

**CLASS – VII SCIENCE**  
**CHAPTER – 1 NUTRITION IN PLANTS**

**1. PREVIOUS KNOWLEDGE QUESTIONS**

**Q1. What is food and nutrition?**

**Ans.** Food provides us energy to grow. It gives us resistance against disease.

**Q2. What is the mode of nutrition in plants?**

**Ans.** Autotrophic mode of nutrition. Plants make their own food by photosynthesis process.

**2. VERY SHORT QUESTION ANSWERS**

**DEFINE THE FOLLOWING TERMS**

1. Autotrophs : The organisms that make their food by using photosynthesis from simple inorganic substances are called autotrophs.
2. Insectivorous : Some green plants meet their nitrogen requirement by feeding on insects. They are known as carnivorous or more appropriately insectivorous.
3. Symbiotic relationship : When two organisms live together and share shelter and nutrients, their association is called symbiosis or symbiotic relationship, and the organisms are called symbionts.
4. Host : The organism which provides food and shelter to the parasite in parasitic association is called host.
5. Nutrients : The components of food that are necessary for our body are called nutrients.
6. Nutrition : The process of taking food by an organism and its utilization by the body.
7. Chlorophyll : Green pigment, present in the chloroplast, that is essential for photosynthesis.

**3. SHORT QUESTION ANSWERS**

**Q1. Why do organisms need to take food?**

**Ans .** All organisms take food and utilize it to get energy for the growth and maintenance of their bodies.

**Q2. Distinguish between a parasite and a saprotroph?**

**Ans .Parasite :** Parasite derives nutrients from the living organisms. Parasite mostly lives on or in the host.

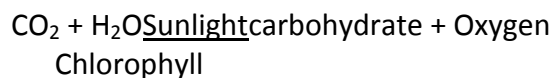
**Saprotroph** : Saprotroph obtain nutrients from dead and decaying organisms. They live on dead and decaying stuff.

**Q3. How would you test the presence of starch in leaves?**

**Ans.** When iodine comes in contact with starch, a dark blue colour appears. By dropping iodine solution on the leaves, we can check the presence of starch.

**Q4. Give a brief description of the process of synthesis of the food in green plants?**

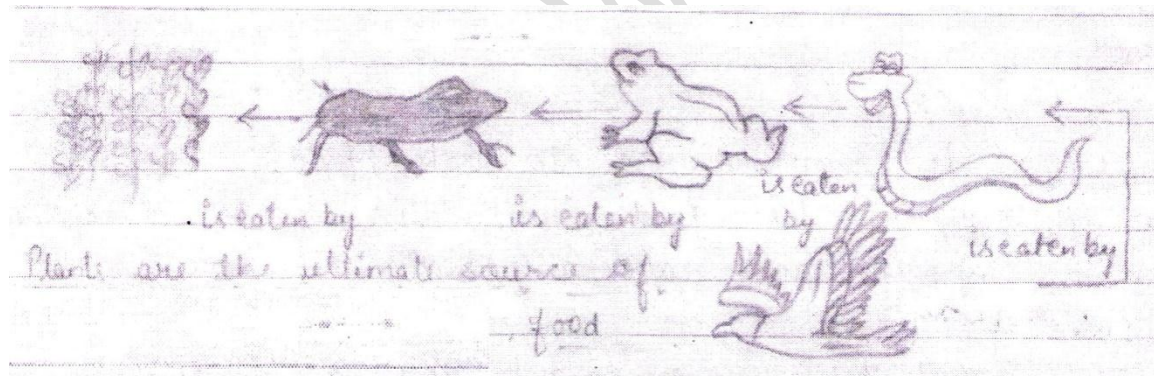
**Ans.** In plants, the synthesis of food occurs by a process called photosynthesis. During photosynthesis, chlorophyll containing cell of the leaves use CO<sub>2</sub> and water to synthesis carbohydrates in the presence of sunlight. The process can be represented by the equation.



During this process oxygen is released. The carbohydrates formed ultimately get converted into starch. The presence of starch in leaves indicates the occurrence of photosynthesis. The starch is also a carbohydrate.

**Q5. Show with The help of a sketch that the plants are the ultimate source of food?**

**Ans.** Food chain



**Q6. Fill in the blanks**

- Green plants are called autotrophs since they synthesize their own food.
- The food synthesized by the plants is stored as starch.
- In photosynthesis solar energy is captured by the pigment called chlorophyll.
- During photosynthesis plants take in carbon — di — oxide and release oxygen.

