

**CLASS – VII**  
**SOLUTION OF [ CHAPTER ACTIVE & PASSIVE ]**  
**OF DATE ( 06/05/2020 )**  
**HOME ASSIGNMENT NUMBER- 9**

## **SOLUTIONS**

Answers:

1. This novel was written by Premchand.
2. The brave are admired everywhere.
3. The baby was given a doll.
4. I am know them.
5. By whom was the door opened ?
6. A reward was given to him.
7. One should keep one's promise.
8. Promise should be kept.

Answers:

- (a) He was asked
- (b) also told to
- (c) was brought and
- (d) had been changed
- (e) had been lifted
- (f) He was freed

**Answers:**

1. **Intransitive verb**
2. **Passive**
3. **Active**
4. **Passive**
5. **Active**
6. **Passive**
7. **Active**
8. **Passive**

Answers:

1. was brought
2. have been sent
3. be invited
4. was declared/will be declared
5. were alarmed
6. were shocked

STUDY MATERIAL NUMBER 10  
EXPLANATION & HOME ASSIGNMENT  
CHAPTER ACTIVE & PASSIVE VOICE

DATE 9/5/2020

**Continuation**

## **Active vs. Passive Voice**

**Active voice** means that a sentence has a subject that acts upon its verb. **Passive voice** means that a subject is a recipient of a verb's action. You may have learned that the passive voice is weak and incorrect, but it isn't that simple. When used correctly and in moderation, the passive voice is fine.

In English grammar, verbs have five properties: voice, mood, tense, person, and number; here, we are concerned with voice. The two grammatical voices are **active and passive**.

### **What's the difference between active and passive voice?**

#### **Active voice**

When the subject of a sentence performs the verb's action, we say that the sentence is in the *active voice*. Sentences in the active voice have a strong, direct, and clear tone. Here are some short and straightforward examples of active voice.

## Active voice examples

Monkeys adore bananas.

The cashier counted the money.

The dog chased the squirrel.

All three sentences have a basic active voice construction: subject, verb, and object. The subject *monkey* performs the action described by *adore*. The subject *the cashier* performs the action described by *counted*. The subject *the dog* performs the action described by *chased*. The subjects are doing, doing, doing—they *take action* in their sentences. The active voice reminds us of the popular Nike slogan, “Just Do It.”

## Passive voice

A sentence is in the [passive voice](#), on the other hand, when the subject is acted on by the verb. The passive voice is always constructed with a conjugated form of *to be* plus the verb’s past participle. Doing this usually generates a preposition as well. That sounds much more complicated than it is—passive voice is actually quite easy to detect. For these examples of passive voice, we will transform the three active sentences above to illustrate the difference.

## Passive voice examples

Bananas are adored by monkeys.

The money was counted by the cashier.

The squirrel was chased by the dog.

Let’s take a closer look at the first pair of sentences, “Monkeys adore bananas” and “Bananas are adored by monkeys.” The active sentence consists of *monkeys* (subject) + *adore* (verb) + *bananas* (object). The passive sentence consists of *bananas* (object) + *are adored* (a form of *to be* plus the past

participle *adored*) + *by* (preposition) + *monkeys* (subject). Making the sentence passive flipped the structure and necessitated the preposition *by*. In fact, all three of the transformed sentences above required the addition of *by*.

## **When to use active and passive voice**

Using the active voice conveys a strong, clear tone and the passive voice is subtler and weaker. Here's some good advice: don't use the passive voice just because you think it sounds a bit fancier than the active voice.

That said, there are times the passive voice is useful and called for. Take "The squirrel was chased by the dog," for example. That sentence construction would be helpful if the squirrel were the focus of your writing and not the dog.

A good rule of thumb is to try to put the majority of your sentences in the active voice, unless you truly can't write your sentence in any other way.

## **How to change a sentence in passive voice to active voice**

Here is an example of a business communication that could be strengthened by abandoning the passive voice.

An error has occurred with your account, but every attempt was made to remedy it.

That sentence is not incorrect, but it does sound a bit stiff and dishonest. It sounds less trustworthy than it could—almost evasive. Who wants to do business with a company that avoids taking full responsibility by slipping into formal passive voice territory? Face the responsibility head on instead. Own it.

We made an error with your account, but we have made every attempt to remedy it.

To make that sentence active rather than passive, I identified the subject: *we*. It was “our company” that was responsible.

If there are any questions, I can be reached at the number below.

The structure of this sentence is weak because it doesn't identify the subjects in either clause. Let's unveil them. Who might have questions to ask? The person being addressed: *you*. Who will be doing the reaching (by calling the number below)? It is still the communication's recipient.

If you have any questions, call me at the number below.

### **Q1: Rewrite these sentences in the passive voice.**

1. Rita sings a song.
2. Children love the rainbow.
3. Granny told us an interesting story.
4. Call in the doctor at once.
5. Everyone loved Mother Teresa.
6. The wolf chased the sheep.
7. Sujata drew a village scene.
8. Rakesh made special Kashmiri tea for everyone.
9. Neha's father praised her.
10. People formed a queue on the road.
11. Hanif drank the bitter medicine in one gulp.
12. We elected Balachandran as our team leader.
13. Santa Claus gave toffees to all the children in the shop.
14. Grandfather called up Ayushi to wish her on her birthday.
15. We all know the facts.
16. The people crowned him the king.
17. Suman is reading a book.
18. Your mother taught us Mathematics.
19. The gardener looks after the flowers.

**Q2: Rewrite these sentences in the active voice.**

1. You are requested to keep quiet.
2. Amir Khan is known to me.
3. You will be beaten by Neena at Badminton.
4. Mary was followed by a little lamb.
5. Tarun is loved by his mother.
6. The bell was rung by Om Prakash.
7. The dress will be stitched by Rosy in a week.
8. A century was scored by Sachin.
9. I was kept waiting by Maya.
10. The telephone was invented by Graham Bell.
11. Mayank was praised by the teacher.
12. The jester was laughed at by the people.
13. The restaurant was opened by them last year.
14. By whom was King Lear written?
15. The wounded soldier was being helped by an old woman.
16. I am pleased by your performance.
17. I have been invited by Vaibhav to his birthday party.
18. By whom was this dish of butter broken.
19. The child is frightened by thunder and lightning.

1. Ratio

A ratio is a method to compare two quantities of the same kind with same unit; by dividing the first quantity by the second. The symbol ( $:$ ) is used for ratio between two quantities. e.g.  $a:b$ .

Note:

- (i) A ratio is a pure number and has no unit.
- (ii) A ratio must always be expressed in its lowest terms in simplest form.
- (iii) If each term of a ratio is multiplied or divided by the same number or quantity, the ratio remains the same.

