostomium

C. pygidium

D. clitellum

Answer: A



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Exercise I Digestive System

1. Arrange the parts of alimentary canal in an order

- A) Rectum B) Intestine
C) Stomach D) Gizzard
E) Oesophagus F) Buccal cavity
G) Pharynx H) mouth
I) Anus

A. E-F-G-I-H-D-A-B-C

B. H-E-I-F-B-A-D-C-G

C. A-C-B-D-F-G-H-I-E

D. H-F-G-E-D-C-B-A-I

Answer: D



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2. The muscular structure that helps in grinding the decaying leaves is

- A. pharynx
- B. oesophagus
- C. gizzard
- D. buccal cavity

Answer: C



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3. The humic acid of humus is neutralized in pheretima by

- A. intestinal caecae
- B. calciferous glands
- C. typhlosole
- D. buccal glands

Answer: B



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4. In Earthworm, typhlosole is component of

- A. lateral dorsal fold on ventral part of intes
- B. external ventral fold on intestine
- C. internal median fold on dorsal wall of intestine
- D. external dorsal fold on oesophages

Answer: C



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5. The part of the alimentary canal that starts from middle segment of clitellum and extends upto the last segment is

A. stomach

B. gizzard

C. intestine

D. rectum

Answer: C



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6. If an earthworm is possessing 100 segments, rectum starts from 23rd, in how many segments typhosole is extended ?

A. a. 48

B. b. 50

C. c. 52

D. d. 49

Answer: C

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7. If a pheretima has 80 segments and intestine starts from 15th segments, in how many segments does the intestine extended?

A. a. 60

B. b. 50

C. c. 65

D. d. 70

Answer: C

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8. Match the following

- | | |
|--------------------------------------|-------------------------------|
| 1) Dorsal blood vessel | a) Clitellum |
| 2) Genital openingst | b) Ventral surface |
| 3) Buccal segement | c) Peristomium |
| 4) Glandular tissue in
14, 15, 16 | d) Dark median
dorsal line |

A. 1-d, 2-b, 3-C, 4-a

B. 1-b, 2-c, 3-a, 4-d

C. 1-b, 2-d, 3-c, 4-a

D. 1-c, 2-b, 3-a, 4-d

Answer: A



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9. Choose the structure located in pre clitellar region with respect to reproduction

A. a. Male gonopore

B. b. Female gonopore

C. c. Spermathecal apertures

D. d. All

Answer: C

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10. Match the following

- | | |
|---------------------------|--------------------------|
| 1) Clitellum | a) Nephridiopore |
| 2) Pre clitellar region | b) Female gonopore |
| 3) Post clitellar regione | c) Male gonopore |
| 4) 3rd seg-last segment | d) Spermthecal apertures |

A. a. 1-b, 2-d, 3-c, 4-a

B. b. 1-a, 2-b, 3-c, 4-d

C. c. 1-c, 2-b, 3-d, 4-a

D. d. 1-d, 2-a, 3-b, 4-c

Answer: A

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1. What happens if the skin of earthworm dries

- A. It dies due to the lack of respiration
- B. It moves deep into burrows
- C. It remains near the opening of burrow
- D. It leaves the burrow

Answer: A



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2. During rainy season, earthworms are found on the surface of the soil due to

- A. more aeration
- B. to consume water
- C. burrows are flooded with water
- D. elimination of castings

Answer: C



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Exercise I Calculatory System

1. Total no.of hearts in Pheretima is

A. 4

B. 6

C. 8

D. 10

Answer: C



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2. Hearts of Pheretima connect

- A. a. 2 dorsal blood vessels
- B. b. dorsal and lateral oesophageal vessels
- C. c. 2 lateral oesophageal vessels
- D. d. dorsal and ventral blood vessels

Answer: D

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3. Blood circulation in earthworm is :

- A. ventral blood vessel
- B. lateral oesophageal blood vessels
- C. dorsal blood vessels
- D. all the above

Answer: C

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4. Blood glands are present in

A. 26,27

B. 27,28

C. 7,8,9

D. 4,5,6

Answer: D



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5. The function of blood glands in pheretima.

A. haemoglobin

B. plasma

C. haemoglobin and blood cells

D. Phagocytes only

Answer: C



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6. The substance of blood that transports O_2 in Pheritima is found in

A. Phagocytes

B. Lymph

C. Blood cells

D. Plasma

Answer: D



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7. In Pheritima blood glands are present in which segments.

- A. 2 pairs in 7th, 8th segments
- B. 4 pairs in 7, 9, 12, 13 segments
- C. 3 pairs in 7, 9, 12, 13 segments
- D. 2 pairs in 10, 11 segments

Answer: D

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8. Sub neural blood vessel runs below

- A. a. nerve ring
- B. b. segmental nerves
- C. c. nerve cord
- D. d. dorsal blood vessel

Answer: C

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9. Lateral hearts are located in

A. 7,9,10,11

B. 8,9,10,12

C. 9,10,12,13

D. 7,9,12,13

Answer: D



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Exercise I Excretory System

1. Segmentally arranged coiled tubules of earthworm function as

A. respiratory organs

B. Excretory organs

C. locomotory organs

D. sensory organs

Answer: B



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2. The nephridia present on both sides of inter segmental septa are located in

A. a. 4,5,6 seg

B. b. 15/16 - last

C. c. 16/17-last

D. d. 15/17 - last

Answer: B



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3. The nephridia that open into gut are

- A. septal, integumentary
- B. integumentary, septal, pharyngeal
- C. pharyngeal, integumentary
- D. pharyngeal, septal

Answer: C



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4. The type of nephridia which are extended upto the last segments are

- A. pharyngeal, septal
- B. integumentary, pharyngeal
- C. both 1 & 2
- D. integumentary, septal

Answer: D



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5. The total number of segments with all 3 types of nephridia are

A. 5

B. 10

C. 15

D. None

Answer: D



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6. If an earthworm has 100 segments, total number of segments with two types of nephridia are

A. 80

B. 70

C. 89

D. 86

Answer: C



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7. Forests of nephridia open out through

A. Septal pores

B. Nephridiopores

C. dorsal pores

D. clitellar pores

Answer: B



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8. Forests of integumentary nephridia are present in

- 1) Pharyngeal region
- 2) Clitellar region
- 3) Pre clitellar region
- 4) Post clitellar region

A. 4,5,6 segments

B. 5,6,7 segments

C. 3,4,5 segments

D. clitellar segments

Answer: D



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9. The only 'open' type of nephridia of Pheretima are

A. septal

B. integumentary

C. both 1 & 2

D. pharyngeal

Answer: A



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10. The nephridia that open into gut are

A. open nephridia

B. closed nephridia

C. exonephric nephridia

D. enteronephric nephridia

Answer: D



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11. Osmoregulation or homeostasis is the function of

- A. tufted nephridia
- B. closed nephridia
- C. both 1 & 2
- D. enteronephric nephridia

Answer: D



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12. Enteronephric nephridia of Earthworm are

- A. 1, 2, 3
- B. 3, 4, 5
- C. 4, 5, 6

D. 14, 15, 16

Answer: C



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Exercise I Nervous System

1. The nerve ring of Pheritima is located in segments

A. 2, 3

B. 3,4

C. 4, 5

D. 5, 6

Answer: B



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2. Nerve cord in earthworm is

- A. single nerve cord
- B. single ventral nerve cord
- C. double ventral nerve cord
- D. double dorsal nerve cord Reproductive system

Answer: C



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Exercise I Reproductive System

1. Spermathecal pores in Pheretima are present in segments

- A. a. 6/7,7/8,8/9 & 6,7,8,9 segments
- B. b. 5/6,6/7,7/8,8/9 & 5,6,7,8 segments
- C. c. 5/6,6/7,7/8,8/9 & 6,7,8,9 segments

D. d. 5/6,6/7,7/8,8/9 & 7,8,9,10 segments

Answer: C



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2. The total number of testes and their location in earthworm respectively are

A. 2, 10 & 11th segments

B. 4, 10 & 11th segments

C. 2 pairs & 11th & 12th segments

D. 4 pairs in 11th & 12th segments

Answer: B



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3. Vasa defferentia join with — in 18th segments

- A. Prostate ducts
- B. Seminal ducts
- C. Accessory gland
- D. Prostate gland

Answer: A



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4. Testes are enclosed in

- A. setal sacs
- B. seminal vesicles
- C. clitellum
- D. testes sacs

Answer: D

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5. The ducts in male reproductive system of earthworm that open exterior through pores in 18th segment are