**Q7. Name the following:**

- A parasitic plant with yellow, slender and tubular stem:

**Ans.** a. Cuscuta

- A plant that has both autotrophic and heterotrophic mode of nutrition:

**Ans.** b. Pitcher plant



Ans. c. The pores through  
c. Stomata

**Q8. Tick the correct answer**

a. Amarbel is an example of  
Ans. a. Parasite  
b. The plant which traps and feeds on insects is  
Ans. b. Pitcher Plants

**Q9. Match the column**

COLUMN A	COLUMN B	
1. Chlorophyll	Bacteria	(2)
2. Nitrogen	Heterotrophs	(4)
3. Amarbel	Pitcher Plant	(5)
4. Animals	Leaf	(1)
5. Insects	Parasite	(3)

**Q10. True or False**

a. Carbon dioxide is released during photosynthesis. False  
b. Plants which synthesis their food themselves are called saprotrophs. False  
c. The products of photosynthesis is not a protein. True  
d. Solar energy is converted into chemical energy during photosynthesis. True

**Q11. Choose the correct option from the following.**

a. Which part of the plants takes in carbon dioxide from the air for photosynthesis?

Ans. a. Stomata

b. Plants take carbon dioxide from the atmosphere mainly through their?

Ans. b. Leaves

**ACTIVITY**

Take a fresh slice of bread and keep it in a glass plate in a warm dark place. Observe it after two or three days. Do you see some fluffy growth on it? Ask your teacher about it.

Ans. Yes, we will see fluffy thing over slices because on bread slices fungi grown due to the development of favourable conditions for the growth of fungi, such as Humidity, temp., etc.

**VALUE BASED QUESTION:-**

**Q1. A farmer, for planting rice one season, planted grandnuts in the next season. Why?**

Ans. To increase the fertility of soil and to maintain the fertility of soil.

## HOTS QUESTIONS

**Q1. Why green leaf is boiled in alcohol before testing it for starch?**

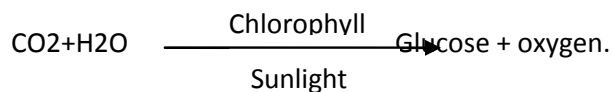
**Ans.** Green leaf is boiled in alcohol for contamination free testing for starch and it will make leaf suitable for all testing processes.

**Q2. If a few leaves of a potted plant are coated with a thin layer of Vaseline or oil, what effect would it have on the leaves?**

**Ans.** Rate of transpiration will get slow because the pores or the stomata of leaves will get blocked and exchange of air will not take place.

**Q3. Why water is required for photosynthesis?**

**Ans.** Water is the main constituent of photosynthesis and with CO<sub>2</sub> in the presence of sunlight and chlorophyll gives glucose and oxygen.



### SMART CLASS:-

Yes, we will use smart class for better understanding of nutrition of plants. To show difference b/w Auto tropic and Hetero tropic mode of nutrition.

## Chapter – 2, Nutrition In Animals

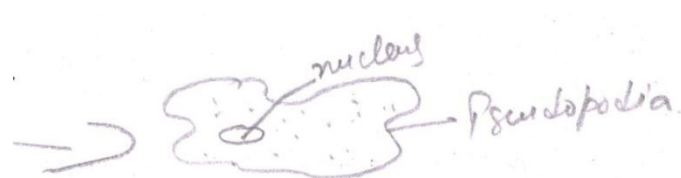
### 1. PREVIOUS KNOWLEDGE QUESTIONS/ANSWERS:-

**Q1. How does a unicellular organism like amoeba derive its nutrition?**

**Ans.** Through its Pseudopodal action.

**Q2. Draw a well labeled diagram of amoeba.**

**Ans.**



### 2. FILL IN THE BLANKS

- The main steps of nutrition in human are ingestion, digestion, absorption, assimilation and egestion.
- The largest gland in human body is liver.
- The stomach releases hydrochloric acid and gastric juices which act on food.
- The inner wall of the small intestine has many finger like outgrowths called villi.
- Amoeba digests its food in the food vacuole.