2. Proportion

(i) Proportion is equality of two ratios; e.g.

$$a:b = c:d$$

i.e. Ratio between first and second is equal to ratio between third and fourth term.

(ii)  $a$  and  $d$  are called extreme terms and  $b$  and  $c$  are called mean terms, and  $a \times d = b \times c$

(iii) Fourth term is called fourth proportional.

3. continued Proportion

Three quantities are called in continued proportion if the ratio between first and second is equal to the ratio between second and third. i.e.,

$a, b, c$  are in continued proportion if  $a:b = b:c$

$b$ , the middle term is called the mean proportional between  $a$  and  $c$  and  $c$ , the third term is called the third

proportional to a and b.

Examples :-

1. Express the ratio  $\frac{1}{6} : \frac{1}{9}$  in simplest form.

$$\begin{aligned}\frac{1}{6} : \frac{1}{9} &= \frac{1}{6} : \frac{1}{9} \\ &= \frac{1}{6} \times \frac{9}{1} \\ &= \frac{3}{2} = 3:2\end{aligned}$$

2. Find the ratio 15 kg to 210 gm in simplest form.

$$15 \text{ kg} = 15000 \text{ gm}$$

$$15000 : 210$$

$$= 500 : 7 \quad (\text{Dividing by } 30)$$

3. If  $A:B = 5:8$  and  $B:C = 18:25$ , then find  $A:B:C$

$$A:B = 5:8 \quad \text{and} \quad B:C = 18:25$$

$$\frac{A}{B} = \frac{5}{8}$$

$$\frac{B}{C} = \frac{18}{25}$$

[here we have to make both B equal]

$$\text{LCM of } 8, 18 = 72$$

$$\begin{array}{r} 2 \overline{) 18, 18} \\ 4, 9 \end{array}$$

$$\therefore \frac{A}{B} = \frac{5 \times 9}{8 \times 9} = \frac{45}{72}$$

$$\frac{B}{C} = \frac{18 \times 4}{25 \times 4} = \frac{72}{100}$$

$$\therefore A:B:C = 45:72:100$$

4. If  $3A = 2B = 5C$ , then find  $A:B:C$

$$\text{Let } 3A = 2B = 5C = 1$$

$$\therefore A = \frac{1}{3}, B = \frac{1}{2}, C = \frac{1}{5}$$

$$\therefore A:B:C = \frac{1}{3} : \frac{1}{2} : \frac{1}{5}$$

$$\text{LCM of } 3, 2, 5 = 30$$

$$\therefore \frac{1}{3} = \frac{1}{x} \times 30 = 10$$

$$\frac{1}{2} = \frac{1}{x} \times 30 = 15$$

$$\frac{1}{5} = \frac{1}{x} \times 30 = 6$$

$$\therefore A : B : C = 10 : 15 : 6$$

5. A pole of height 3 metres is struck by a speeding car and breaks into two pieces such that the first piece is  $\frac{1}{2}$  of the second. Find the length of both pieces.

Solution.

Total height of the pole = 3 metres.

Let the second piece =  $x$

$\therefore$  length of the first piece =  $\frac{x}{2}$

$$\text{A.T.P, } x + \frac{x}{2} = 3$$

$$\Rightarrow \frac{2x + x}{2} = 3$$

$$\Rightarrow \frac{3x}{2} = 3$$

$$\Rightarrow 3x = 6$$

$$\Rightarrow x = 2 \text{ metres}$$

$$\therefore \text{length of the 1st part} = 2 \times \frac{1}{2} = 1 \text{ m.}$$

$\therefore$  length of the 1st part = 1 m

length of the 2nd part = 2 m.

6. ₹ 180 are to be divided among three children in the ratio  $\frac{1}{3} : \frac{1}{4} : \frac{1}{6}$ . Find the share of each child.

First we have to simplify the given ratio.

$$\text{LCM of } 3, 4, 6 = 12$$

$$\therefore \frac{1}{3} \times 12 : \frac{1}{4} \times 12 : \frac{1}{6} \times 12 = 4 : 3 : 2$$

$$\begin{array}{r} 3 \overline{) 36} \\ 2 \overline{) 24} \\ \hline 12 \end{array}$$

So, we have to divide ₹ 180 in the ratio 4:3:2

Sum of the terms of the ratio  
 $= 4 + 3 + 2 = 9$

$$\text{Share of first child} = \frac{4}{9} \times ₹ 180$$
$$= ₹ 80$$

$$\text{Share of 2nd child} = \frac{3}{9} \times ₹ 180$$
$$= ₹ 60$$

$$\text{Share of 3rd child} = \frac{2}{9} \times ₹ 180$$
$$= ₹ 40$$

7. The present ages of A and B are in the ratio 5:6. Three years ago, their ages were in the ratio 4:5. Find their present ages.

Let age of A =  $5x$   
age of B =  $6x$  [∵ ratio of their present ages =  $\frac{5}{6}$ ]

3 years ago, Age of A was  $5x - 3$   
and age of B "  $6x - 3$

A.T.P (according to the Problem),

$$\frac{5x - 3}{6x - 3} = \frac{4}{5}$$

$$\Rightarrow 25x - 15 = 24x - 12$$

$$\Rightarrow 25x - 24x = 15 - 12$$

$$\Rightarrow x = 3$$

∴ Present age of A =  $3 \times 5 = 15$  years

Present age of B =  $3 \times 6 = 18$  years

8. The ratio of number of boys to the number of girls in a school of 1430 students is 7:6. If 26 new girls are admitted in the school, find how many new boys may be admitted so that the ratio of number of boys to the number of girls may change to 8:7.

Ratio of number of boys and girls = 7:6

Let number of boys =  $7x$

and of girls =  $6x$

$$\therefore 7x + 6x = 1430 \quad [\because \text{total number} = 1430]$$

$$\Rightarrow 13x = 1430$$

$$\Rightarrow x = 110$$

$$\text{Number of boys} = 7 \times 110 = 770$$

$$\text{number of girls} = 6 \times 110 = 660$$

Now, adding 26 new girls, the number of girls ~~now~~ will be =  $660 + 26 = 686$ .

Let, new boy admitted =  $y$

$\therefore$  the number of boys become =  $770 + y$

new ratio = 8:7

$$\therefore \frac{770 + y}{686} = \frac{8}{7}$$

$$\Rightarrow 5390 + 7y = 5488$$

$$\Rightarrow 7y = 5488 - 5390$$

$$\Rightarrow 7y = 98$$

$$y = 14$$

$\therefore$  number of new boy admitted = 14.

H.W

Q.1. Express the following ratios in simplest form.

(i)  $4\frac{1}{2} : 1\frac{1}{8}$  (ii)  $\frac{1}{5} : \frac{1}{10} : \frac{1}{15}$

Q.2. Find the ratio of each of the following in simplest form.