- A. a. common prostatic & oviducts
- B. b. ducts of accesory glands & prostatic ducts
- C. c. oviducts & prostatic ducts
- D. d. common prostatic duct & spermatic ducts

Answer: D

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6. Spermatozoa of earthworm mature in the sacs present in &— segments

A. 10th & 11th

B. 12th & 13th

C. 11th & 12th

D. 13th & 14th

Answer: C



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7. Spermathecal pores in Pheretima are present in segments

A. Copulation stops

B. Fertilization can't occur

C. Copulation occurs but spermatophores can't be exchanged

D. Both copulation and fertilization can't occur

Answer: C



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Exercise I Cockroach External Characters

1. The term 'vasa varicosa' was introduced by

- A. Meckel
- B. Partirick manson
- C. Marcello malpighi
- D. Bichat

Answer: C



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2. The two common species of cockroaches found in India are:

- A. *Blatta orientalis*
- B. *Periplaneta americana*

C. Both (1) and (2)

D. *Blattella germanica*

Answer: C



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3. The name *Periplaneta americana* is coined by

A. Burmister

B. Wiliam kirby

C. Marcello Malpighi

D. None of these

Answer: B



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4. Which one of the following function is not done by 'exoskeleton' of cockroach,

- A. It protects body
- B. It helps to lose water
- C. It provides rigidity
- D. It provides site for attachment of muscles

Answer: B



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5. Which of the following is not real 'tagmata' of body of cockroach?

- A. Head
- B. Neck
- C. Thorax
- D. Abdomen

Answer: B



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6. In each segment, exoskeleton have hardened plates called sclerites

- | | |
|----------------------------------|--------------|
| a) Dorsal sclerite | 1) Sternum |
| b) Ventral sclerite | 2) Pleura |
| c) Lateral sclerite | 3) Tergum |
| d) Sclerite present in prothorax | 4) Pronotum |
| | 5) Metanotum |

A. a-1, b-2, c-3, d-4

B. a-3, b-2, c-3, d-4

C. a-3, b-1, c-2, d-4

D. a-3, b-2, c-1, d-5

Answer: C



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7. Sclerites are joined to each other by thin and flexible membrane called

- A. arthroial membrane
- B. epicranial structures
- C. Basement membrane
- D. none

Answer: A



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8. Head of cockroach is hypognathous because

- A. It lies hanging almost right angles to body
- B. Posterior wider part is upward
- C. Mouth parts are directed upward
- D. All the above

Answer: A



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9. Match the following with respective "sclerite" in cockroach feature

- | | |
|--|------------|
| 1) Located in between
two compound eyes | a) Vertex |
| 2) Largest in head
regions below vertex | b) Frons |
| 3) Rectangular in shape | c) Clypeus |
| 4) Covering sides of
the head | d) Genae |
| 5) Borders occipital
foramen | e) Occiput |

A. 1-a, 2-b, 3-c, 4-d, 5-e

B. 1-e, 2-b, 3-c, 4-d, 5-a

C. 1-d, 2-c, 3-a, 4-c, 5-b

D. 1-c, 2-d, 3-b, 4-e, 5-a

Answer: A



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10. At the base of each antenna of cockroach there is a small whitish spot.

It is called

- A. Fenestra
- B. Ocellar spot
- C. Simple eye
- D. All

Answer: D



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11. Mouth parts of cockroach are

- A. biting and chewing type
- B. lapping type
- C. piercing and sucking type

D. sponging and sucking

Answer: A



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12. Which one is not correct wrt to 'labrum'

- A. It forms anterior wall of pre-oral cavity
- B. It bears gustatory sensillae
- C. It serves to hold and taste food
- D. It is lower lip

Answer: D



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13. Choose the correct statement regarding 'coelom of *Periplaneta americana*

- A) The perivisceral cavity is not a true coelom
- B) It is not lined by peritoneum
- C) It is called as haemocoel
- D) Schicocoelom is restricted to gonads

A. All are correct

B. A,B,C

C. B,C,D

D. Only A and D

Answer: A



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14. Match the following w.r.t to locomotion in cockroach

- | | |
|----------------------|--------------------------------|
| 1) Prothoracic leg | a) Acts to pull |
| 2) Mesothoracic leg | b) Acts to push |
| 3) Metathoracic leg. | c) Give grip on rough surface |
| 4) Claw and arolium | d) Acts as pivot |
| 5) Plantulae | e) Give grip on smooth surface |

A. 1-a, 2-d, 3-b, 4-c, 5-e

B. 1-b, 2-a, 3-d, 4-c, 5-e

C. 1-a, 2-d, 3-c, 4-d, 5-e

D. 1-e, 2-c, 3-d, 4-a, 5-b

Answer: A



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15. Prothorax contain which of the following components

A. Forewings

B. First pair of thoracic spiracles

C. Prolegs

D. All

Answer: C



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16. Match the following

- | | |
|-------------------------|--|
| 1) Crop | a) Sieve & grinding mill |
| 2) Gizzard | b) 6-8 finger like structures |
| 3) Hepatic caecae | c) Thin walled |
| 4) Peritrophic membrane | d) Network of chitin fibrils in glycoprotein |

A. 1-c, 2-a, 3-b, 4-d

B. 1-a, 2-b, 3-c, 4-d

C. 1-b, 2-a, 3-c, 4-d

D. 1-d, 2-b, 3-c, 4-a

Answer: A



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Exercise I Cockroach Digestive System

1. Choose the correct combination

- a) Hepatic caecae - At the junction of foregut and mid gut externally
- b) Malpighian tubules - At the junction of mesenteron and hindgut externally
- c) Stomodaeal valve - prevent regurgitation from foregut to mesenteron
- d) Sphincter muscle - prevent regurgitation of undigested food from midgut to hindgut

A. a & b

B. b & c

C. c & d

D. a & c

Answer: A



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2. Correct combinations are

- A) Five bundles - Malpighian tubules
- B) Six longitudinal folds - Rectal papillae
- C) Six powerful teeth - gizzard
- D) Sixty eight finger like - Hepatic caecae

A. Only A and B

B. B and C

C. C and D

D. All are correct

Answer: B



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Exercise I Cockroach Respiratory System

1. Match the following

A	B
1) Number of Peritremes	a) 16
2) Number of spiracles in abdomen	b) 20
3) Number of ostia	c) 24
4) Number of chambers of heart in thorax	d) 3

A. 1-b, 2-a, 3-c, 4-d

B. 1-c, 2-a, 3-d, 4-b

C. 1-a, 2-b, 3-c, 4-d

D. 1-d, 2-a, 3-c, 4-a

Answer: A



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2. All spiracles are functional in cockroach. So the system is of which type?

A. Holopneustic

B. Polypneustic

C. Oligopneustic

D. None of these

Answer: A



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Exercise I Cockroach Circulatory System

Alary muscle contract



(a) Pulled down



Volume in pericardial sinus increases

1.



Blood flows to (b)



Alary muscle relax



Blood enters from dorsal haemocoel to heart through (c)

A. a- Ostia, b- Dorsal Septum, c-Heart

B. a- Heart, b- Aorta, c-Ostia

C. a- Dorsal diaphragm, b-pericardial sinus, C-Ostia

D. a- Ventral septum, b-Heart, c-Aorta

Answer: C

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Exercise I Cockroach Excretory System

1. The brush border of Malpighian tubules is found in
 - A. inner surface of unilayered glandular epithelium
 - B. outer surface of unilayered glandular epithelium
 - C. outer surface of multilayered absorpture epithelium
 - D. inner surface of multilayered absorpture epithelium

Answer: B



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2. The total no. of malpighian tubules in cockroach range from _ to _

A. 45-100

B. 80-150

C. 100-150

D. 200-250

Answer: C



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3. The functions of proximal and distal parts of malpighian tubules respectively are

A. absorptive and secretory

B. secretory and absorptive

C. both are absorptive

D. both are secretory

Answer: A



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4. The urine of cockroach is pushed into ileum due to the contraction of

A. mesenteron

B. stomodeal valve

C. malpighian tubules

D. rectum

Answer: C



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5. The structures involved in storage excretion are

- A. malpighian tubules
- B. corpora adiposa
- C. corpora cardiaca
- D. uricose glands

Answer: B



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Exercise I Cockroach Nervous System

1. Arrange ganglia of autonomous nervous system of cockroach in correct sequence from anterior to posterior end

- (a) Frontal ganglion
- (b) Proventricular ganglion

(c) Hypocerebral ganglion

(d) Visceral ganglion

A. optic nerves, labral nerve, antennal nerve

B. antennal nerve, optic and labral

C. labral nerve, optic nerve, antennary

D. optic, antennal, labral

Answer: D



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2. The nerves that innervate mouth parts and locomotor organs originate from

A. brain

B. abdominal ganglion

C. prothoracic ganglion

D. sub oesophageal ganglion

Answer: D



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3. Two ganglionated solid ventral nerve cords of cockroach originate from

A. tritocerebrum

B. protocerebrum

C. sub oesophageal ganglion

D. 1st abdominal ganglion

Answer: C



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4. What is the total number of abdominal ganglion in cockroach and upto which segment they are distributed?