### 3. STATE TRUE OR FALSE

- Digestion of starch starts in the stomach. False
- The tongue helps in mixing food with saliva. True
- The gall bladder temporarily store bile. True
- The ruminants bring back swallowed grass into their mouth and chew it for some time. True

### 4. TICK FOR THE CORRECT ANSWER

a. Fat is completely digested in the

**Ans.** a. Small intestine

b. Water from the undigested food is absorbed mainly in the

**Ans.** b. Large intestine

### 5. MATCH THE FOLLOWING

#### COLUMN A

Food components carbohydrates

#### COLUMN B

Product (s) of digestion

- |                  |                          |     |
|------------------|--------------------------|-----|
| 1. Carbohydrates | Fatty acids and glycerol | (3) |
| 2. Proteins      | Sugar                    | (1) |
| 3. Fats          | Amino acids              | (2) |

## 6. SHORT QUESTION ANSWERS

**Ques.1 Where is the bile produced? Which component of the food does it help to digest?**

**Ans.** Bile is produced by liver and is stored in gall bladder. Bile juice digests fat.

**Ques.2 Which part of the digestive canal is involved in?**

a. Absorption of food	Small intestine
b. Chewing of food	Buccal cavity
c. Killing of bacteria	Stomach
d. Complete digestion of food	Small intestine
Formation of faeces	Large intestine

## 7. SHORT QUESTION ANSWERS

**Ques.1 What are Villi? What is their location and function?**

**Ans.** The inner wall of the small intestine has thousands of fingers like outgrowths. These are called villi. Villi are located in the small intestine. The villi increase the surface area for absorption of the digested food. Each villus has a network of thin and small blood vessels close to its surface. The surface of the villi absorbs the digested food materials.

**Ques.2 Name the type of carbohydrates that can be digested by ruminants but not by humans. Give the reason also?**

**Ans.** Cellulose is a type of carbohydrate that can be digested by ruminants but not by humans. Ruminants have a large sac-like structure called rumen which is present in between the small intestine and large intestine. The cellulose is digested here by the action of certain bacteria which are not present in humans.

**Ques.3 Why do we get instant energy from glucose?**

**Ans.** Glucose is the simplest form of carbohydrates which can be broken down easily to give energy. So, glucose is called instant energizer.

**Ques.4 Write one similarity and one difference between the nutrition in amoeba and human beings.**

**Ans.** Similarity : Both amoeba and human use digestive juices to digest food.  
Difference : Human needs to chew food, whereas in amoeba, there is no chewing.

**Ques.5 Matching:**

### COLUMN A

1. Salivary gland
2. Stomach
3. Liver
4. Rectum
5. Small intestine
6. Large intestine

### COLUMN B

- |                            |     |
|----------------------------|-----|
| Bile Juice secretion       | (3) |
| Storage of undigested food | (4) |
| Saliva secretion           | (1) |
| Acid release               | (2) |
| Digestion is completed     | (5) |
| Absorption of water        | (6) |
| Release of faeces          | (4) |

**Ques.6 Can we survive only on raw, leafy vegetables/grass? Discuss.**

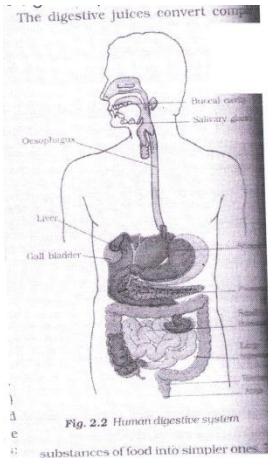
**Ans.** No, because to live a healthy life, we need a complete balance of all nutrients. Raw green



vegetables may have cellulose which leafy vegetables will not solve the purpose.

cannot be digested by us. So, only green

### Ques.7 Label the given figure of the digestive system



## 7. LONG ANSWER

### Ques.1 Explain the digestion in Ruminants?

**Ans.** They quickly swallow the grass and store it in a part of the stomach called rumen. Here the food gets partially digested and is called cud. But later the cud returns to the mouth in small lumps and the animal chews it. This process is called rumination and these animals are called ruminants. The grass is rich in cellulose, a type of carbohydrate. Many animals including humans cannot digest cellulose except ruminants.

## 8. HOTS QUESTION SOLVED

### Q1. The organ which stores bile?

**Ans.** Liver is largest gland of our body and it stores two types of bile pigments, bilirubin and biliverdin.

### Q2. The part which feels the taste of different food items?

**Ans.** Tongue (taste buds) our tongue has different taste buds for such as salty, sweet, sour, bitter.

## 9. VALUE BASED QUESTION:-

**Ques.1 Raman's mother does not allow him to talk while eating. She also does not allow him to eat food while lying down. What could be the reasons for it?**

**Ans.** The food will get stuck in food pipe or may be enters in air or voice box will get sudden hicups or some respiratory problems.