(i) 25 minutes to 1.5 hours

(ii) 30 days to 36 hours.

Q.3. If  $A:B = 3:4$  and  $B:C = 8:9$ , then find  $A:C$

Q.4 out- of daily income of ₹ 120, a labourer spends ₹ 90 on food and shelter and saves the rest. Find the ratios  
(i) spending to income  
(ii) saving to income  
(iii) saving to spending

Q.5 5 grams of an alloy contains  $2\frac{3}{4}$  grams copper and the rest is nickel. Find the ratio by weight of nickel to copper.

[ Rest sums will be given on next assignment ]

# HOME ASSIGNMENT

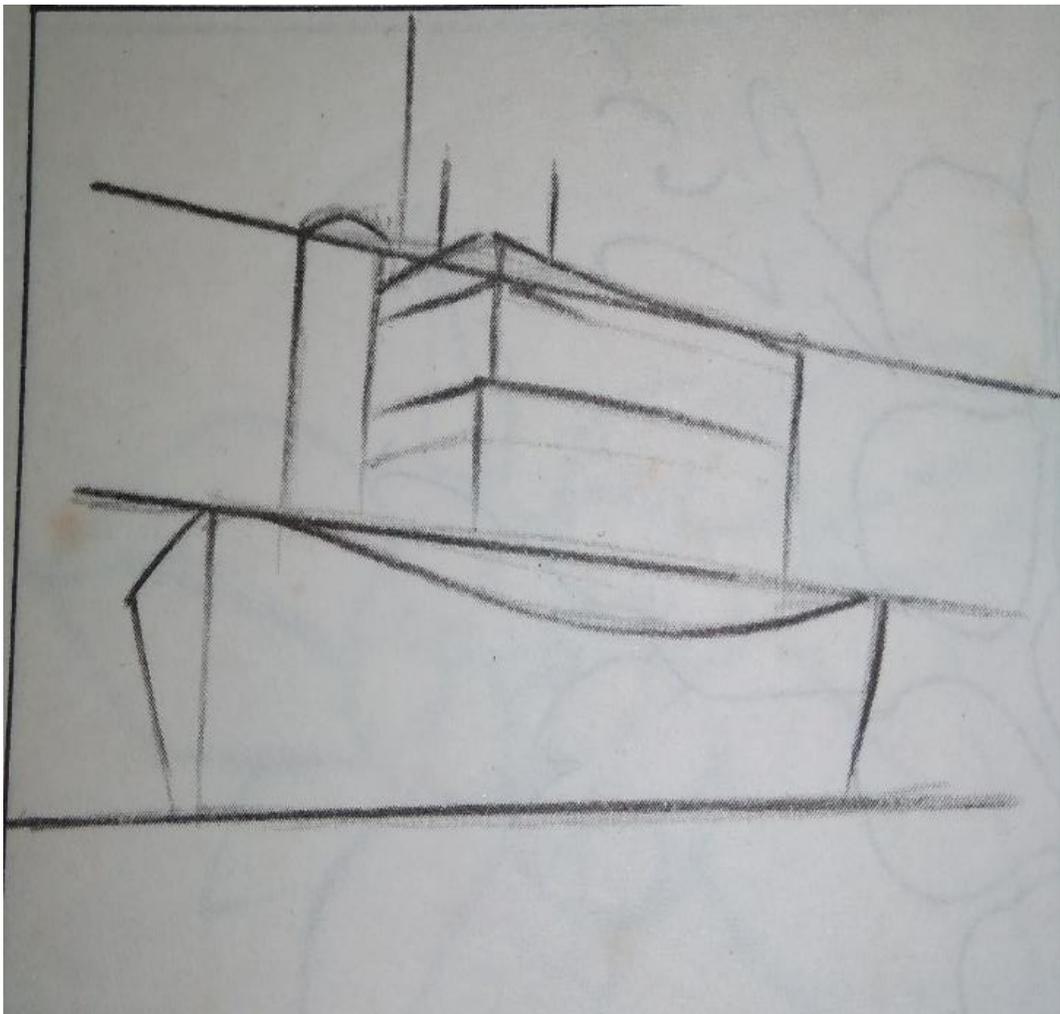
CLASS – VII

SUBJECT – ART EDUCATION

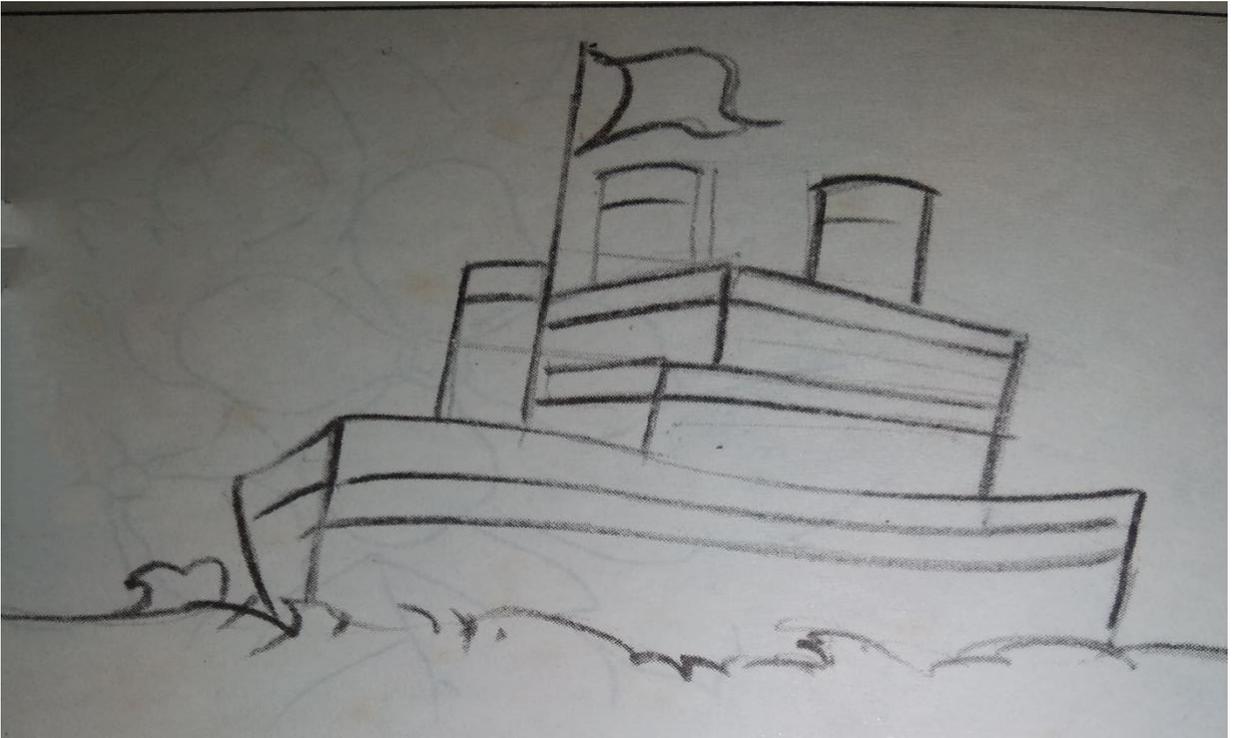
DATE – 09.05.2020

Draw step by step and colour this two pictures:-

A.1



2.