A. 7, 8th

B. 8, 9th

C. 9, 9th

D. 6, 7th

Answer: D



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5. The two nerve cords of cockroach are joined to each other at

A. terminal parts of segments

B. ganglia

C. nerves

D. not at all joined

Answer: B



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6. The total no. of segmental ganglia in cockroach are

A. 7

B. 9

C. 8

D. 12

Answer: B



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7. The total number of segments of cockroach with continuous segmental ganglia are

A. 5

B. 7

C. 8

D. 6

Answer: B



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8. The first four abdominal ganglia of cockroach supply rerves to the __
to_segments

A. 1-6

B. 3-6

C. 2-5

D. 4-6

Answer: C

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9. Fifth & Sixth abdominal segments receive nerves from ___ & ___ ganglia respectively

A. 4th, 5th

B. 5th, 6th

C. 7th, 8th

D. 4th, 6th

Answer: A

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10. Reproductive organs, copulatory appendages and anal cerci receive nerves from

A. 6th abdominal ganglion in 7th segment

B. 7th abdominal ganglion in 8th segment

C. 6th abdominal ganglion in 6th segment

D. 5th abdominal ganglion in 6th segment

Answer: A



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11. Muscles of alimentary canal, heart of cockroach are controlled by

A. peripheral nervous system

B. central nervous system

C. stomato gastric nervous system

D. sub oesophageal system

Answer: C



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12. Find out the correct sentence

- A. hypocerebral, visceral, frontal, proventricular
- B. proventricular, frontal, visceral, occipital
- C. frontal, hypocerebral, ingluvial, proven tricular
- D. frontal, occipital, proventricular, ingluvial

Answer: C



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13. Supra oesophagel ganglion of cockroach forms

- A. principal motor centre
- B. principal sensory centre
- C. both 1 & 2
- D. none

Answer: B



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14. If the head of cockroach is cut-off, it will still live for as long as one week, because-

- A. a larger part of the nervous system is spread through out and ventral part of body
- B. it has 2 nerve cords
- C. brain is located in thorax
- D. sub-oesophagal ganglion can control and coordinate all activities

Answer: A



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1. The photoreceptors of cockroach are

- A. compound eyes only
- B. fenestrae
- C. both 1 & 2
- D. none of the above

Answer: C



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2. Units of cuticular and chemoreceptors are

- A. ocelli
- B. sensillae
- C. ommatidia
- D. all the above

Answer: B



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3. Match the following.

Organs	Location	Function
I) Johnston's organ	A) tibia	P) ground vibrations
II) Olfactory	B) thorax	Q) sensitive to movement
III) Subgenual	C) maxillary palps	R) sound vibrations
IV) Tympanal	D) pedicels	S) smell

A. I-D-Q, II-C-S, III-A-P, IV-B-R

B. I-A-P, II-B-S, III-D-Q, IV-C-R

C. I-B-P, II-D-S, III-C-Q, IV-A-R

D. I-C-R, II-B-Q, III-D-P, IV-A,S

Answer: A



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4. Scolopidia are

- A. cuticular receptors
- B. subcuticular receptors
- C. both 1 & 2
- D. none of the above

Answer: B



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5. Nocturnal vision is characterized by

- A. more sensitivity, less resolution
- B. less sensitivity, high resolution
- C. only sensitivity
- D. only resolution

Answer: A



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6. The total no.of facets in the cockroach are

A. 6,000

B. 2,000

C. 4,000

D. 8,000

Answer: C



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7. The part of the ommatidium that corresponds to hexagonal facet is

A. corneagean cells

B. refractive region

C. dioptrical region

D. receptor region

Answer: B



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8. The total number of transparent cells in one ommatidium are

A. 4

B. 5

C. 6

D. 8

Answer: C



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9. Cornea and crystalline cone are secreted respectively by

- A. cone cells, corneagen cells
- B. lenticular cells, semper cells
- C. semper cells, retinulae
- D. retinulae and rhandomerer

Answer: B



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10. The dioptrical region of eye of cockroach is constituted by

- A. cornea and crystalline cone
- B. cornea and corneagen cells
- C. vitrillae and cone cells
- D. retinulae and crystalline cone

Answer: A



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11. Which of the following is not a part of receptive zone of ommatidium in cockroach?

A. retinulae

B. semper cells

C. rhabdome

D. crystalline cone

Answer: D



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12. The inner most elongated cells of ommatidium are

A. rhabdomere

B. cone cells

C. photoreceptor cells

D. cornea

Answer: C



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13. Retinal sheath is absent in

A. diurnal animals

B. nocturnal animals

C. both 1 & 2

D. none

Answer: B



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14. Microvilli of each reticular cell collectively form

- A. rhabdome
- B. rhabdomere
- C. crystalline cone
- D. retinula

Answer: B



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15. From retinulae, the sensory fibres leave as optic nerves and reach

- A. tritocerebrum
- B. deutocerebrum
- C. protocerebrum

D. segmental ganglion

Answer: C



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16. The structures which absorb light and isolates adjacent ommatidia are

- A. primary pigment cells
- B. secondary pigment cells
- C. semper cells
- D. cornogean cells

Answer: B



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17. The retinulae of houseflies differ from cockroach in the

- A. presence of retinulae just below vitrillae and absence of secondary pigment cells
- B. presence of retinulae deep below vitrillae and presence of primary pigment cells
- C. presence of retinulae just below vitrillae and presence of secondary pigment cells
- D. none

Answer: C



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18. Apposition image is formed in the eye of insect

- A. cone

B. rhabdome

C. retinula

D. iris

Answer: B



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19. The type of image and vision in housefly is

A. superposition and mosaic

B. apposition and blurred

C. apposition and mosaic

D. all the above

Answer: C



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20. Ocelli are present at the base of the

- A. maxilla
- B. antenna
- C. mandible
- D. compound eye

Answer: B



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21. No. of corneal facets in one ocellus is

- A. 2,000
- B. 200
- C. 10
- D. 1

Answer: D



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22. The type of image and function of ocellus is

- A. mosaic, sensitivity to light
- B. superposition, insensible to light intensity
- C. no image and sensitive to light intensity
- D. none of the above

Answer: C



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23. Olfactory receptors are present in

- A. antennae, labrum, maxillae

B. labial palps, maxillary palps and antennae

C. antennae, labrum, tarsus

D. maxillary palps, labial palps, tarsus

Answer: B



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24. Taste sensitive receptors are present on

A. maxillary palps, labrum, tibia

B. tibia, labial palps, mandibles

C. labrum, labial palps, maxillary palps

D. labrum, antennae, maxillae

Answer: C



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25. Thermoreceptor sensillae of cockroach are located on

- A. 2,3rd segments of tarsus
- B. 1,2,3 segments of tarsus
- C. 2,3,4 segments of tarsus
- D. all the above

Answer: B



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Exercise I Cockroach Reproductive System

1. Male cockroach differs from female cockroach in having

- A. long, narrow abdomen, brood pouch and styles
- B. long, broad abdomen, brood pouch and anal cera
- C. short, broad abdomen, brood pouch and without anal styles

D. short, broad absomen, brood pouch with anal styles

Answer: C



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2. Testes of cockroach are present in abdomen at

A. dorsal side of 4th to 6th segment

B. ventral side of 4-6th segments

C. lateral sides of 4th to 6th abdominal segments

D. all the above

Answer: C



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3. Ductus ejaculatorius is present in this abdominal segment

A. 6th

B. 4th

C. 7th

D. 5th

Answer: C



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4. The accessory gland present in male cockroach is

A. seminal vesicle

B. collateral gland

C. phallomeres

D. mushroom shaped gland

Answer: D



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5. In male cockroach, outermost layer of spermatophore is secreted by-

