



**INDIAN SCHOOL AL WADI AL KABIR
DEPARTMENT OF SCIENCE 2022 - 23**



CLASS: IX	SUBJECT : BIOLOGY	DATE OF COMPLETION: 27/10/2022
WORKSHEET NO:4 WITH ANSWERS	TOPIC: TISSUES-ANIMAL TISSUE	NOTE :A4 FILE FORMAT
CLASS & SEC:	NAME OF THE STUDENT:	ROLL NO.

I. OBJECTIVE TYPE QUESTIONS

Ia. Fill in the blanks: -

1. Lining of blood vessels is made up of _____.
2. Lining of small intestine is made up of _____.
3. Lining of kidney tubules is made up of _____
4. Epithelial cells with cilia are found in _____ of our bod
5. _____ is a striated and involuntary muscle.
6. The matrix is fluid in connective tissue _____

Ib. Multiple choice Questions: -

7. The muscular tissue which functions throughout the life continuously without fatigue is
 - a) skeletal muscle
 - b) cardiac muscle
 - c) smooth muscle
 - d) voluntary muscle
8. Voluntary muscles are found in
 - a) alimentary canal
 - b) limbs
 - c) iris of the eye
 - d) bronchi of lungs
9. Intestine absorbs the digested food materials. What type of epithelial cells are responsible for that?
 - a) Stratified squamous epithelium
 - b) Columnar epithelium
 - c) Spindle fibres
 - d) Cuboidal epithelium
10. While doing work and running, you move your organs like hands, legs etc. Which among the following is correct?
 - a) Smooth muscles contract and pull the ligament to move the bones

- b) Smooth muscles contract and pull the tendons to move the bones
 - c) Skeletal muscles contract and pull the ligament to move the bones
 - d) Skeletal muscles contract and pull the tendon to move the bones
11. A person met with an accident in which two long bones of the hand were dislocated. Which among the following may be the possible reason?
- a) Tendon break
 - b) Break of skeletal muscle
 - c) Ligament break
 - d) Areolar tissue break
12. Fats are stored in human body as
- a) Cuboidal epithelium
 - b) Adipose tissue
 - c) Bones
 - d) Cartilage
13. Contractile proteins are found in
- a) Bones
 - b) Blood
 - c) Muscles
 - d) cartilage
14. Which of the following helps in repair of tissue and fills up the space inside the organ?
- a) Tendon
 - b) Adipose tissue
 - c) Areolar tissue
 - d) Cartilage

II. Assertion and reasoning:

- A) If both, Assertion and Reason are true and the Reason is the correct explanation of theAssertion.
 - B) If both, Assertion and Reason are true but Reason is not a correct explanation of theAssertion.
 - C) If Assertion is true but the Reason is false.
 - D) If both, Assertion and Reason are false.
15. Assertion: Bone is a connective tissue which is very hard and rigid.
Reason: The matrix consists of calcium and phosphate
16. Assertion: The cells of connective tissues except blood secrete fibres.
Reason: Fibres provide strength, elasticity and flexibility to the tissue.
17. Assertion Areolar tissue supports internal organs and helps in tissue repair.
Reason Areolar tissue is widely distributed tissue in the body of adults.
18. Assertion Non-striated muscles are said to be involuntary in nature.
Reason Non-striated muscles can be moved according to will.

19. Assertion Axon and dendrites are special feature of neurons.
Reason They help in the rapid conduction of nerve impulses

III. CASE STUDY BASED QUESTIONS

20. Bone is a solid, hard porous tissue. It forms the natural skeleton and gives the body its basic structure and also supports the body. Its matrix is impregnated with phosphates and carbonates of calcium and magnesium which provides hardness to it. The matrix also contains ossein protein. The matrix is arranged in concentric rings which are called lamellae. Bone cells lie between the lamellae in fluid-filled spaces called lacunae.

- i) Bone cells are also called :
 - a) Lacunae
 - b) Osteocytes
 - c) Neutrophils
 - d) Erythrocytes
- ii) To form natural skeleton and to give support to the body is the main function of
 - a) Cells
 - b) Muscles
 - c) Bones
 - d) Ligaments
- iii) The matrix of bone is impregnated with
 - a) Carbon dioxide and oxygen
 - b) Carbon dioxide and water
 - c) Sulphates of sodium
 - d) Phosphates and carbonates of calcium and magnesium
- iv) Bone cells lie between the lamellae in fluid-filled spaces called
 - a) Lamina
 - b) Osteocytes
 - c) Lacunae
 - d) ossein

21. Blood is a type of connective tissue. The cells of connective tissue are loosely spaced and embedded in an intercellular matrix. The matrix may be jelly like, fluid, dense or rigid. The nature of matrix differs in concordance with the function of the particular connective tissue.