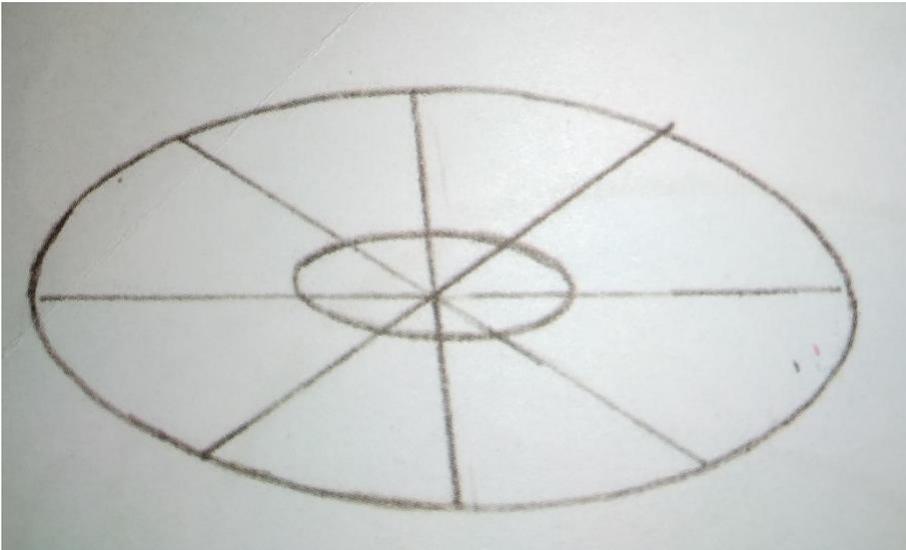
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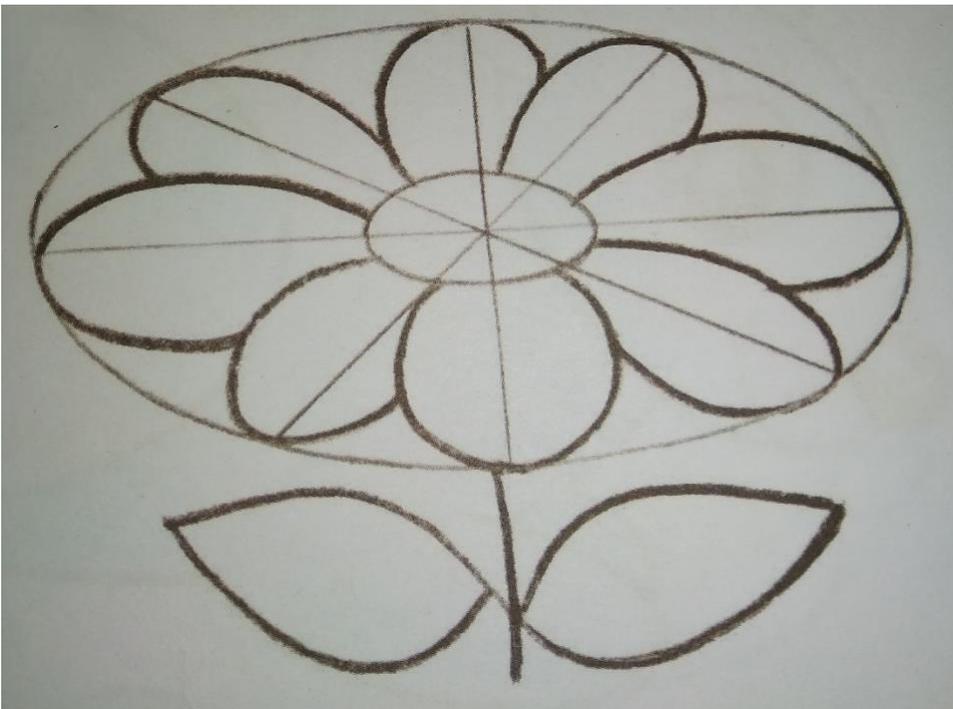
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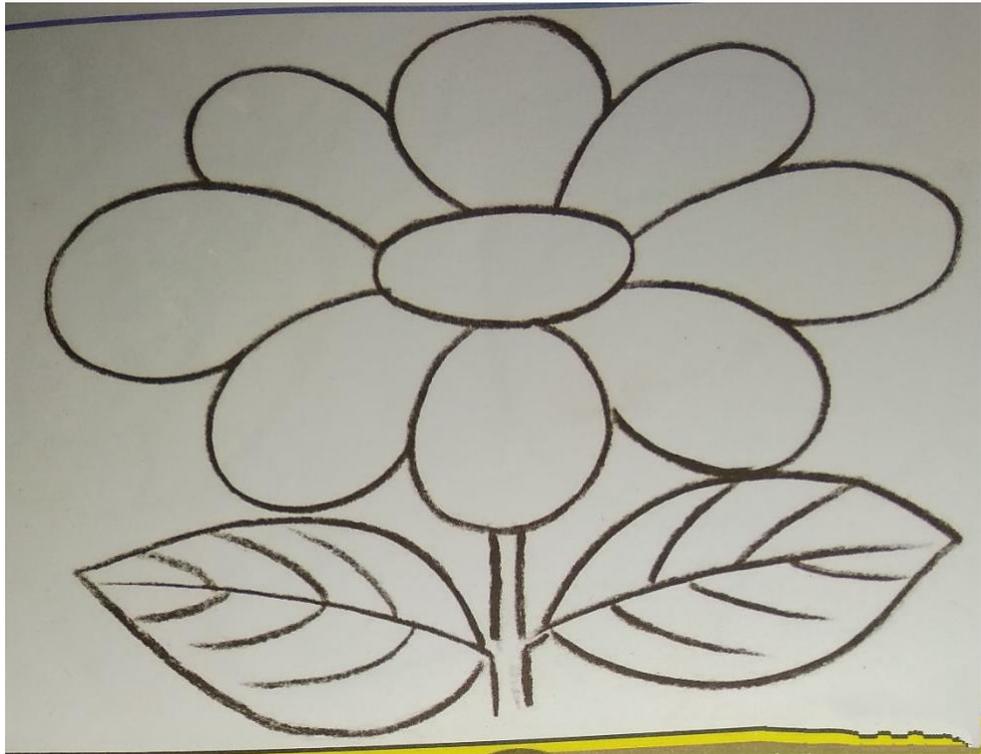
**B.1**



**2.**



3.