- A. conglobate, phallomere and utriculi breviores
- B. phallic gland, ejaculatory duct and utriculi majors
- C. utriculi breviores, conglobate and phallomere
- D. none of the above

Answer: B



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6. Testes of cockroach are present in abdomen at

- A. dorsal surface of ejaculatory duct
- B. ventral surface of ejaculatory duct
- C. dorsal surface of mushroom gland

D. ventral surface of mushroom gland

Answer: B



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7. The total number of chitinous asymmetrical phallic organs in male cockroach are

A. three

B. three pairs

C. six

D. six pairs

Answer: A



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8. Male genital pore is situated on

- A. left phallomere
- B. right phallomere
- C. ventral phallomere
- D. all the above

Answer: C



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9. Left phallomere consists of

- A. penis, pseudotitillator
- B. pseudopenis, male genital pore
- C. male genital pore, titillator
- D. pseudopenis, titillator

Answer: D



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10. The ovaries lie in the lateral sides of ___ to ___ abdominal' segments

A. 4 – 6th

B. 2 – 6th

C. 3 – 6th

D. 4 – 5th

Answer: B



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11. The total no. of ovarioles in a female cockroach is

A. 8

B. 4

C. 16

D. 5

Answer: C



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12. The path way of passage of spermatozoa of cockroach is

- A) Testes B) Ejaculatory duct
- C) Vas deferens D) Seminal vesicles
- E) Male genital aperture

A. A-C-D-B-E

B. B-A-C-D-E

C. A-B-C-D- E

D. E-C-B-D-A

Answer: A



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13. Ova with various stages of development found in

A. germarium

B. vagina

C. vitellarium

D. seminal receptac

Answer: A



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14. The female genital pore opens on the

A. 9th sternum

B. 10th sternum

C. 8th sternum

D. 11th sternum

Answer: A



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15. Penis is present in

A. 5th segment

B. 6th segment

C. 9th segment

D. 10th segment

Answer: B



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16. Female genital system possess a branch gland, that opens into

- A. genital pouch
- B. vitellarium
- C. germarium
- D. vagina

Answer: A



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17. The two collateral glands open into ger pouch

- A. together
- B. separately
- C. doesn't open
- D. all the above

Answer: B



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18. The ootheca of cockroach is secreted by

- A. spermathecae
- B. vagina
- C. collateral glands
- D. seminal vesicle

Answer: C



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19. Genital pouch in female cockroach is formed by ____sterna

- A. 8th, 9th

B. 9^{th} , 10^{th}

C. 7^{th} , 8^{th} , 9^{th}

D. 10^{th} , 11^{th}

Answer: C



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20. The boat shaped sternum of female cockroach forms _____ of genital pouch

A. roof, side walls

B. floor and side walls

C. roof, floor, sidewalls

D. none

Answer: B



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21. The total number of gonapophyses in female cockroach are

- A. 3
- B. 6
- C. 12
- D. 10

Answer: B



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22. The anterior and posterior chambers of gei pouch respectively are

- A. gynatrium & vestibulum
- B. vas efferens & gynatrium
- C. genital chamber & oothecal chamber
- D. both 1 & 3

Answer: D



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23. The chemical produced by female cockroach for chemocommunication is

- A. hormone
- B. enzyme
- C. pheromone
- D. none

Answer: C



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24. The sequence of passage of ova is

- A) Germanium

B) Vitallarium

C) Vagina

D) Oviduct

E) Female genital pore

F) Genital pouch

A. BADCEF

B. ABDCEF

C. ABCDEF

D. EABCDF

Answer: B



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25. What are deposited by male cockroach on female cockroach during copulation

A. eggs

B. spermatophore

C. pheromones

D. none

Answer: B



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26. The eggs of cockroach are arranged in :

A. 32, 3

B. 16,2

C. 8,4

D. 10, 2

Answer: B



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27. The total no. of oothecae produced are

A. 10-12

B. 9-10

C. 10-12

D. 10-14

Answer: B



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28. Cockroach nymph undergoes _____ no. of moultings

A. 10

B. 13

C. 12

D. 8

Answer: B



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29. The type of metamorphosis occurs in cockroach is called

- A. Holometabolus
- B. Paurometabolous
- C. Hemimetabolous
- D. None

Answer: B



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Exercise I Frog External Characters

1. Frogs are poikilothermic because body temperature

- A. is maintained constant
- B. varies with environmental temperature
- C. keeps changing with enzymes
- D. none

Answer: B

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2. The protective coloration by which frogs keep changing colors to hide from enemies is called

- A. mimicry
- B. camouflage
- C. melanism
- D. all the above

Answer: B

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3. Why are frogs not to be seen during peak summer and winter

- A. they do not survive at that time
- B. frogs migrate to other places
- C. frogs hide in deep burrows to be protected from heat and cold
- D. none

Answer: C

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4. The skin of frog is smooth and slippery due to the presence of

- A. mucus in skin
- B. mucus in stomach
- C. muscles in skin

D. all the above

Answer: A



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5. The scientific name of Indian bull frog is

A. *Rana hexadactylus*

B. *Rana pentadactyla*

C. *Hoplobatrachus tigerinus*

D. *Hyla*

Answer: C



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6. Pisces and frogs are similar, as they are

- A. poikilothermic amniotes
- B. poikilothermic anamniotes
- C. poikilothermic tetrapods
- D. poikilothermic pentadactyle

Answer: B

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7. The rate of metabolism, food reserves and type of respiration respectively in frog during adverse climatic conditions are

- A. fast, glucose and fat and buccopharyngeal
- B. fast, glycogen and protein, pulmoary
- C. slow, glycogen and lipids and cutaneous
- D. slow, glucose and protein, cutaneous

Answer: C



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8. Thin, scaleless, moist skin of frog is an adaptation for

- A. Buccopharyngeal respiration
- B. Pulmonary respiration
- C. Cutaneous respiration
- D. Cloacal respiration

Answer: C



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9. The eye lids of frog that protect them while in water is

- A. upper eye lid
- B. lower eye lid
- C. 1 & 2

D. Nictitating membrane

Answer: B



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10. The sound producing and sound amplifying organs of male frog respectively are

A. vocal cords, vocal sacs

B. vocal sacs, vocal cords

C. vocal cavity

D. none

Answer: A



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11. The copulatory pad of male frog is present on

- A. 2nd digit of hind limb
- B. 1st digit of hind limb
- C. first digit of fore limb
- D. absent

Answer: C



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12. Match the following

- | | |
|-------------------------|--|
| 1) Nictitating | a) Large muscular with membrane
five digits |
| 2) Tympanic
membrane | b) Receives sound
signals |
| 3) Hind limbs | c) Four digits |
| 4) Fore limbs | d) Protects the eye when in water |

A. 1-d, 2-b, 3-a, 4-c

B. 1-a, 2-b, 3-d, 4-c

C. 1-b, 2-c, 3-d, 4-a

D. 1-c, 2-b, 3-a, 4-d

Answer: A



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13. A frog with body temperature of $20^{\circ}C$ is transferred to an area with $30^{\circ}C$ temperature. What will be the body temperature of frog in the new environment?

A. $20^{\circ}C$

B. $30^{\circ}C$

C. $25^{\circ}C$

D. Fluctuates between $20^{\circ}C$ – $30^{\circ}C$

Answer: B



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Exercise I Frog Digestive System

1. Assertion : The alimentary canal of the frog is short

Reason : Frogs are carnivores.