Blood has a fluid (liquid) matrix called plasma, in which red blood corpuscles (RBCs), white blood corpuscles (WBCs) and platelets are suspended. The plasma contains proteins, salts and hormones. Blood flows and transports gases, digested food, hormones and waste materials to different parts of the body.

Bone is another example of a connective tissue. It forms the framework that supports the body. It also anchors the muscles and supports the main organs of the body. It is a strong

and nonflexible tissue. Bone cells are embedded in a hard matrix that is composed of calcium and phosphorus compounds. Two bones can be connected to each other by another type of connective tissue called the ligament. This tissue is very elastic. Another type of connective tissue, cartilage, has widely spaced cells. The solid matrix is composed of proteins and sugars. Cartilage smoothens bone surfaces at joints and is also present in the nose, ear, trachea and larynx. Areolar connective tissue is found between the skin and muscles, around blood vessels and nerves and in the bone marrow. It fills the space inside the organs, supports internal organs and helps in repair of tissues.

- i) Areolar connective tissue is found between
 - a) Skin and muscles
 - b) Blood vessels and nerves
 - c) Both a & b
 - d) None of these
 - ii) What is connective tissue?
 - iii) What is ligament?
 - iv) What are the functions of connective tissue?
 - v) Give the examples of connective tissue.
22. The covering or protective tissues in the animal body are epithelial tissues. Epithelium covers most organs and cavities within the body. External and Internal covering of the body and organs are all made of epithelial tissue. Epithelial tissue cells are tightly packed and form a continuous sheet. They have only a small or almost no intercellular spaces. It plays an important role in regulating the exchange of materials between the body and the external environment and also between different parts of the body.
- Simple squamous epithelial cells are extremely thin and flat and form a delicate lining. The oesophagus and the lining of the mouth are also covered with squamous epithelium. The skin, which protects the body, is also made of squamous epithelium. Where absorption and secretion occur, as in the inner lining of the intestine, tall epithelial cells are present. This columnar (meaning 'pillar-like') epithelium facilitates movement across the epithelial barrier. In the respiratory tract, the columnar epithelial tissue also has cilia, which are hair-like projections on the outer surfaces of epithelial cells. These cilia can move, and their movement pushes the mucus forward to clear it. This type of epithelium is thus ciliated columnar epithelium.
- Cuboidal epithelium (with cube-shaped cells) forms the lining of kidney tubules and ducts of salivary glands, where it provides mechanical support. Epithelial cells often acquire additional specialisation as gland cells, which can secrete substances at the epithelial surface. Sometimes a portion of the epithelial tissue folds inward, and a multicellular gland is formed. This is glandular epithelium.

- i) The ciliated columnar epithelium is present in
 - a) Respiratory tract
 - b) Bile duct and oesophagus
 - c) Fallopian tube and urethra
 - d) Eustachian tube and stomach lining
- ii) The cuboidal epithelium is present in
 - a) Bronchioles
 - b) Bile duct and oesophagus
 - c) Fallopian tube and urethra
 - d) Kidney tubules ducts of salivary glands
- iii) How are cells arranged in epithelial tissue?
- iv) Enlist the types of Epithelial Tissue?

IV. VERY SHORT ANSWER TYPE QUESTIONS CARRYING 1 MARK EACH

- 23. Which muscles can show rhythmic contraction and relaxation throughout life?
- 24. Which connective tissue is specialised for fat storage and acts as heat insulator?
- 25. Name the tissue present in brain.
- 26. Which biochemicals compose the solid matrix of cartilage?
- 27. State one function of bone.
- 28. Name the following (i) Multinucleate muscle fibre (ii) Spindle-shaped muscle fibre
- 29. Mention any two functions of epithelial tissue.
- 30. Mention the characteristic features of connective tissues

V. SHORT ANSWER TYPE QUESTIONS CARRYING 3 MARKS EACH

- 31. Give any three differences between bone and cartilage
- 32. How is tendon different from ligament?
- 33. How does cardiac muscle differ from both voluntary muscle and smooth muscle in its structure and its function?
- 34. Tabulate the differences between three types of muscles.
- 35. Give a brief account of epithelial tissue.
- 36. Animals of colder regions and fishes of cold water have thicker layer of subcutaneous fat. Describe why?
- 37. Cells of epidermal tissue form a continuous layer without intercellular space. Why?

