STD 7 BS Model Paper 1
Answer Key

Activity 1

1. **Three methods of heat transmission:**
    - **Conduction:** Transfer of heat through a solid without the movement of particles.
    - **Convection:** Transfer of heat through a fluid (liquid or gas) due to the movement of particles.
    - **Radiation:** Transfer of heat through electromagnetic waves, without requiring a medium.
2. **Complete the table:**

Transmission Method	Example
Conduction	Heat traveling through a metal rod
Convection	Boiling water in a pot
Radiation	Heat from the Sun

3. **Why are cooking pots made of metals but their handles made of plastic?**
    - Metals are good conductors of heat, allowing efficient cooking.
    - Handles are made of plastic because plastic is a poor conductor, preventing burns while handling.

Activity 2

1. **Five stages of nutrition in humans:**
    - Ingestion, Digestion, Absorption, Assimilation, Egestion.
2. **Peristalsis and its role:**
    - Peristalsis is the rhythmic contraction and relaxation of muscles in the alimentary canal. It helps move food through the digestive system.
3. **Complete the flowchart:**

Stage	Process
Ingestion	Food enters mouth
Digestion	Digestion begins in the stomach

Stage	Process
Absorption	Nutrients absorbed in the small intestine
Assimilation	Nutrients utilized by body cells
Egestion	Waste eliminated from the body

Activity 3

1. **Instrument to measure body temperature and normal temperature:**
    - **Instrument:** Clinical thermometer.
    - **Normal temperature:** 37°C or 98.6°F.
2. **Match the following:**

Instrument	Use
Clinical Thermometer	(b) Measure body temperature
Laboratory Thermometer	(a) Measure atmospheric temperature

3. **Why can't a clinical thermometer be used to measure boiling water?**
    - A clinical thermometer has a limited range (35°C to 42°C) and can break when exposed to high temperatures like boiling water.

Activity 4

1. **Diagram of the human respiratory system:**
    - The diagram should include: nostrils, trachea, bronchi, alveoli, diaphragm.
2. **Changes during inhalation:**
    - The diaphragm contracts and moves downward.
    - The rib cage expands, increasing the volume of the thoracic cavity.
3. **Complete the table:**

Component	Inhaled Air (%)	Exhaled Air (%)
Oxygen	21	16
Carbon Dioxide	0.04	4

Activity 5

1. **Working principle of a periscope:**
    - A periscope uses two mirrors placed at an angle of 45°. Light reflects from one mirror to the other, allowing objects to be seen over obstacles.
2. **True or False:**
    - True
    - False
3. **Multiple reflections in a kaleidoscope:**
    - Multiple reflections occur inside a kaleidoscope due to mirrors placed at angles. This creates beautiful and symmetrical patterns when light enters through the open end.

Activity 6

1. **Land breeze and sea breeze comparison:**

Time	Land Breeze	Sea Breeze
Day	Air moves from land to sea	Air moves from sea to land
Night	Air moves from land to sea	Not applicable

2. **Why does sand heat up and cool down faster than water?**
    - Sand has a lower specific heat capacity, so it heats up and cools down quickly compared to water.
3. **Illustration of sea breeze:**
    - Include labels for: sea, land, warm air rising, cool air descending.

Activity 7

1. **Main components of blood and function of red blood cells:**
    - Components: Red Blood Cells (RBCs), White Blood Cells (WBCs), Platelets, Plasma.
    - Function of RBCs: Carry oxygen to body tissues and remove carbon dioxide.
2. **Two ways to maintain a healthy circulatory system:**
    - Regular exercise.
    - Eating a balanced diet low in fats and sugars.
3. **Complete the table:**

Blood Component	Function
White Blood Cells	Fight infections and build immunity

Blood Component	Function
Platelets	Help in blood clotting

Activity 8

1. **Why glass is used in windows and frosted glass in bathrooms:**
    - Transparent glass allows maximum light to pass through, making it suitable for windows.
    - Frosted glass is translucent, offering privacy while allowing some light to pass, ideal for bathrooms.
2. **Classification of objects:**

Object	Type
Butter paper	Translucent
Mirror	Opaque
Clear water	Transparent
Wood	Opaque

3. **Two methods to make a transparent glass sheet opaque:**
    - Apply frosting or etching on the glass surface.
    - Cover the glass with a dark or opaque film.