A. Herbivore

B. Omnivore

C. Frugivore

D. Carnivore

Answer: D



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2. The broad, thick walled tube of frog in which chyme is formed lies on side of the body cavity

A. right side

B. posterior

C. left side

D. middle point

Answer: C



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3. Largest gland of alimentary canal of frog is

A. Pancreas

B. Liver

C. Gastric glands

D. Intestinal glands

Answer: B



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4. The irregular, elongated gland in between stomach and duodenum is

- A. mixed gland
- B. endocrine gland
- C. exocrine gland
- D. none

Answer: A



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5. The duodenum receives bile from the following

- A. pancreas
- B. gall bladder
- C. both 1 & 2

D. none

Answer: B



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6. The common duct that allows the passage of bile and pancreatic juice into duodenum is

A. bile duct

B. duodenum

C. pancreatic duct

D. hepato pancreatic duct

Answer: D



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7. The digested food of frog is absorbed through

- A. desmosomes
- B. villi and microvilli of intestine
- C. villi and hemidesmosomes
- D. microvilli and interdigitations

Answer: B



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8. Sequence of passage of undigested waste from large intestine to exterior is

- A. Rectum-anus-cloacal aperture - cloacal sac - exterior
- B. Rectum - anus - cloacal sac - cloacal aperture - exterior
- C. Cloacal sac - rectum - anus - cloacal aperture - exterior
- D. Rectum - cloacal sac - cloacal aperture - anus - exterior

Answer: B



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Exercise I Frog Respiratory System

1. The structure of frog that acts as aquatic respiratory organ is

- A. buccopharyngeal cavity
- B. lungs
- C. skin
- D. none

Answer: C



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2. The mode of respirations in frog that occurs in water is

A. buccopharyngeal, cutaneous & pulmonary

B. buccopharyngeal and pulmonary

C. cutaneous only

D. pulmonary only

Answer: C

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3. The sequence of passage of air into lungs in frog is

A. external nostrils - buccopharyngeal cavity - glottis - lungs

B. internal nostrils - pharynx - lungs - glottis

C. external nostrils - buccopharyngeal cavity - lungs - internal nostrils

D. all the above

Answer: A

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4. After exchange of gases, when floor of buccopharyngeal cavity is lowered, air passes from

- A. buccopharyngeal cavity to lungs
- B. buccopharyngeal cavity to nostrils
- C. external nostrils to outside
- D. all the above

Answer: A



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5. Lungs in frog are

- A. Distensible, pinkish, saclike
- B. Distensible, pinkish and solid
- C. Distensible, pinkish and spongy

D. Distensible, rosy and spongy

Answer: A



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Exercise I Frog Circulatory System

1. The sinus venosus and conus arteriosus in the heart of frog are present on which surface respectively

- A. dorsal, lateral
- B. ventral, lateral
- C. dorsal and ventral
- D. dorsal and lateral

Answer: B



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2. The sequence of passage of ova is

- A) Germanium
- B) Vitallarium
- C) Vagina
- D) Oviduct
- E) Female genital pore
- F) Genital pouch

A. G-A-D-B-C-E-F

B. B-G-D-A-C-F-E

C. B-C-E-D-F-A-G

D. B-C-E-F-D-A-G

Answer: D



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3. Number of aortic arches in Frog is

A. 3

B. 5

C. 4

D. 3 pair

Answer: D



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4. The ventricle of frog opens into

A. sinus venosus

B. Conus arteriosus

C. aortic arch

D. vena cavae

Answer: B



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5. Match the following with respect to circulatory tissue of frog and their functions.

Cells	Function
I) Erythrocytes	A) Transport of O_2
II) Thrombocytes	B) Defence
III) Leucocytes	C) Haemostasis
IV) Lymph	D) Blood - (RBC + proteins)

A. I-A, II-B, III-C, IV-D

B. I-B, II-A, III-C, IV-D

C. I-A, II-C, III-B, IV-D

D. I-A, II-D, III-C, IV-B

Answer: C



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6. How deoxygenated blood get collected in right atrium. Write correct path way

- a) Major veins (Vena cava)
- b) Different parts of body
- c) Right atrium
- d) Sinus venosus

A. a-b-c- d

B. b-d-a-c

C. b-a-d-c

D. b-c-a-d

Answer: C



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7. Choose the component related to frog

A. Hepatic portal system

B. Renal portal system

C. Sinus venosus, conus arteriosus

D. All

Answer: D



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Exercise I Frog Excretory System

1. Bidder's canal is found in

- A. testes of frog
- B. ovary of mammal
- C. kidney of frog
- D. kidney of mammal

Answer: C



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2. Ureters and genital ducts separately open into cloaca in

- A. male frogs
- B. female frogs
- C. 1 & 2
- D. none of above

Answer: B



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3. The wolffian duct arises from margin of kidney

- A. posterior, outer
- B. anterior, outer
- C. posterior, inner
- D. anterior, lateral

Answer: A



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4. The retroperitoneal kidney is one covered by peritoneum on

- A. dorsal surface
- B. ventral surface only
- C. both on dorsal and ventral
- D. lateral surface

Answer: B



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5. The correct sequence of passage of urea from site of production to exterior is

A. liver - blood - kidney - fat bodies -cloaca

B. liver - kidney - cloaca - blood

C. liver - blood - cloaca - ureter

D. liver - blood - kidney - ureter - cloaca

Answer: D



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Exercise I Frog Nervous System

1. (a) Name the part of brain which controls

(i) voluntary action, (ii) involuntary action.

(b) What is the significance of the peripheral nervous system? Name the components of this nervous system and distinguish between the origin of the two.

A. Cerebellum

B. Cerebral hemispheres

C. Medulla oblongata

D. Optic lobes

Answer: B



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2. Spinal cord extends from medulla oblongata through

A. foramen of manro

B. intervertebral foramen

C. foramen ovale

D. foramen of magnum

Answer: D



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3. The spinal cord is enclosed in

- A. central canal
- B. neural canal
- C. both 1 & 2
- D. none

Answer: B



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4. Match the following

Part of the brain

Function

I) Olfactory lobes

A) Equilibrium

II) Optic lobes

B) Sense of smell

III) Medulla oblongata

C) Sense of sight

IV) Cerebellum

D) Control of involuntary movements

A. I-D, II-C, III-B, IV-A

B. I-B, II-C, III-D, IV-A

C. I-B, II-C, III-A, IV-D

D. I-D, II-B, III-C, IV-A

Answer: B



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5. The structure that acts as middle man between brain and effectors is

A. spinal cord

B. mid brain

C. hind brain

D. fore brain

Answer: A



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6. Cones and rods are helpful respectively in

- A. dimlight vision, colour vision
- B. colour vision, dimlight vision
- C. color vision only
- D. dimlight vision only

Answer: B



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7. The middle ear of the frog is externally closed by

- A. mucus membrane
- B. ciliated epithelium
- C. tympanic membrane
- D. nictitating membrane

Answer: C



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8. The structure that transmits vibration to the inner ear is a modified

- A. stapes
- B. malleus
- C. sacculus
- D. hyomandibular

Answer: D



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9. The utriculus of frog has semicircular canals

- A. 4

B. 2

C. 3

D. 5

Answer: C



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10. Identify unpaired structure in forebrain

A. olfactory lobes

B. optic lobes

C. medulla oblongata

D. diencephalon

Answer: D



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11. Which is the organ of hearing and balance of frog

- A. ears
- B. limbs
- C. 1 and 2
- D. None

Answer: A



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Exercise I Frog Reproductive System

1. Ureters act as urinogenital ducts in

- A. male frogs
- B. female frogs
- C. both 1 & 2

D. none

Answer: A



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2. Testes are attached to dorsal body wall of kidney by

A. mesovarium

B. mesorchium

C. mesothelium

D. all the above

Answer: B



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3. Mesovarium and mesorchium are similar because they are made up of

A. double fold of peritoneum

B. single layer of peritoneum

C. triple folded peritoneum

D. ciliated epithelium

Answer: A



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4. The correct sequence of passage of male gametes in frog is

A. seminiferous tubules - bidders canal - ureter - transverse canal - cloaca

B. seminiferous tubules - vas efferentia - ureters - bladders canal - transverse canal - cloaca

C. seminiferous tubules - bidders canal - transverse canal - cloaca - ureters

D. seminiferous tubules - vas efferentia - bidder's canal - transverse
canals - ureters - cloaca

Answer: D



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5. The passage of ova in female frog is

- A. ovaries - oviducts - ovisac - cloaca - coelom
- B. ovisacs - ostia - coelom - oviducts - oviaries - cloaca
- C. ovaries - coelom - ostia - oviducts - ovisac - cloaca
- D. ovaries - coelom - ovisac - cloaca - oviduct

Answer: C



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6. A mature female frog can lay

- A. 250-300
- B. 25-30
- C. 2500-3000
- D. 4000-6000

Answer: C



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7. The mass of eggs and sperm released by female and male during amplexus are called respectively

- A. spawn and milt
- B. spermatophores and spawn
- C. spawn and spermatophores
- D. milt and spawn

Answer: A



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8. Ecological importance of frog is

- A. reduce insects and forms important link of food chain
- B. increases insects and forms important link of food chain
- C. maintains prey numbers
- D. amphibian animal to maintain temperature

Answer: A



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9. "Tadpoles respire through gills". This statement supports

- A. Law of thermodynamics

B. 10% law

C. Biogenetic law

D. None

Answer: C



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10. Commonly found species of frog in India

