



# KALPAVRUKSHA MODEL SCHOOL

## Online Class Assignment-4

Class: VII

Sub: Physics

Date: 29.7.2021

Topic: TEMPERATURE AND HEAT

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### I. Answers:

1. What is the difference between conduction and convection?

ANS:

Conduction	Convection
1. It is the process of heat transfer in solids from a point of higher temperature to a point of lower temperature without the actual movement of the particles of the solids.	1. It is the process in which heat is transferred from hotter region to cooler region by the actual movement of the heated particles.
2. Can take place in solids	2. Can take place in liquids and gases
3. Conduction happens when heat moves from one object to another through direct contact.	3. Convection happens when matter carries heat from one place to another without contact.

2. Write the advantages of an alcohol thermometer over a mercury thermometer.

ANS: Thermometer using alcohol has some advantages over mercury thermometer:

- Alcohol is cheaper and less harmful than mercury.
- Alcohol thermometers can measure much lower temperatures (up to  $-115^{\circ}$ ) than mercury.

3. Why is water not used as a thermometric liquid?

ANS: Water is not used as thermometric liquid because

Water is transparent, which makes it difficult to observe the readings.

Water is a bad conductor of heat.

The range is limited as water boils at 100 degrees and melts at 0 degrees.

Water does not expand uniformly.

Water sticks to the glass tube.

4. **Suppose there is a hot plate (tawa) on a stove, and a cube of ice is placed on it. What do you think will happen? If another ice cube is kept very close to the hot plate, but not in contact with it, what do you think will differ from the earlier situation? What would remain the same?**

ANS: If we place an ice cube on a hot plate, the ice will quickly melt into water. The hot plate will also become cooler than the temperature in the beginning due to the contact with the cool ice cube. The other ice cube which is kept close to the hot plate will slowly melt into water but not at the same rate as above. It melts slowly and the hot plate will also remain at the same temperature as it has no contact with the ice and no cool temperature is transferred here.

5. **What kind of clothes should we wear in winters? Why?**

ANS: We wear dark clothes because we need to absorb as much heat as possible from the surroundings to keep ourselves warm and dark colored clothes absorb more heat than light coloured ones.

6. **Why do we wear light cotton clothes in summer?**

ANS: We wear light cotton clothes in summer because such clothes absorb less heat from the surrounding compared to dark clothes.

7. **Why are stainless steel cooking utensils usually provided with copper bottoms?**

ANS: Stainless steel cooking utensils are usually provided with copper bottoms because copper is a better conductor of heat than stainless steel.

8. **Why does wearing more layers of clothing during winter keep us warmer than wearing just one thick piece of clothing?**

ANS: i) Wearing more layers of clothing during winter keeps us warmer than wearing just one thick piece of clothing because of the air trapped between two layers of clothes.

ii) This layer prevents the flow of the heat from our body to the cold surroundings and keeps our body relatively warmer.

9. **How does convection occur?**

ANS: Convection occurs when particles with a lot of heat energy in a liquid or gas move and take the place of particles with less heat energy. Heat energy is transferred from hot places to cooler places by convection. Liquids and gases

expand when they are heated. The denser cold liquid or gas falls into the warm areas.

#### 10. What are land and sea breezes?

ANS: **Sea Breezes:**

- (i) During the day, the land is heated by the sun to a higher temperature than water in the sea.
- (ii) Air over the land is heated, becomes lighter & rises while the cooler air from the sea blows towards land to take its place. This is called the sea breeze.

**Land Breeze:**

- (i) At night, the land is no longer heated by the sun. It therefore cools.
- (ii) The land cools much faster than the sea. Therefore, the sea is warmer than land at night.
- (iii) At night the current of air blows from the colder land to the warmer sea. This is called the land breeze.