4.





Date: 09.05.2020

DREAMLAND SCHOOL

Class-VII ( Session- 2020-21 )

PHYSICAL EDUCATION

HOME WORK-3

YOGA

The origins of yoga are shrouded in the mists of time. The ancient wisdom known as "the supreme science of life" is believed to have been revealed to the great sages of India several thousand years ago.

### **The Health Benefits of Yoga**

Yoga is a great way to work on your flexibility and strength. Just about everyone can do it, too -- it's not just for people who can touch their toes or want to meditate.

Some types of yoga are about relaxation. In others, you move more. Most types focus on learning poses, called asana. They also usually include attention to breathing.

You've probably heard by now that yoga is good for you. Maybe you've even tried it and discovered that it makes you feel better. A consistent practice offers all kinds of mental and physical health benefits. Some, like improved flexibility, are clearly evident. Others, including mental clarity and stress reduction, may be more subtle but are just as powerful. When putting together, all the benefits below contribute to an increased feeling of well-being, which helps explain why so many people find yoga so addictive.

- 1. Improves Flexibility**
- 2. Builds Strength**
- 3. Increases Muscle Tone and Definition**
- 4. Improves Balance**
- 5. Supports Joint Health**
- 6. Prevents Back Pain**
- 7. Teaches Better Breathing**
- 8. Fosters Mental Calmness**
- 9. Reduces Stress**
- 10. Increases Self Confidence**

## **Bow Pose (Dhanurasana) Steps, Health Benefits and Precautions**

Dhanurasana is consisted of two words: Dhanu means 'bow' and Asana indicates a Yoga pose. Thus the name is 'the Bow Pose' because in the final position, the body resembles a bow. In this pose, the abdomen and thigh representing the wooden part of the bow whereas legs lower parts and arms representing the bowstring. This is all about definition of Dhanurasana. This is one of the important Yogic postures, which is known for many health benefits and advantages such as weight loss, strengthening the lower back, treating

asthma, making your entire spine flexible and supple and so on. One can get the finest description of Bow Pose from Gherand Samhita: While lying on the ground, stretch your legs as straight as sticks. Catch hold of your feet with your hands behind the back. Adjust your body so that it takes the shape of a bow. Roll to and fro. This is Dhanurasana according to Yogis.

## How to do Bow Pose Yoga

How to perform Dhanurasana is a very simple procedure. The different techniques and steps of doing the Bow pose are being given below:

### Steps for Dhanurasana

1. First of all lie down in prone position
2. Exhale, bend your knees and hold the ankles with hands
3. While inhaling raise the thighs, head and chest as high as possible
4. Try to maintain weight of the body on lower abdomen. Join the ankles. Look upward and breathe normally.
5. While exhaling, bring down the head and legs up to knee joint. Maintain this position as long as you can hold and slowly come back to the original position.

## Health benefits of Bow pose

Bow pose is one of the few Yoga poses, which comprising the benefits of two different asanas i.e. Bhujangasana and Shalabhasana. The following important advantages are as follows:

6. **Bow pose for weight loss:** Dhanurasana give maximum stretch on the abdomen and abdominal sides. Regular practice of this asana helps to shed and burn fat of the above said regions of the body. It also provides overall toned shaped to the entire body.
7. **Good for lethargy:** Bow pose is very useful for overcoming lethargy. It works directly on the solar plexus at the navel region, which is a large sympathetic nervous centre. These nerves facilitate better efficiency, which in turn leads to improved functioning of vital organs such as digestive, eliminative and reproductive.
8. **Massage Liver:** It ensures proper functioning of entire abdominal organs. It massages the liver, which in turn aids digestion.
9. **Treats diabetes:** The pancreas gets appropriate toning by performing Dhanurasana. It stimulates further secretion of the correct amount of glucagon and insulin that helps in balancing of sugar in the blood. Both the diabetes Type 1 and Type 2 will be benefited by practicing this important yoga posture.
10. **Blood cleansing:** Since, it helps to flush blood to the entire body as well as various organs. Therefore, to a greater extent, it works as cleansing process.



**Click on the below link for DHANURASANA video:-**

<https://youtu.be/4P2mYcOGxbU>

**Date: 09.05.2020**

**COMPUTER (HOME ASSIGNMENT – 6)  
CLASS – 7**

**SOLUTION OF HOME ASSIGNMENT – 5**

1. Why mouse is important now a day?

**Ans:** - A computer mouse is a pointing device easy to use and designed for the graphical user interface. It is a portable device that contains some buttons and one or more wheels. Move the mouse on any surface will result in moving the cursor on the computer. With a simple click it perform specific tasks like - selecting, dragging and dropping, rollover, page up & down and a whole host of other actions. When you move the mouse on its mat, it'll typically result in a cursor on your screen moving. So, it makes a computer more user-friendly.

2. Write down the full form of - a) OLED b)LCD c)VoIP d)USB

**Ans:** - a) OLED – Organic Light-Emitting Diode.  
b) LCD – Liquid Crystal Display.  
c) VoIP – Voice over Internet Protocol.  
d) USB – Universal Serial Bus.

3. Write any 4 uses of microphone.

**Ans:** - Four uses of microphones are as follows –

- Voice recorder
- VoIP - Voice over Internet Protocol (It allows long distance calls to be made over a computer network).
- Computer gaming.
- Online chatting.

4. Except printing what are the other functions of printer?

**Ans:** - Printers have other functions besides printing like - copying, faxing and scanning.

5. What is the difference between speaker and microphone?

**Ans:** - Difference between speaker and microphone –

Speaker	Microphone
Speaker is an output hardware device.	Microphone is a hardware peripheral and input device.
A speaker turns audio signals into sound.	A microphone converts sound into audio signals.

6. What are the two varieties of headphones?

**Ans:** - Headphones come in two variants:

- + Wired speakers or headphones - connected to a computer using a 3.5mm audio connector or USB.
- + Wireless speakers or headphones - connected to a computer using Bluetooth.

**Point to remember:-**

**Hardware:** - Physical parts or components of a computer are called hardware.

**Peripheral device:** - External hardware devices are also called Peripheral devices.

That is- keyboard, mouse, printer, scanner etc. are peripheral devices.

**RAM:** - It forms the primary or internal memory of the computer.

**Ports:** - These are the connecting points where peripheral devices connect with the motherboard.

**Hard disk:** - It forms the secondary or external memory of the computer.

**SMPS:** - A power supply or SMPS (Switch Mode Power Supply) converts a high voltage power into low voltage power, because computer works with low voltage power only.