A. Haplobatrachus

B. Rana pipa

C. Rana hexadactyla

D. Hyla versicolor

Answer: A



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11. Choose the terms which are not related to frog

- A. poikilotherm
- B. camouflage
- C. endotherm
- D. carnivore

Answer: C



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12. Choose the features present in only male frog

- A. copulatory pad on 1st digit fore limb
- B. vocal sacs
- C. copulatory organs
- D. 1 and 2

Answer: D



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13. Croaking of frog is

- A. Sign of danger
- B. Call of hunger
- C. Sex call for male
- D. Sex call for female

Answer: D



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Exercise II Epithelial Tissue

1. The word 'Tissue' is coined by

A. August mayer

B. Bichat

C. Marcello malphigi

D. Meckel

Answer: B



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2. Occluding junctions or zonula occludens are

A. Adhering junctions

B. Gap junctions

C. Desmosomes

D. Tight junctions

Answer: D



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3. Cadherins and integrins are

- A. Intercellular
- B. Transmembrane glycoproteins
- C. Rivet-like adhesions
- D. Intermediate filaments

Answer: C



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4. Tessellated epithelium is

- A. Simple squamous
- B. simple cuboidal
- C. Simple columnar

D. Transitional

Answer: A



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5. Pseudostratified non-ciliated columnar epithelium occurs in

A. gall bladder

B. thyroid vesicles

C. membranous urethra and penile urethra

D. ducts of sweat glands and pancreas

Answer: C



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6. Stratum corneum contains

- A. Chitin
- B. Keratin
- C. Cellulose
- D. Mucus

Answer: B

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7. The epithelia present in prostatic urethra and penile urethra respectively

- A. Pseudostratified non ciliated columnar epithelium and transitional epithelium
- B. Transitional epithelium and pseudostratified non ciliated columnar epithelium

C. Transitional epithelium and stratified non keratinised squamous epithelium

D. Stratified non-keratinised squamous epithelium and pseudostratified non-ciliated columnar epithelium

Answer: B

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8. If the duct is unbranched but the secretory portion is branched, the glands are called

A. Compound branched glands

B. Simple branched glands

C. Compound glands

D. Simple glands

Answer: B

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9. The branched cells among the following

- A. columnar epithelial cells
- B. cuboidal epithelial cells
- C. goblet cells
- D. myoepithelial cells

Answer: D

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Exercise II Connective Tissue

1. Mother of all connective tissues

- A. Mesenchyme tissue

- B. Mucus connective tissue
- C. Areolar connective tissue
- D. Fluid connective tissue

Answer: A

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2. Identify the set containing specialised connective tissues

- A. Dense connective tissue, bone, cartilage, lymph
- B. Adipose tissue, tendons, bone, cartilage
- C. Bone, cartilage, blood, lymph
- D. Tendons, ligaments, areolar tissue, adipose tissue

Answer: C

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3. Cartilage heals poorly following an injury because

- A. It has no blood supply
- B. It has no cells
- C. It has no fibres
- D. It has no nerves

Answer: A



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4. The character associated with cartilage

- A. Reactivation of pre-existing chondrocytes
- B. Growth occurs when cartilage is young and pliable
- C. Perichondrial cells differentiate into chondroblasts
- D. Growth occurs during childhood

Answer: C



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5. Haversian canals are present in :

- A. All vertebrates
- B. All anamniotes
- C. All heterotherms
- D. All mammals

Answer: D



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6. The mature cells of bone are mostly involved in

- A. cell division

B. extra cellular matrix formation

C. regeneration

D. maintaining the matrix

Answer: D



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7. The white blood cells move more easily through connective tissues due to the

A. ability to produce hyaluronidase

B. amoeboid movement

C. ability to produce glycosaminoglycans

D. ability to exhibit diapedesis

Answer: A



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8. Alveolar macrophages and splenic macrophages are

- A. wandering macrophages
- B. fixed macrophages
- C. resting macrophages
- D. vestigial macrophages

Answer: B



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9. Identify the character which is not related to mesenchymal connective tissue

- A. Irregular shaped mesenchymal cells
- B. Semifluid matrix
- C. Presence of reticular fibres

D. It is referred to as Wharton's jelly in umbilical cord

Answer: D



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10. Adipocytes are derived from

A. Fibroblasts

B. Monocytes

C. Wharton's jelly

D. Wandering macrophages

Answer: A



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11. Calcified cartilage makes

- A. pubis of pevic girdle of mammal
- B. supra scapula of pectral girdle of man
- C. pubis of pelvic girdle of frog
- D. Sternum of frog

Answer: C

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12. Connective tissues contain an immature class of cells with a name ending in 'blast' which means

- A. to rupture
- B. to branch
- C. to bud or sprout
- D. to divide

Answer: C

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13. Lymphoid progenitors originate in

- A. Liver
- B. Spleen
- C. Lymph nodes
- D. Bone marrow

Answer: D

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14. Donnan's membrane is the

- A. Respiratory membrane
- B. Filtration membrane of Bowman's
- C. Plasma membrane of erythrocytes

D. Plasma membrane of WBC

Answer: C



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15. Reticular fibres in the spleen filter

- A. blood to remove bacteria
- B. blood to remove wornout cells
- C. lymph to remove bacteria
- D. lymph to remove lymphocytes

Answer: B



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16. Reticular fibres in the lymph nodes filter

- A. blood to remove bacteria
- B. blood remove worn out cells
- C. lymph to remove bacteria
- D. lymph to remove lymphocytes

Answer: C



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17. All bone marrow is red and involved in haematopoiesis in

- A. Old people
- B. Women
- C. Newborn
- D. Pregnant woman

Answer: C



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18. Yellow bone marrow can revert to red bone marrow during

- A. Pregnancy
- B. Lactation
- C. Severe bleeding
- D. Childhood

Answer: C



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19. Dengue fever can be thrombocytopenia due to direct infection of

- A. Thrombocytes
- B. Bone marrow megakaryocytes
- C. Lymphocytes

D. WBC

Answer: B



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Exercise II Muscular Tissue

1. The site of attachment of a tendon to a fixed bone is called

- A. Origin of muscle
- B. Aponeurosis
- C. Insertion of muscle
- D. Fascia

Answer: A



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2. The site of attachment of a tendon to a movable bone is called

- A. Origin of muscle
- B. Aponeurosis
- C. Insertion of muscle
- D. Fascia

Answer: C



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3. The dramatic muscle growth that occurs after birth occurs by

- A. Hypertrophy
- B. Hyperplasia
- C. Neoplasia
- D. Castration

Answer: A



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4. In the regions of A-band, the numbers of thick filaments surrounding a thin filament are

A. 3

B. 6

C. 12

D. 9

Answer: A



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5. When a muscle contracts suddenly and powerfully, it results in

A. Strain

B. Stress

C. Sprain

D. Spasm

Answer: A



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6. Purkinje fibres are components of

A. Periosteum of bone

B. Conduction system of heart

C. matrix of calcified cartilage

D. Intercalated discs of cardiac muscle

Answer: B



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Exercise II Neural Tissue

1. Pseudounipolar neurons are

A. sensory

B. motor

C. mixed

D. not known

Answer: A



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2. Most interneurons are

A. unipolar

B. bipolar

C. multipolar

D. apolar

Answer: C



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3. Protein synthesis does not occur in the axon because

A. cytoplasm is absent

B. SER is absent

C. Nissl granules are absent

D. it is efferent fibre

Answer: C



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4. Protoplasmic astocytes are found in

A. Grey matter

B. White matter

C. Grey and white matter

D. Protoplasma of neurons Organ and Organ system

Answer: A



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Exercise II Organ And Organ System

1. In animals the word anatomy is conventionally used for the study of

A. morphology of external organs

B. morphology of internal organs

C. structure and functional aspects of internal organs

D. all the three

Answer: B



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2. Organ level of organisation is present in the members of

A. Nematoda

B. Cnidaria

C. Platyhelminthes

D. Annelida

Answer: C



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3. Organ system level of organisation appeared for the first time in the members of

- A. Platyhelminthes
- B. Nematoda
- C. Annelida
- D. Arthropoda

Answer: A



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4. our heart consists of :-

- (i) Epithelial tissue
- (ii) Connective tissue
- (iii) Muscular tissue
- (iv) Neural tissue

A. 2

B. 4

C. 1

D. 3

Answer: B



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Exercise II Earthworm

1. The largest genus of earthworm is

A. Megascolex

B. Pheretima

C. Megascolides

D. Lumbicus

Answer: B



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2. Opisthopora is the order of

