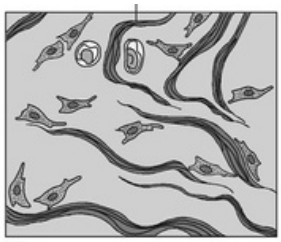
STRUCTURAL ORGANISATION IN ANIMALS

1. Which of the following statements is true for epithelial tissue?
   (A) They arise only from the ectoderm.
   (B) Their free surface either faces a body fluid or the outside environment.
   (C) They have large amount of intercellular matrix.
   (D) They are incapable of performing absorptive functions.

2. The tissue depicted in the following diagram is



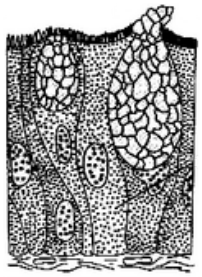
   (A) Cartilage present in the ends of long bones
   (B) Dense regular connective present in the tendons
   (C) Dense irregular connective tissue present in the skin
   (D) Loose connective tissue found in the capsule of abdominal organs

3. A bone formed by the ossification within a tendon is
   (A) patella, a type of sesamoid bone
   (B) rib, a type of investing bone
   (C) parietal bone of skull, a type of dermal bone
   (D) femur, a type of cartilaginous bone

4. Difference between tendon and ligament is that
   (A) Tendon is dense regular connective tissue with mainly collagen fibres while ligament is dense irregular connective tissue with mainly elastin fibres.
   (B) Tendon is dense irregular connective tissue with mainly collagen fibres while ligament is dense 0.regular connective tissue with mainly elastin fibres.
   (C) Tendon is dense regular connective tissue with mainly collagen fibres while ligament is dense regular connective tissue with mainly elastin fibres.
   (D) Tendon is dense irregular connective tissue with mainly collagen fibres while ligament is dense irregular connective tissue with mainly elastin fibres.

5. Which one of the following properties is found in all connective tissues?
   (A) All connective tissues have either collagen fibres or elastin fibres or both.
   (B) All connective tissues have either collagen fibres or elastin fibres but never both.
   (C) All connective tissues have matrix made up of modified polysaccharides.
   (D) All connective tissues have cells which perform phagocytosis.

6. Identify the given diagram correctly:



(A) Ciliated epithelium
(B) Compound epithelium
(C) Unicellular glandular epithelium
(D) Multicellular glandular epithelium

7. Decalcified and dried bone differ from normal bone as
(A) Decalcified bone is more rigid than, while dried bone is more flexible than normal bone.
(B) Decalcified bone is more flexible than, while dried bone is more rigid than normal bone.
(C) Both decalcified bone and dried bone are more flexible than normal bone.
(D) Both decalcified bone and dried bone are more rigid than normal bone.

8. The type of cell junction which facilitates cells to communicate with each other is
(A) Gap junction
(B) Tight junction
(C) Adhering junction
(D) Hemidesmosomes

9. The noncellular basement membrane of epithelium is secreted by
   (A) Epithelium
   (B) Connective tissue
   (C) Both of these
   (D) None of these

10. Choose the correct statement from the following.
   (A) Each lacuna has fine cytoplasmic extensions called lamellae which pass through canaliculi.
   (B) The structural unit of a bone is Haversian system.
   (C) Haversian system contains artery, vein and lymph vessels only.
   (D) Lacunae containing osteocytes are arranged concentrically around the Volkmann's canal.

11. Exchange of nutrients between chondrocytes and matrix occurs by
   (A) Facilitated diffusion
   (B) Osmosis
   (C) Simple diffusion
   (D) Filtration

12. On the basis of the mode of pouring of their secretions, glands are classified as (A) Exocrine and Heterocrine (B) Apocrine and Holocrine (C) Exocrine and Endocrine (D) Endocrine and Apocrine

13. Choose the correct statement from the following.

(A) The main function of squamous tissue is secretion and absorption.

(B) Proximal convoluted tube of nephron has epithelium with cilia.

(C) Formation of diffusion boundary is the main function of columnar tissue.

(D) Squamous tissue has irregular boundaries.