**Ques.2 Rishi is a 1 year old boy, his mother use to give him goat's milk inspite of cow's milk?**

**Ans.** Because fays in goat's milk are much simpler than those in cow's milk. Therefore, the goat's milk is much easier to digest than the cow's milk.

**10. ACTIVITY / PROJECT: -**

**Collect data from your friends, neighbours and classmates to know more about "milk teeth".**

**Tabulate your data. One way of doing it is given below.**

**Ans.**

S.NO	Age at which first tooth full	Age at which last tooth fell	No. of teeth lost	No. of teeth replaced
1	4 yrs	7 yrs	8	8
2	4.5 yrs	7.2 yrs	9	9
3	5.2 yrs	7.5 yrs	8	8
4	5 yrs	8 yrs	10	10
5	5.5 yrs	8 yrs	9	9



## CHAPTER – 3 FIBER TO FABRIC

### 1. PREVIOUS KNOWLEDGE QUESTIONS

**Q1. Feel the hair on your body and arms and those on your head. Do you find any difference? Which one seems coarse and which one is soft?**

**Ans.** Like us, the hairy skin of the sheep has two types of fibres that forms the fleece:

1. The coarse beard hair,
2. The fine soft under hair close to the skin. The fine hair provide the fibres for making wool.

**Q2. We wear sweaters in winters, do you know from where we get that fibre.**

**Ans.** From the fine hairs of sheep use to make wool.

### 2. VERY SHORT QUESTION/ANSWER

**Ques.1 You must be familiar with the following nursery rhymes.**

**(a) "Baa baa black sheep, have you any wool"**

**(b) Marry had a little lamb, whose fleece was white as snow**

**Answer the following**

a. Which parts of the black sheep have wool?

**Ans.** a. Wool is obtained from the fine, soft under hair close to the black sheep's skin.

b. What is meant by the white fleece of the lamb?

**Ans.** b. White face means the white hair of lambs which is used for making wool.

**Ques.2 The silk worm is (a) caterpillar, (b) a larva. Choose the correct option**

a. i                      b. ii                      c. both (a) (b)                      d. neither a nor b

**Ans.** Both a and b

**Ques.3 Which of the following does not yield wool?**

a. Yak      b. Camel                      c. Goat                      d. Woolly dog

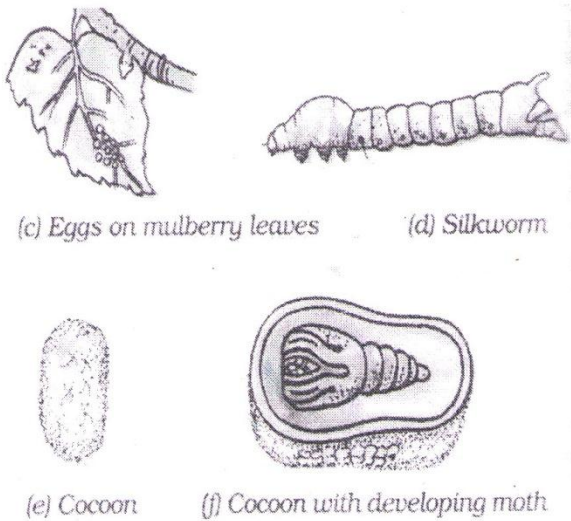
**Ans.**Woolly dog.

**Ques.4 Given below is a sequence of steps in the processing of wool. Which are the missing steps? Add them.**

**Ans.** Shearing scouring, sorting dyeing and rolling into yarn.

**Ques.5** Make sketches of the two stages in the life history of the silk moth which are directly related to the production of silk.

**Ans.**



**Ques.6** Out of the following, which are the two terms related to silk production? Sericulture,

**Floriculture**

**Moriculture**

**Apiculture**

**Silviculture**

**Ans.** Sericulture and mariculture.

**Ques.7** Match the words of column A with those given in column B

**COLUMN A**

1. Scouring
2. Mulberry leaves
3. Yak
4. Cocoon

**COLUMN B**

- Yields silk fibers
- Wool yielding animal
- Food of silk worm reeling
- Cleaning sheared skin

### 3. SHORT QUESTION/ANSWER

**Ques.1** What is meant by the following terms?

- Ans.** a. Rearing : Raising the sheep and taking its care is called rearing.  
 b. Shearing : For obtaining wool, the fleece of the sheep together with a thin layer of skin is taken off its body. This process is known as shearing.  
 c. Sericulture : By sericulture we mean the rearing of silkworms for obtaining silk.