- A. Earthworms
- B. Cockroaches
- C. Frogs
- D. Sponges

Answer: A



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3. The monograph of *Pheretima posthuma* is given by

- A. Lamarck

B. Linnaeus

C. K.N.Bahl

D. Georges cuiver

Answer: C



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4. Typical nephridium of earthworm is

A. Closed enteronephric nephridium

B. Open exonephric nephridium

C. Open enteronephric nephridium

D. Closed exonephric nephridium

Answer: B



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5. According to Darwin, the function of calciferous glands is to

- A. neutralize humic acid in soil
- B. excretion of excess calcium salts
- C. digestion of proteins
- D. digestion of amylose

Answer: A



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6. Earthworm found in southern India is:

- A. Lumbricus
- B. Microchaetus
- C. Eutyphoeus
- D. Drawida

Answer: A



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7. According to Robertson, the function of calciferous glands is to

- A. neutralize humic acid
- B. to excrete excess calcium salts
- C. to digest proteins
- D. to digest amylose

Answer: B



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8. The pigment which protects earthworm from UV rays

- A. Haemoglobin

B. Chlorocruorin

C. Vanadium chromogen

D. Porphyrin

Answer: D



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9. The muscles associated with each setal/ setigerous sac respectively is

A. one pair of protractor muscles and a retractor muscle

B. one pair of protractor muscles and one pair of retractor muscles

C. one protractor muscle and one pair of retractor muscles

D. one protractor muscle and one retractor muscle

Answer: A



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10. The youngest and the oldest segment in earthworm respectively

- A. Peristonium and pygidium
- B. Pygidium and peristomium
- C. Preanal segment and peristomium
- D. Peristomium and preanal segment

Answer: C



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11. The cells of pheretima, which play an important role in intermediary metabolism

- A. circular cells
- B. phagocytes
- C. chloragogen cells
- D. supporting cells

Answer: C



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12. The cells derived from visceral peritoneum

- A. yellow or chloragogen cells
- B. phagocytes
- C. circular cells
- D. mucocytes

Answer: A



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13. Earthworms moves on smooth surface with the help of

- A. setae

B. mouth as sucker

C. it do not move on smooth surface

D. suckers

Answer: B



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14. Number of cocoons formed after each mating in pheretima are

A. one cocoon

B. many cocoons are formed at a time

C. many cocoons are formed in succession

D. four cocoons

Answer: C



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15. Number of earthworm formed in each cocoon on an average?

A. 1

B. 2

C. 4

D. many

Answer: C



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Exercise II Cockroach

1. Father of Entomology is

A. Von siebold

B. Georges cuvier

C. Burmeister

D. William Kirby

Answer: D



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2. Trehalose present in the plasma of cockroach is a

A. sugar

B. amino acid

C. lipid

D. organic acid

Answer: A



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3. The generic name of oriental cockroach is

A. Blatta

B. Blatella

C. Periplaneta

D. Pheretima

Answer: A



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4. Which word is derived from spanish word cucaracha

A. Cucumaria

B. Cockroach

C. Naja

D. Cuckoo

Answer: B



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5. *Periplaneta americana* was originally named as *Blatta americana* by

- A. Burmeister
- B. William kirby
- C. Linnaeus
- D. Vonsiebold

Answer: C



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6. Non chitinous layer of cuticle of the body wall

- A. Epicuticle
- B. Exocuticle
- C. Endocuticle

D. 1 & 2

Answer: A



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7. Spout like narrow tube extending from gizzard into lumen of midgut is

- A. Peritrophic membrane
- B. Sphincter
- C. Stomodeal valve
- D. Hepatic caecae

Answer: C



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8. Sickle shaped hook is a part of

- A. Left phallomere
- B. Right phallomere
- C. Ventral phallomere
- D. Brood pouch of female

Answer: B

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9. Breeding season of cockroaches

- A. July-September
- B. January-June
- C. March-September
- D. November-January

Answer: C

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10. Eggs of cockroach are

- A. Telolecithal
- B. Isolecithal
- C. Centrolecithal
- D. Alecithal

Answer: C



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11. Cleavage in cockroach is

- A. holoblastic, superficial
- B. meroblastic, superficial
- C. discoidal meroblastic

D. discoidal, holoblastic

Answer: B



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12. During development in cockroach, each of the juvenile stages between moults is called

A. Nymph

B. Imago

C. Tumbler

D. Instar

Answer: D



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13. The time that is spend in a particular instar is called

- A. Stadium
- B. cessation
- C. recess
- D. Epitome

Answer: A



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Exercise II Frogs

1. The glands present in the skin of frog are

- A. dermal papulae
- B. dermal branchiae
- C. dermal denticles

D. dermal plicae

Answer: D



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2. In frog,

A. epidermis

B. dermis

C. muscle layer

D. mucus glands are absent

Answer: B



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3. Teeth of Frog are

- A. maxillary and vomerine teeth
- B. premaxillary and maxillary teeth
- C. palatine and vomerine teeth
- D. palatine and maxillary teeth

Answer: A

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4. Buccoropharyngeal cavity of Frog is lined by

- A. contraction of sternohyal muscles
- B. contraction of pterohyal muscles
- C. relaxation of sternohyal muscles
- D. relaxation of pterohyal muscles

Answer: A

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5. Heart of frog is

- A. pylangium
- B. synangium
- C. gynangium
- D. gynatrium

Answer: A



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6. Chordae tendinae in the heart are found in

- A. Atria
- B. Sinus venosus
- C. Trunus arteriosus

D. Ventricle

Answer: D



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7. Truncus arteriosus is present in ___ side of heart of frog.

A. septa

B. membrane

C. semilunar valves

D. spiral valve

Answer: D



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8. The hepatic portal vein drains blood to liver from

A. one, one

B. two, two

C. one pair, two pairs

D. one, one pair

Answer: D



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9. Number of lymph hearts in Frog is

A. 1

B. 1 pair

C. 2 pairs

D. 4 pairs

Answer: C



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10. Number of lymph hearts in Frog is

- A. where the lymph capillaries join to form lymph vessels
- B. where the lymph vessels open into the veins
- C. where the lymph vessels open into the lymph ducts
- D. where the veins open into the heart

Answer: B



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11. How many lymph hearts are present in frog?

- A. subscapular veins and femoral veins
- B. supra scapular veins and femoral veins
- C. femoral veins and sciatic veins

D. subscapular veins and suprascapular veins

Answer: A



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12. Oviduct of female Frog has a swelling or ovisac for storing

- A. Wolffian ducts
- B. Urinogenital ducts
- C. Mullerian ducts
- D. None of the above

Answer: C



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13. frog is

A. to drain wastes from coelom

B. to collect gametes

C. to drain wastes from blood

D. they are vestigial

Answer: A



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14. Cornea is a transparent part of

A. anterior part of choroid

B. anterior part of sclerotic layer

C. posterior part of choroid

D. posterior part of sclerotic layer

Answer: B



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15. Choroid is

- A. Iris
- B. Pupil
- C. Ciliary body
- D. lens

Answer: C



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16. Frog is

- A. Quadrate
- B. Articular
- C. Palatine

D. Hyomandibular

Answer: D



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17. Bone of the shank in frog is called

A. Static organ

B. Acoustic organ

C. Rheoreceptor

D. Stato acoustic organ

Answer: D



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18. The membranous labyrinth/internal ear contains a fluid called

- A. Middle ear
- B. Tympanum
- C. Nictitating membrane
- D. Internal ear

Answer: D

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19. False copulation in frog is called

- A. Nuptial flight
- B. Amplexus
- C. Neoteny
- D. Amphimixis

Answer: B

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20. The kidney of frog are

- A. Yolk
- B. Mucus
- C. Albumin
- D. Chitin

Answer: C



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21. Lungs in frog are

- A. Mesolecithal and centrolecithal
- B. Alecithal and centrolecithal
- C. Mesolecithal, telolecithal

D. Microcithal and telolecithal

Answer: C



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Exercise Iii Previous Aipmt Neet Questions

1. Smooth muscles are

- A. involuntary, cylindrical, striated
- B. voluntary, spindle shaped, uninucleate
- C. involuntary, fusiform, non-striated
- D. voluntary, multinucleate, cylindrical

Answer: B



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2. Name the blood cells, whose reduction in number can cause clotting disorder leading to excessive loss of blood from body

- A. Neutrophils
- B. Thrombocytes
- C. Erythrocyte
- D. Leucocyte

Answer: B



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3. Serum differs from blood in

- A. lacking clotting factors
- B. lacking antibodies
- C. lacking globulins
- D. lacking albumin

Answer: A



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4. In male cockroaches, sperms are stored in which part of the reproductive system?