14. A patient is suffering from anaemia but has normal iron in his blood. The doctor suspect that there is some fault in the process of formation of RBCs. He ordered for biopsy of a tissue present within the

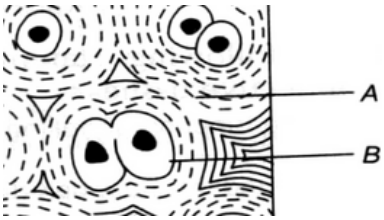
(A) sternum or breast bone

(B) shaft of humerus (bone of the upper arm)

(C) shaft of femur (thigh bone)

(D) inter-vertebral disc

15. Identify A and B in the following.



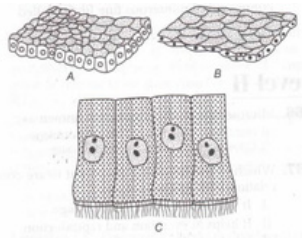
(A) A- osteocyte, B-Collagen
(B) A-microtubule, B-osteocyte
(C) A-chondrocyte, B-collagen
(D) A-collagen, B-chondrocyte

16. How many of the following statements is/are incorrect?

1. Glandular epithelium may be unicellular or multicellular.
2. Salivary glands have multicellular glandular epithelium.
3. Products of exocrine glands bathe the gland.
4. Compound epithelium has a major role in secretion and absorption.

(A) 1 (B) 2 (C) 3 (D) 4

17. Identify the following epithelia.



(A) A-squamous, B- cuboidal, C-ciliated cuboidal
(B) A-squamous, B-cuboidal, C-ciliated columnar
(C) A-cuboidal, B-squamous, C-ciliated columnar
(D) A-cuboidal, B-squamous, C-ciliated cuboidal

18. The ciliated columnar epithelium is seen in

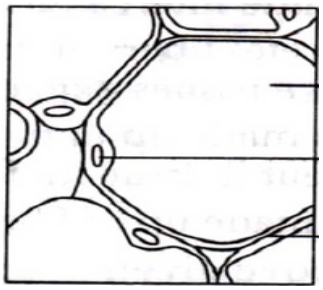
(A) Glandular ducts, Fallopian tubes

(B) Fallopian tubes, bronchioles

(C) Air sacs of lungs, tubular part of nephrons

(D) Air sacs of lungs, bronchioles

19. Identify the following tissue and its function.



(A) Unilocular brown adipose tissue found in infants.

(B) Multilocular brown adipose tissue found in infants.

(C) Unilocular white adipose tissue found in adults.

(D) Multilocular white adipose tissue found in adults.

20. Choose the fabricated statement from the following.

(A) Epithelial tissue has nerve supply of its own.

(B) Epithelial tissue has vascular supply of its own.

(C) Epithelial tissue can self renew and repair.

(D) Simple epithelium can function for osmosis and filtration.

21. Pseudo-stratified Ciliated Columnar Epithelium is commonly associated with

(A) Digestive system (C) Excretory system

(B) Respiratory system

(D) Reproductive system

22. How many of the following statements are correct?

(1) Epithelial tissue imparts protection from mechanical injury.

(2) Modified epithelial cells are useful in metabolic activities.

(3) Modified epithelial cells carry out absorption.

(4) Epithelial cells remove excess toxins from the body.

(A) 1 (B) 2 (C) 3 (D) 4

23. Choose the correct statement from the following.

(A) Areolar connective tissue is found below the skin, muscles and bones.

(B) The extracellular ground substance of the areolar connective tissue is made up of melanin.

(C) White fibres of areolar connective tissue are branched, wavy and arranged in bundles.

(D) Fibroblasts exclusively secrete the yellow fibres in areolar tissue.

24. How many of the following have hyaline cartilage?
Ends of long bone, larynx, trachea, pubic symphysis, foetal skeleton, bronchial tree
(A) 6 (B) 5 (C) 4 (D) 3

25. Moist surface of buccal cavity show _____epithelium.
(A) unicellular glandular (B) multicellular glandular
(C) compound (D) squamous

26. The germ layer which forms maximum types of tissues is
(A) ectoderm (B) mesoderm (C) endoderm (D) mesoglea

27. The correct statement about microvilli and cilia is
(A) Columnar cells may have microvilli or cilia but cuboidal cells may have only microvilli.
(B) Cuboidal cells may have microvilli or cilia but columnar cells may have only microvilli.
(C) Cuboidal cells may have microvilli or cilia but columnar cells may have only cilia.
(D) Both cuboidal cells and columnar cells may have microvilli or cilia.