**Home Work:-**

**Choose the correct option:-**

1. We are the components found on the outside of a computer –  
a. Internal hardware.      b. External hardware.      c. Graphics hardware.
2. The main printed circuit board which contains sockets that accept additional boards is the \_\_\_\_\_ board.  
a. Circuit.      b. Mother.      c. Key.
3. The primary computer storage unit of a computer is \_\_\_\_\_.  
a. Pen drive.      b. Hard drive.      C. CPU.
4. \_\_\_\_\_ is used to plug peripherals into the system unit.  
a. A port.      b. A motherboard.      c. A pen drive.
5. Identify me, I get electricity to the computer –  
a. Modem.      b. RAM.      c. SMPS.
6. What are peripheral devices?
7. What are ports?
8. Why is SMPS very important for a computer?



➤ **ANSWERS OF (ASSIGNMENT-IV) HW QUESTIONS : CHAPTER 2**

1. Fill in the blanks of the following.
  - a) Blood is a fluid connective tissue.
  - b) RBC contains haemoglobin.
  - c) Elastic fibres are bundle of elastin.
  - d) Full form of ECM is extracellular matrix.
  - e) RBC is the cell which is present in blood but not in lymph.
  
2. Write down one function of the following.
  - a) Collagen - It provides strength and cushioning to many different areas of the body
  - b) Platelets - Platelets are important for blood clotting.
  - c) Plasma of blood - Plasma contains proteins, water, hormones, salts, etc. to transport to different parts of the body.
  - d) Ligament – It Connects bones to bones.
  - e) Adipose tissue - Adipose tissue helps to store energy in the form of fat, cushion internal organs, and insulate the body.
  
3. Differentiate between the following.
  - a) Loose connective tissue and dense connective tissue.

Loose Connective Tissue	Dense Connective Tissue
Loose connective tissue has much more ground substance and a relative lack of fibrous tissue.	Dense connective tissue has more fibrous tissue and less ground substance.
Consists of loosely arranged fibres.	Consists of numerous thick fibres.
Main function is to serve as supporting matrix for organs and skin.	Produces ligament and tendons.

- b) Areolar and adipose tissue.

Areolar Tissue	Adipose Tissue
It is composed of fibroblasts, macrophages and mast cells.	It is composed of adipocyte cells
It is found between the skin; also around nerves and blood vessels	adipose tissue is located: beneath the skin, around internal organs, in bone marrow and in the breast
It provides support and repair tissues	Adipose tissue helps to store energy in the form of fat, cushion internal organs, and insulate the body.

c) Connective tissue proper and fluid connective tissue.

Connective tissue proper	Fluid connective tissue
Connective tissue proper consists of <u>loose connective tissue</u> and <u>dense connective tissue</u> . Loose and dense connective tissue are distinguished by the ratio of ground substance to fibrous tissue.	Fluid connective tissue are those group of cells which make connections between different organs, thus tissues by there fluid matrix.
It includes areolar tissue, adipose tissue, ligament, tendon	It includes blood and lymph
they play vital roles in defense, repair, storage, and nutrition.	The connections are mostly meant for supplying nutrients,gases (O <sub>2</sub> andCO <sub>2</sub> ) essential for the cells for their living

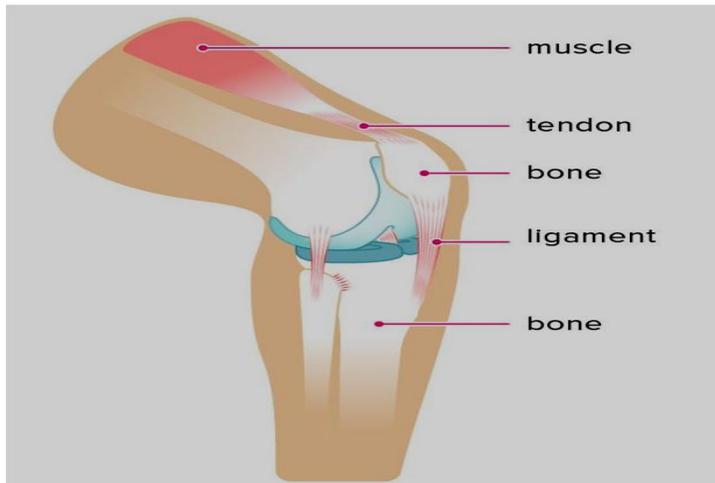
d) Blood plasma and Blood cells.

Blood cells	Blood plasma
Blood cells includes red blood cell, white blood cell and platelet.	Blood plasma is a 'yellowish liquid' component of blood that holds the blood cells
This is the solid part of blood which are remained in plasma	Blood plasma is a 'yellowish liquid' component of blood that holds the blood cells
RBCs transport oxygen.WBCs form a defence system and protect from foreign antigens.Platelets are important for blood clotting.	The main role of plasma is to take <b>nutrients</b> , hormones, and <b>proteins</b> to the parts of the body that need it. Cells also put their waste products into the plasma.

4. State whether the statements are true or false. Correct the false statements.

- Blood plasma contains protein. – True
- Tendons are yellow in colour.- False  
Correct statement - Tendons are White in colour.
- The flow of lymph is fast. – false  
Correct statement - The flow of lymph is slow
- Blood flows through lymphatic vessel.- False  
Correct statement – Blood flows through blood vessels.
- Areolar tissue contains fat cells. – False  
Correct statement – Adipose tissue contains fat cells.
- Ground substance is an amorphous gel-like substance in the extracellular space. - True

5. Show a diagram of bone joint and mention different parts.



**FIG : BONE JOINT**

6. Write short note on the following.

- a) Components of connective tissue.

Different types of connective tissues include areolar tissue, adipose tissue (fat), blood, lymph, bone, and cartilage. Except for blood, all connective tissue consists of three main components: fibers (elastic and collagenous fibers), ground substance and cells.

- ✓ **Elastic fibers** are bundles of proteins (elastin) found in extracellular matrix of connective tissue. Elastic fibers allow connective tissue to stretch and recoil.
- ✓ **Collagen** is the main structural protein in the extracellular matrix in the various connective tissues in the body. It provides strength and cushioning to many different areas of the body,
- ✓ **Ground substance** is an amorphous gel-like substance in the extracellular space that contains all components of the ECM except for fibrous materials such as collagen and elastin. Ground substance is active in the development, movement, and proliferation of tissues, as well as their metabolism. Additionally, cells use it for support, water storage, binding, and a medium for intercellular exchange. Ground substance provides lubrication for collagen fibers.

- b) Areolar tissue.

Loose, irregularly arranged connective **tissue** that consists of collagenous and elastic fibers, a protein polysaccharide ground substance.

- It is found underneath the skin; also around nerves and blood vessels.
- It is composed of fibroblasts, macrophages and mast cells.
- It provides support and repair tissues.