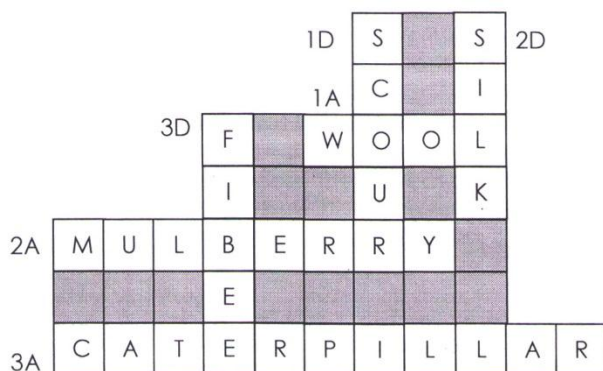
**Ques.2** Give below is a crossword puzzle based on this lesson. Use hints to fill the blank spaces with letters that complete the words.

**Ans . DOWN**

1. Through washing
2. Animal fiber
3. Long thread like structure

**ACROSS**

1. Keep Warm
2. Its leaves are eaten by silkworms
- Hatches from egg to moth



#### 4. LONG QUESTION/ANSWER

**Ques.1** Discuss in detail the rearing and breeding of sheep.

**Ans.** Sheeps are reared in many parts of our country for producing wool. The quality and texture of the fibres obtained from them is good. Certain breeds of sheep have thick coat of hair on their body which yields good quality wool in large quantities. These shop are selectively bred with one parent being a sheep of good breed.

#### 5. HOTS QUESTIONS SOLVED

**Ques.1** Why we wear woollen clothes in winters.

**Ans.** Because the fine fibers of wool keep us warm. It maintains the body temperature as much balance with the outside environment during winters.

**Ques.2** Does shearing hurt sheep.

**Ans.** No, because shearing is removal of upper layes of hairs from sheep's skin and while shearing only dead cells of the body removed not the living tissues connected to the body metabolic system.

## 6. VALUE BASED QUESTION:

**Q1. Boojho is wondering why it hurts when someone pulls his hair but not when he goes for a hair cut?**

**Ans.** Because when someone pulls his hair it also pulls his skin and muscles in which hairs are fixed but during hair cut only upper part of hair cuts.

**Q2. Paheli wants to know why a cotton garment cannot keep us as warm in winter as a woolen sweater does.**

**Ans.** because cotton fibres are very thin and it allows air to pass through but woollen clothes have thick fibres and act as insulators as it does not allow air to pass.

## 7. Activity: - Classroom Activity

Collect pieces of silk cloth of various types and paste them in your scrap book. You can find them in a tailors shop among the heap of waste cut pieces



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## Chapter – 4 Heat

### 1. PREVIOUS KNOWLEDGE QUESTION

**Q1. We wear woollen clothes in winters and light coloured cotton clothes when it is hot?**

**Why?**

**Ans.** Because woollen clothes keep us warm and light coloured cotton clothes give us a feeling of coolness.

**Q2. How do we know whether an object is hot or cold?**

**Ans.** By measuring its temperature and by feeling its coldness and hotness.

### 2. VERY SHORT QUESTION ANSWERS

**Ques.1 One liter of water at 30°C is mixed with one liter of water at 50°C. The temperature of the mixture will be?**

**Ans.** Between 30°C and 50°C

**Ques.2 An iron ball at 400G is dropped in a mug containing water at 40°C. The heat will**

**Ans.** Not flow from iron ball to water or from water to iron ball.

**Ques.3 A wooden spoon is dipped in a cup of ice cream its other end.**

**Ans.** Does not become cold.

**Ques.4 Stainless steel pans are usually provided with copper bottoms. The reason for this could be that.**

**Ans.** Copper is a superior conductor of heat to the stainless steel.

### 3. SHORT QUESTION ANSWERS

**Ques.1 State similarities and differences between the laboratory thermometer and the clinical thermometer.**

**Ans**

#### LABORATORY THERMOMETER

##### Similarities

- In this thermometer, mercury is used.
- In this thermometer, the scale is denoted in Celsius.

##### Differences

- Besides body temperature, it is used for

#### CLINICAL THERMOMETER

- In this too, mercury is used.
- In this also, the scale is denoted in Celsius.

- This is used only for measuring



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measuring the temperatures of  
body thermometer.

b. Its temperature measuring capacity ranges  
from  $10^{\circ}\text{C}$  to  $100^{\circ}\text{C}$

other objects.

human

b. Its temperature measuring  
capacity ranges from  $35^{\circ}\text{C}$  to  $42^{\circ}\text{C}$   
only.