- A. Testes
- B. Vas deferens
- C. Seminal vesicles
- D. Mushroom glands

Answer: C



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5. Which one of the following is correct ?

A. Lymph = Plasma + RBC + WBC

B. Blood = Plasma + RBC + WBC + Platelets

C. Plasma = Blood - Lymphocyte

D. Serum = Blood + Fibrinogen

Answer: B



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

A. Arthroial membrane

B. Cartilage

C. Cementing give

D. Muscular tissue

Answer: A



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7. Choose the correctly matched pair :-

- A. Tendon - specialized connective tissue
- B. Adipose tissue - Dense connective tissue
- C. Aerolar tissue - Loose connective tissue
- D. Cartilage - Loose connective tissue

Answer: C



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8. Choose correct match

- A. Inner lining of salivary ducts - Ciliated epithelium
- B. Moist surface of buccal cavity - Glandular epithelium
- C. Tubular part of nephron - Cuboidal epithelium

D. Inner surface of bronchioles - Squamous epithelium

Answer: C



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9. The H-zone in the skeletal muscle fibre is due to

- A. The central gap between myosin filaments in the A band
- B. The central gap between actin filaments extending through myosin filaments in the A band
- C. The extension of myosin filaments in the central portion of the A band
- D. The absence of myofibrils in the central portion of A band

Answer: B



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10. Which one is the most abundant protein in the animals world?

A. Hemoglobin

B. Collagen

C. Insulin

D. Trypsin

Answer: B



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11. Compared to those of humans, erythrocytes of Frog are

(a) Nucleated and with hemoglobin.

(b) Very much smaller and fewer

(c) Nucleated and without hemoglobin.

(d) Without nucleus but with hemoglobin.

A. Nucleated and with hemoglobin

B. Very much smaller and fewer

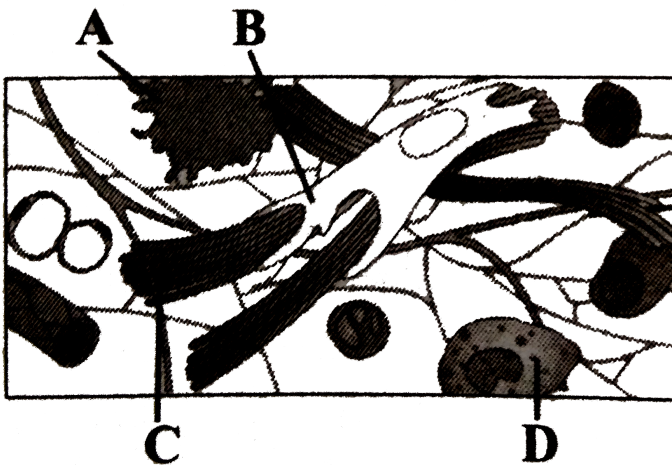
C. Nucleated and without hemoglobin

D. Without nucleus but with hemoglobin

Answer: A

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12. Given is the diagrammatic sketch of a certain type of connective tissue. Identify the parts labelled as A, B, C and D and select the correct option.



- | | | | | |
|----|-------------|------------|-----------------|-----------|
| | Part A | Part B | Part C | Part D |
| A. | Macro-phage | Fibroblast | Collagen fibers | Mast cell |

- | | | | | |
|----|-------------|-----------------|------------|-----------------|
| | Part A | Part B | Part C | Part D |
| B. | Mast cell | Macro-phage | Fibroblast | Collagen fibers |
| | Part A | Part B | Part C | Part D |
| C. | Macro-phage | Collagen fibers | Fibroblast | Mast cells |
| | Part A | Part B | Part C | Part D |
| D. | Mast cell | Collagen fibers | Fibroblast | Macro phage |

Answer: C



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13. Select the correct statement regarding the specific disorder of muscular of skeletal system

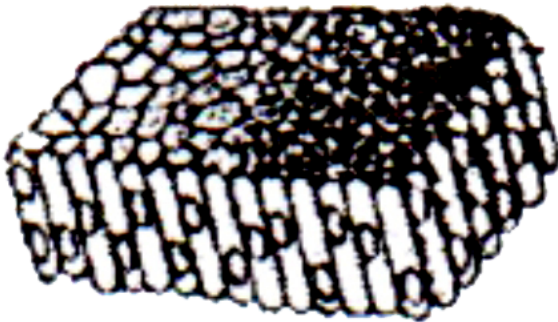
- A. Osteoporosis: Decrease in bone mass and higher chances of fractures with advancing age
- B. Myasthenia gravis: Autoimmune disorder which inhibits sliding of myosin filaments
- C. Gout: Inflammation of joints due to extra deposition of calcium
- D. Muscular dystrophy: Age-related shortening of muscles

Answer: A

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14. The four sketches (A, B , C and D) given below , represent four different types of animal tissues . Which one these are correctly identified in the options given, along with its correct location and function ?

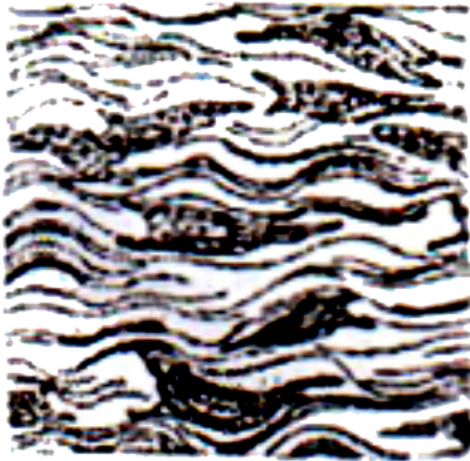
(A)



(B)



(C)



(D)



A.	Tissue	Location	Function
(B)	Glandular epithelium	Intestine	secretion

B.

Tissue	Location	Function
(C) Collagen fibres	Cartilage	Attack fibers skeletal muscles to

C.

Tissue	Location	Function
(D) Smooth muscle tissue	Heart	Heart contraction

D.

Tissue	Location	Function
(A) Columnar epithelium	Nephron	secretion and absorption

Answer: A



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15. Which one of the following pairs of chemical substance is correctly categorised?

- A. Calcitonin and Thyroid hormones thymosin
- B. Pepsin and prolactin Two digestive enzymes secreted in stomach
- C. Troponin and myosin Complex proteins in striated muscles
- D. Secretin and rhodopsin Polypeptide hormones

Answer: C



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16. The supportive skeletal structures in the human external ears and in the nose tip are examples of

A. Ligament

B. Areolar tissue

C. Bone

D. Cartilage

Answer: B



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17. Which one of the following is correct pairing of a body part and the kind of muscle tissue that moves its?

A. biceps of upper arm -smooth muscle fibres

B. abdominal wall - smooth muscle

C. iris - involuntary smooth muscle

D. heart wall - involuntary unstriated muscle

Answer: B



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18. The epithelial tissue present on the inner surface of bronchioles and fallopian tubes is

(a) Squamous

(b) Cuboidal

(c) Glandular

(d) Ciliated

A. glandular

B. ciliated

C. squamous

D. cuboidal

Answer: B



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19. The cell junctions called tight, adhering and gap junctions are found in

A. connective tissue

B. epithelial tissue

C. neural tissue

D. muscular tissue

Answer: B



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20. The kind of tissue that forms the supportive structure in our pinna (external ears) is also found in

- A. nails
- B. ear ossicles
- C. tip of the nose
- D. vertebrae

Answer: B



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21. In which one of the following preparations are you likely to come across cell junctions most frequently ?

- A. Hyaline cartilage
- B. Ciliated epithelium
- C. Thrombocytes

D. Tendon

Answer: B



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22. A drop of each of the following is placed separately on four slides .

Which of them will not coagulate ?

A. Whole blood from pulmonary vein

B. Blood plasma

C. Blood serum

D. Sample from the thoracic duct of lymphatic system

Answer: C



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23. In which one of the following preparations are you likely to come across cell junctions most frequently ?

- A. thrombocytes
- B. tendon
- C. hyaline cartilage
- D. ciliated epithelium

Answer: D



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24. Which one of the following pairs of structures distinguishes a nerve cell from other types of cell ?

- A. vacuoles and fibres
- B. flagellum and medullary sheath
- C. nucleus and mitochondria

D. perikaryon and dendrites

Answer: D



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