### ➤ ANSWERS OF (ASSIGNMENT-V) HW QUESTIONS : CHAPTER 2

1. Write down two functions of each of the following.

- a) Cartilage - It supports the respiratory tract, acts as shock absorbers between weight-bearing bones, maintains the shape and flexibility of fleshy appendages and reduces friction at joints.
- b) Neuron – It is specialized for being stimulated to transmit stimulus from one to another part of the body rapidly.

- c) Bone - Protect the body from mechanical damage, provide a framework and shape for the body, helps in the movement of the body, store minerals, and produce both RBC – red blood cells and WBC – white blood cells.
- d) Epithelial tissue - They perform a variety of functions that include **protection** secretion, absorption, excretion, filtration, diffusion, and sensory reception
- e) Cardiac muscle – They are involved in continuous rhythmic contraction and relaxation to keep your **heart** pumping through involuntary movements.

2. Mention three different types of cartilages and their respective locations.

Altogether there are three different types of cartilages and it includes:

1. Hyaline cartilage: They are mainly found in the nose, respiratory tract, and joints
2. Fibrocartilage is found in the knee.
3. Elastic cartilage is found in-ear, epiglottis, and larynx.

3. Why the growth and development of cartilage tissue is slower than that of bone tissue?  
These cartilages lack blood vessels, therefore the growth and development of these tissues are slower compared to the other tissues.

4. Define the following.

- a) Canaliculi - .In bone structure he lacuna gives off numerous small, branches like tubules called **canaliculi**. The canaliculi are interconnected with other lacunnae in matrix
- b) Lacunae - The matrix of the bone is called **ossein**, deposited in concentric rings called Lamellae which is situated between periosteum and endosteum. Between the adjacent lamellae there are numerous small cavities called **lacunae**.
- c) Haversian canal - The central part of compact bone consist narrow tube like structure i.e called haversian canal. The haversian canal consists of blood vessels, lymph vessels and nerve fibres. The Lamallae, canaliuli and osteocyte cell in the lacunae are arranged concentrically like ring and surrounding the haversian canal and forms a system i.e. collectively known as **Haversian system**.

5. Name the following.

- a) Cell of bone. - osteoblast or osteocytes
- b) A system which is present in bone but not in cartilage. – Haversian system
- c) Cell of cartilage. - Chondroblasts
- d) It is the chemical junction between the terminal of one neuron and dendrites of another neuron. - Synapse
- e) Neurons transmit information from the brain to the muscles. – Motor Neurons

6. Explain the structure of neuron with proper diagram.

A neuron varies in shape and size depending upon their function and location. All neurons have three different parts – dendrites, cell body and axon.

Following are the different parts of a neuron:

*Dendrites*

These are branch-like structures that receive messages from other neurons and allow the transmission of messages to the cell body.

### Cell Body

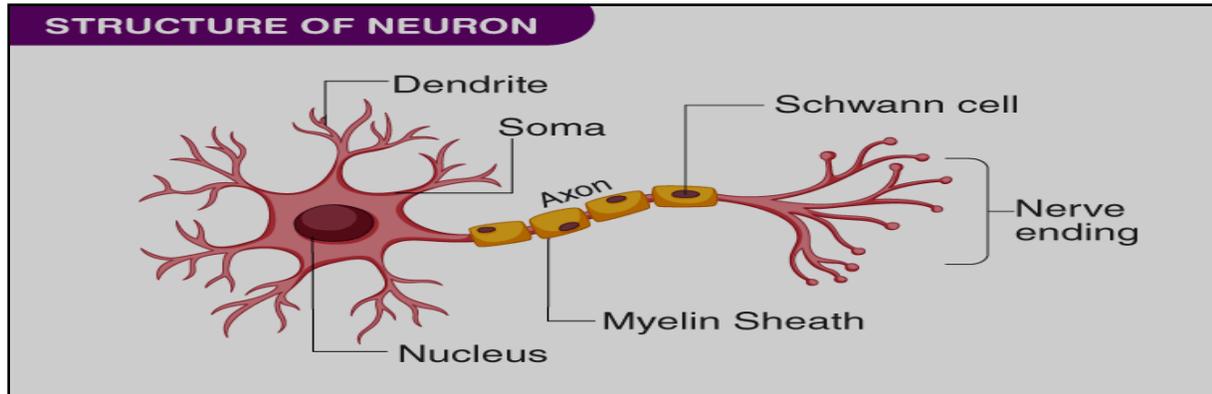
Each neuron has a cell body with a nucleus, golgi body, endoplasmic reticulum, mitochondria and other components.

### Axon

Axon is a tube-like structure that carries electrical impulse from the cell body to the axon terminals that passes the impulse to another neuron.

### Synapse

It is the chemical junction between the terminal of one neuron and dendrites of another neuron.



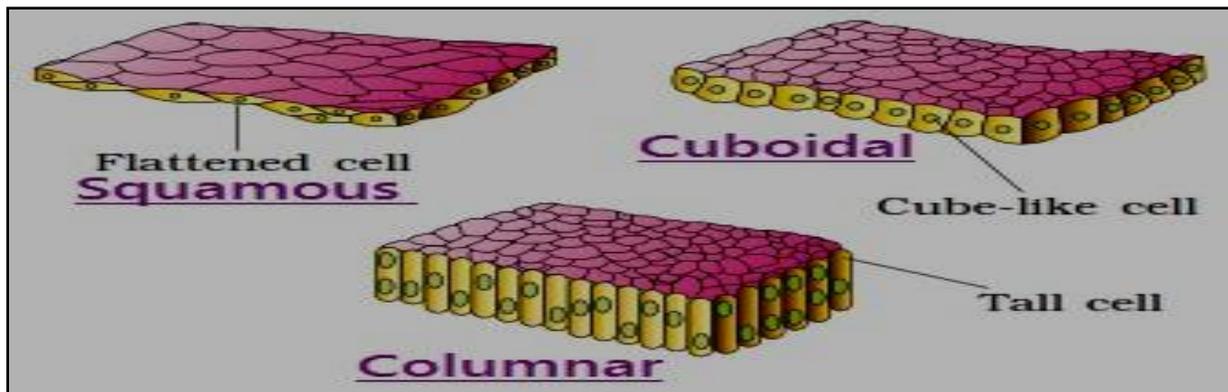
## ➤ SOME MORE SOLVED QUESTIONS OF CHAPTER 2 – {LEARN AND PRACTISE}

1. Discuss the types of epithelial tissues with diagram.

**SQUAMOUS** - Squamous epithelium is found lining surfaces such as the skin, and alveoli in the lung, enabling simple passive diffusion as also found in the alveolar epithelium in the lungs. They are generally protective in nature.