**Ques.2 Give two examples each of conductors and insulators of heat?**

**Ans.** Conductors : Aluminum and copper  
Insulators : Plastic and wood

**Ques.3 Discuss why wearing more layers of clothing during winter keeps us warmer than wearing just one thick piece of clothing?**

**Ans.** During winter, when we have so many layers of clothing on our body, the air trapped in between two layers of cloth acts as an insulator. This is the reason why wearing more layers of clothing keep our body warm in winter.

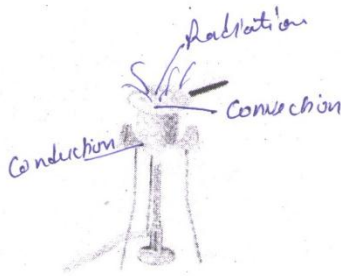
**Ques.4 In places of hot climate it is advised that the outer walls of houses be painted white. Explain.**

**Ans.** In hot season, the outer walls of houses should be painted white, because white colour reflects back the heat radiation which falls upon it. That is why the rooms remain cool they do not warm up in summer.

**Ques.5 Look at figure. Mark where the heat is being transferred by conduction, by convection and by radiation?**



**Ans.**



#### 4. LONG QUESTION ANSWERS

**Ques.1 Give reasons for the following.**

- Cooking utensils are made of metals are good conductor of heat and electricity.**
- Pressure cooker is provided with Bakelite handle.**
- We wear woolen clothes in winter.**

**Ans. a.** Because all metals are good conductor of heat and electricity.

**b.** Bakelite is insulator hence heat is not passing them.

**c.** Wool is poor conductor of heat. Air is trapped in between wool fibres and prevents the flow of heat from our body.

#### 4. FILL IN THE BLANKS

**Ans.**

- The hotness of an object is determined by its temperature.
- Temperature of boiling water cannot be measured by a clinical thermometer.
- Temperature is measured in degree Celsius.
- No medium is required for transfer of heat by the process of radiation.
- A cold steel spoon is dipped in a cup of hot milk. It transfers heat to its other end by the process of conduction.
- Clothes of dark colours absorb heat better than clothes of light colours.

#### 5. MATCH THE FOLLOWING:

##### COLUMN A

- Land breeze blows during
- Sea breeze blows during
- Dark coloured clothes are preferred during
- Light coloured clothes are preferred during

##### COLUMN B

- Summer  
winter  
Day  
Night

#### 6. EXTRA QUESTIONS

**Q1. What is the significance of kink in a clinical thermometer?**

**Ans.** The kink (bend) does not allow the mercury to fall as soon as the thermometer is taken out of the mouth

**Q2. What object are the best absorbers of the radiant energy?**

**Ans.** Black object

**Q3. Do all substances conduct**

**heat easily?**

**Ans.** No.

**Q4. Can you lift a hot pan by holding it from the handle without getting hurt?**

**Ans.** Yes, if the handle is covered with the help of an insulated material.

**Q5. How does the heat from the sun reach us?**

**Ans.** By radiation.

## 7. HOTS QUESTIONS SOLVED

**Ques.1 Which material has the highest melting point?**

**Ans.** Mercury is semi liquid and has very high melting point and it melts at near about 40-50<sup>0</sup>c.

**Ques.2 Why does a clinical thermometer have such a narrow range?**

**Ans.** It is because the temperature of a human body cannot fall below 35<sup>0</sup>C or go above 42<sup>0</sup>C. It is used to measure only human body temperature not in laboratory.

## 8. VALUE BASED QUESTION

**Q1. Rohit says, "My left hand tells me that the water in a mug is hot and the right hand tells me that the same water is cold, what should I conclude?"**

**Ans.** Rohit's confusion shows that we cannot always rely on our sense of touch to decide whether an object is hot or cold. A reliable measure of the hotness of an object is its temperature.

**Q2. Seema gets a naughty idea. He wanted to measure the temperature of hot milk using a clinical thermometer. Paheli stopped him doing so.**

**Ans.** Because it may break, clinical thermometer is only for measuring human body temperature.

## 9. ACTIVITY

Take two identical tin cans. Paint the outer surface of one black and of the other white. Pour equal amount of water in each and leave them in the mid day sun for about an hour. Measure the temperature of water in both the cans. You can feel the differences even by touching water in the two cans.