VI. LONG ANSWER TYPE QUESTIONS CARRYING 5 MARKS EACH

- 38. (i) Distinguish between bone and cartilage.
(ii) What is the importance of ligament?
(iii) Why is connective tissue known so?
- 39. What are the various types of connective tissues? Explain.

VII. Board based questions

- 40. Schematically represent different types of connective tissue and write the special feature

of each one.

41. Draw a labelled diagram of neuron
42. Give any three features of cardiac muscles
43. What are the functions of bones, cartilages and tendons?

ANSWER KEY AND HINTS

1	Squamous epithelium
2	Columnar epithelium
3	Cuboidal epithelium
4	Respiratory tract
5	Cardiac muscle
6	Blood
7	Cardiac muscle
8	Limbs
9	Columnar epithelium
10	Skeletal muscles contract and pull the tendon to move the bones
11	Ligament break
12	Adipose tissue
13	Muscles
14	Areolar tissue
	Assertion and reason
15	A
16	B
17	B
18	C
19	A
	Case study
20	<p>i) b) Osteocytes</p> <p>ii) c) Bones</p> <p>iii) d) Phosphates and carbonates of calcium and magnesium</p> <p>iv) d) ossein</p>
21	<p>i) b) Blood vessels and nerves</p> <p>ii) Connective tissues bind structures together, form a framework and support for organs and the body as a whole, store fat, transport substances, protect against disease, and help repair tissue damage. They occur throughout the body.</p> <p>iii) A ligament is a fibrous connective tissue that attaches bone to bone, and usually serves to hold structures together and keep them stable.</p> <p>iv) Functions of connective tissue</p> <ul style="list-style-type: none"> • Binding together other tissues

	<ul style="list-style-type: none"> • Supporting various parts of the body • Forming a packing around organs <p>v) Examples of connective tissue</p> <ul style="list-style-type: none"> • Blood • Bone • Ligament • Cartilage
22	<p>i) c) Fallopian tube and urethra</p> <p>ii) d) Kidney tubules ducts of salivary glands</p> <p>iii) The cells in epithelial tissue are tightly packed together with very little intercellular matrix. Because the tissues form coverings and linings, the cells have one free surface that is not in contact with other cells.</p> <p>iv) Epithelium, endothelium and mesothelium are three types of epithelial cell layers that line your internal organs, body cavities and form the outer layer of your skin</p>
	Very short answer
23	Cardiac muscles
24	Adipose tissue helps in storage of fats and acts as heat insulator.
25	Nervous tissue
26	Proteins and sugars.
27	It anchors the muscles and supports the main organs of the body.
28	(i) Skeletal muscle fibre (ii) Smooth muscle fibre
29	Protection, secretion, absorption, excretion, filtration, diffusion, and sensory reception.
30	binding and supporting, protecting, insulating, storing reserve fuel, transporting substances within the body.
	Short answers
31	The main difference between bone and cartilage are listed below. Bones are the hard, inelastic and a tough organ that forms part of the vertebral skeleton. Cartilage is a soft, elastic and flexible connective tissue that protects the bone from rubbing against each other.
32	Tendons are cord-like structures that transmit muscular force to a bone. On the contrary, ligaments are the structures that connect a bone to a bone.
33	Cardiac muscle is under involuntary control. It contracts rhythmically under control from the autonomic nervous system and is not under conscious control. Smooth muscle is under involuntary control and non-striated (unlike skeletal muscle). It's function is mainly in the gut and internal organs
34	Features of skeletal, smooth and cardiac muscles – voluntary/involuntary, striated/non-striated, shape

35	General features – closely packed cells, no intercellular space, very little cementing material, extra cellular basement material etc.
36	Fat deposit acts as insulator and thus prevents the loss of heat from body
37	Single layered and compactly arranged to perform their functions, mention the functions
	Long answers
38	<p>i) Bone – hard matrix, matrix is with calcium and phosphorus; Cartilage – flexible, matrix is with sugar and proteins</p> <p>(i) Connect two bones It connects or links different parts or systems</p>
39	Different types of connective tissues include areolar tissue, adipose tissue (fat), blood, bone, and cartilage. Mention their characteristics.
40	Same answer
41	Diagram
42	<p>Three features of cardiac muscles are: The cells of cardiac muscles are cylindrical, branched, and uni-nucleate. Cardiac muscles are involuntary muscles that contract rapidly but do not get fatigued. They control the contraction and relaxation of the heart.</p>
43	<p>Function of bone: Bone is a very strong and non-flexible tissue. It gives shape to the body.</p> <p>Function of cartilage : It is a flexible tissue and present in few parts of the body</p> <p>Function of tendon: They are elastic and connect the muscle to bone.</p>

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