**CUBOIDAL** - These cells are cuboidal in shape. They are found in the salivary glands, kidney tubules, sweat glands, etc. Their main function includes absorption, and excretion.

**COLUMNAR** – In humans, a simple columnar epithelium lines most organs of the digestive tract including the stomach, small intestine, and large intestine. Simple columnar epithelia lines the uterus. It is generally meant for secretion. When columnar epithelium develops cilia, it is called ciliated epithelium. For instance oviduct in renal lining.



2. Differentiate between.

a) Voluntary and involuntary muscle.

<b>Voluntary muscles</b>	<b>Involuntary muscles</b>
They are also called striated muscles since they show stripes or striations	They are also called non-striated muscles since they lack striations.
Their cells are long and cylindrical	Their cells are small and spindle shaped.
They have multinucleate cells	They have uninucleate cells
They are under our will or control.	They are not under our will or control.
They get tired and need rest at intervals.	They do not get tired and can work continuously

b) Plant tissue and Animal tissue.

<b>Plant tissue</b>	<b>Animal tissue</b>
Cells of plant tissue have cell wall.	Cells of animal tissue do not have cell wall.
Some tissues are living and some are dead.	All tissues are living.
Growth is restricted to the tips of stem and roots.	Growth is uniform all over the body.
They are mainly of two types permanent tissue and meristematic tissue.	They are of four types muscle tissue, epithelial tissue, nervous tissue and connective tissue.
These tissues require less energy and maintenance as plants do not require movement.	Due to extensive body mobility these tissues require more energy and maintenance.

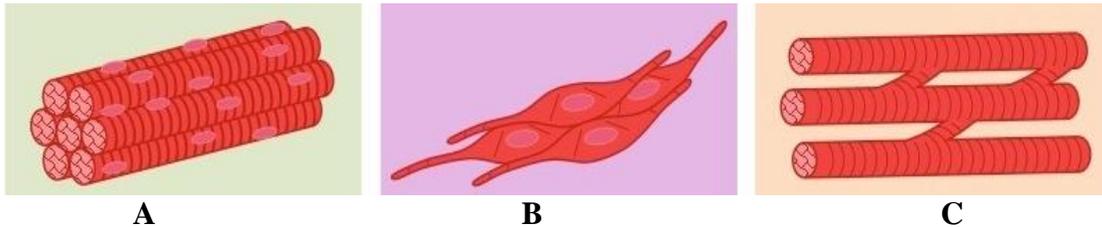
c) Epithelial and connective tissue.

<b>BASIS FOR COMPARISON</b>	<b>EPITHELIAL TISSUE</b>	<b>CONNECTIVE TISSUE</b>
Made up of	Cells and small amount of intercellular matrix.	Cells and a huge amount of intercellular matrix
Role	1. Mainly forms covering of the organs, internally and externally. 2. Helps in intercellular transportation. 3. In selective absorption, protection of cells.	1. Support and anchors other tissue and organs. 2. Helps in muscles and bone formation. 3. Also helps in working of blood and lymph.
Arrangement	These cells are arranged in layers which can be either single or multi layer.	Here cells are present in scattered form in the matrix and does not show any arrangement.
Surrounded by	Does not surrounded by blood capillaries.	These cells are surrounded by blood capillaries.
Can be found	Lungs, kidneys, skin, mucous membranes.	Bones, nerves, ligaments, tendons, blood.

d) Muscular tissue and nerve tissue

Mucular tissue	Nerve tissue
Muscle tissue is a soft tissue that composes muscles in animal bodies.	It is specialized tissue found in the central nervous system and the peripheral nervous system.
It consists of three types of muscle cells – striated muscle, smooth muscle, cardiac muscle.	It consists of neurons and supporting cells called neuroglia.
Muscle tissue functions by contracting, thereby applying forces to different parts of the body and control the movements of an organisms as well as many other contractile functions.	The primary function of nervous tissue is to receive stimuli and send the impulse to the spinal cord and brain. The brain sends back a response to the muscles via the nerves. It conducts impulses throughout the body.

3. The following diagram is of muscular tissues.



a) Identify A,B,C.

A – Skeletal muscle

B – Smooth muscle

C – Cardiac muscle

b) Mention the location of A,B,C.

**Skeletal muscle** fibers occur in muscles which are attached to the skeleton.

**Smooth muscle** fibers are located in walls of hollow visceral organs, except the heart,

**Cardiac muscle** cells are located in the walls of the heart

c) What is the special feature of the figure C?

Though cardiac muscle appears striated but they are under involuntary control. Cardiac muscle is present only in the heart and can work nonstop during a person's life.

4. Name the kind of animal tissue in which –

a) Cells are flat, cuboidal or columnar forming protective layer. – Epithelial tissue.

b) Cells can contract and relax. – Muscular tissue

c) Cells can conduct impulses. – Nerve tissue

d) Cells are soft, firm tissue and are responsible for the flexibility, bending, and muscles stretching. - Cartilage tissue

e) Cells that store energy in the form of fat, cushion internal organs, and insulate the body. – Adipose tissue.

5. Find out the odd term and give reason in support of your answer.
- a) Cartilage, Ligament, Bone, Neuron.  
 Odd term – Neuron  
 Reason – Neuron is part of nervous tissue while rest are part of connective tissue.
- b) Striated , Smooth, Cuboidal, Cardiac  
 Odd – Cuboidal  
 Reason – Cuboidal is part of epithelial tissue while rest are part of muscular tissue.
- c) Lymph, Elastin, Collagen, Ground substance  
 Odd – Lymph  
 Reason – Lymph is a part of fluid connective tissue while rest are component of connective tissue except blood and lymph.
- d) Lymph node, blood vessel, Lymph, Lymph vessel  
 Odd – Blood vessel  
 Reason – Blood vessel is part of blood circulatory system while rest are part of lymph circulatory system.
- e) Nervous tissue, Epithelial tissue, Permanent tissue, Connective tissue  
 Odd – Permanent tissue  
 Reason – Permanent tissue is plant tissue while rest are animal tissues.

6. Match the items given in column A with those given in column B.

**Column A**

**Column B**

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| i) Fibrous connective tissue      | a) Blood                           |
| ii) Fluid connective tissue       | b) Cartilage                       |
| iii) Supportive connective tissue | c) Connects a bone to another bone |
| iv) Ligament                      | d) Connects a muscle to a bone     |
| v) Tendon                         | e) Areolar tissue                  |

<b>Column A</b>	<b>Column B</b>
(i) Fibrous connective tissue	(d) areolar tissue
(ii) Fluid connective tissue	(a) blood
(iii) Supportive connective tissue	(b) cartilage
(iv) Ligament	(c) connects a bone to another bone.
(v) Tendon	(e) connects a muscle with a bone.