28. The epithelium having maximum ability to stretch is present in lining of
(A) Digestive system
(B) Respiratory system

(C) Excretory system
(D) Reproductive system

29. The kind of tissue found at the tip of the nose is also found in
(A) ear ossicles (B) external ears
(C) nails (D) phalanges

30. The correct statement about endocrine and exocrine glands is
(A) Exocrine glands are merocrine while endocrine glands are apocrine
(B) Endocrine glands are merocrine while exocrine glands may be apocrine or holocrine
(C) Endocrine glands are merocrine while exocrine glands may be apocrine, merocrine and holocrine
(D) Exocrine glands are merocrine while endocrine glands may be apocrine, merocrine and holocrine.

31. Which of the following is incorrectly matched?
(A) Blood-Helps in transport various substances
(B) Tendons-Connects bone to bone
(C) Adipose tissue-Loose connective tissue
(D) Cartilage-Present in limbs and hands of adults.

32. In columnar epithelium, nuclei are located

(A) At the base (B) In the centre

(C) Near the apex (D) None of these

33. Which of the following are exocrine glands?

(i) Salivary glands (ii) Thyroid gland

(iii) Intestinal glands (iv) Sebaceous glands

(A) i & ii (B) i, iii & iv (C) i & iii (D) ii & iii

34. Read the following statement. Which amongst them are correct?

I. The most abundant cells of areolar connective tissue produce its matrix.

II. All solid connective tissues are vascular except bone.

III. The bone present in the epiphysis of long bones in mammals has matrix arranged in concentric layers called lamellae.

IV. Sterocilia is structurally more similar to microvilli than kinocilia.

(A) I and IV (B) II and III

(C) I, II and III (D) I, II, III and IV

35. Fill in the blanks A, B, C and D with the correct choice of words.

Osteocytes are present in spaces called (A). (B) gives strength to bones.

Most (C) in vertebrate embryos are replaced by the (D) in adults.

(A) A-cavities, B-phosphorous, C-tissue, D-cells

(B) A- lacunae, B-collagen fibres, C-cartilage, D-bones

(C) A-lacunae, B-potassium salts, C-bone, D-cartilage

(D) A-air sacs, B-iron, C-cells, D-tissue

36. What is true with regards to cell- cell junctions?

(A) Adhering junctions check the flow of materials between the cells.

(B) Cementing is card ied out by gap junctions.

(C) Gap functions, also called desmosomes facilitate communication by slow transfer of ions.

(D) Sometimes gap junctions connect cytoplasm of adjoining cells for rapid transfer of big molecules.

37. Choose the correct statement about stratum germinativum.

(A) Stratum germinativum is based on basement membrane.

(B) Stratum germinativum cannot divide and redivide.

(C) Stratum germinativum is an intermediate layer.

(D) Stratum germinativum is a layer of glandular epithelium.

38. A coolie carries a large amount of weight on his head while transporting the luggage of passengers from the train to their vehicle. Which connective tissue helps him sustain the compression between his tibia and femur?
(A) ligament (B) tendon (C) cartilage (D) adipose

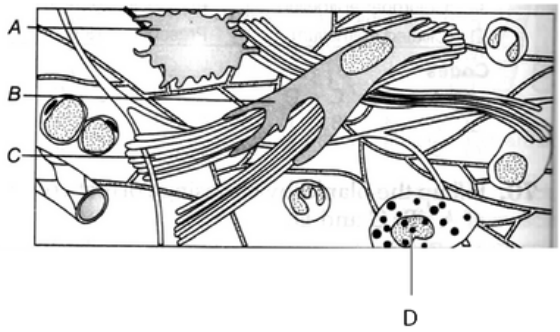
39. If ligaments are damaged beyond repair, which of the following will occur?
(A) The joint will become immovable.
(B) The amount of fluid in the joint will reduce.
(C) Bones will move freely at the joints.
(D) Bones will become frozen.

40. Choose the statement from the following which isn't untrue.
(A) Peritoneum of coelom is made of cells with basal nucleus.
(B) Thyroid gland has cells with centrally placed spherical nucleus.
(C) Intestinal cells have basal round nucleus.
(D) Fallopian tube cells have centrally placed elliptical or oval nucleus.

41. Choose the correct pair of epithelium and its location.

	Epithelium	Location
(A)	Pavement (B)	Endothelium
Columnar (C) Ciliated		Kidney
columnar		Fallopian tubes in invertebrates
(D) Non-ciliated columnar	Thyroid gland	

42. Identify the functions of A, B and C and D in the given diagram.



	A	B	C	D
(A)	Phagocytosis of microbes	Formation of inter cellular matrix	Providing rigidity to the tissue	Secretes histamine for inflammation
(B)	Formation of inter cellular matrix	Formation of different proteinaceous fibres	Providing elasticity to the tissue	Secretion of an anti-coagulant heparin.
(C)	Phagocytosis of microbes	Formation of different proteinaceous fibres	Providing tensile strength to tissue	Formation of inter cellular matrix

(D)	Formation of proteinaceous fibres	Phagocytosis of microbes	Providing rigidity to the tissue	Secretes histamine for inflammation

43. Inner lining of salivary duct, pancreatic ducts shows ___ epithelium and ___ epithelium respectively.
    (A) cuboidal, compound (B) compound, compound
    (C) cuboidal, cuboidal (D) columnar, compound

44. Which of the following are true statements?
    1. Connective tissues are called thus because they link and support tissues and organs of the body.
    2. All specialized types of connective tissues secrete fibres of structural proteins.
    3. The ground substance contains modified polysaccharides.
    4. Loose connective tissues have cells and fibres arranged in fluid ground substance.
    (A) 1, 3 (B) 1, 2 and 3
    (C) 1, 2, 3 and 4 (D) 1, 3 and 4

45. Goblet cells are present lining the
    (A) respiratory tract
    (B) respiratory tract and reproductive tract
    (C) respiratory tract, reproductive tract and urinary tract

(D) respiratory tract, reproductive tract, urinary tract and digestive tract

ANSWERS

1. (B)	5.	2. (C)	6.	3. (A)	7.	4. (C)	8.
(C)	9.	(C)	10.	(B)	11.	(A)	12.
(C)	13.	(B)	14.	(C)	15.	(C)	16.
(D)	17.	(A)	18.	(D)	19.	(B)	20.
(C)	21.	(B)	22.	(C)	23.	(B)	24.
(B)	25.	(D)	26.	(A)	27.	(C)	28.
(C)	29.	(B)	30.	(D)	31.	(C)	32.
(B)	33.	(C)	34.	(B)	35.	(A)	36.
(B)	37.	(A)	38.	(B)	39.	(D)	40.
(A)	41.	(C)	42.	(C)	43.	(B)	44.
(A)	45.	(A)		(B)		(A)	
(D)							

SOLUTIONS

1. Epithelium arises from ectoderm, endoderm or mesoderm. They have minimal matrix and help in absorption as they can possess microvilli at its free surface.
5. Blood is a connective tissue but has no fibres.
6. Goblet cell is mucus secreting unicellular glandular epithelium.
8. Gap junction allows exchange of cytoplasm between adjacent cells.

9. Epithelial cells secrete mucopolysaccharides and connective tissue secretes collagen fibers that together constitute basement membrane.
12. Endocrine (ductless) and exocrine (with ducts).
13. Proximal convoluted tube of nephron has epithelium with microvilli. The main function of squamous tissue is diffusion & filtration. Formation of diffusion boundary is main function of squamous tissue.
14. Production of blood cells takes place in the red bone marrow which present in spongy bones. Sternum is made up of spongy bone.
16. Products of endocrine glands bathe the gland and main function of compound epithelium is protection.
20. Epithelial tissue is avascular.
24. Hyaline cartilage is present in ends of long bone, trachea, foetal skeleton and bronchial tree
26. Mesoderm forms muscular, connective and epithelial tissue.
28. Urothelium or Transitional epithelium has maximum ability to stretch.
33. Exocrine glands have ducts. Salivary glands, Intestinal glands and Sebaceous glands have ducts.
34. All solid connective tissues are vascular except cartilage. The bone present in the diaphysis of long bones in mammals has matrix arranged in concentric layers called lamellae.

36. Tight junctions prevent substances from leaking into a tissue. Adherence junctions perform cementing to hold neighbouring cells together. Gap junctions connect cells to communicate with each other for rapid transfer of ions, small molecules, and sometimes larger molecules.
39. Ligaments prevent dislocation of a joint. Damage to ligament will cause dislocation.
40. Peritoneum has squamous epithelium. Thyroid gland has cuboidal epithelium with centrally placed spherical nucleus. Intestinal cells are columnar with basal oval nucleus. Fallopian tubes have cuboidal epithelium with centrally placed spherical nucleus.