**BIT Senior Uttara**

**Class VIII Physics**

**Week 1 (Heat Transfer)**

Q1. Explain heat transfer by conduction. Make a list of good and bad conductors.

Q2. Explain why an Air-conditioner is placed at the top whereas a heater is placed at the bottom of a room

Q3. Why gases are a bad conductor of heat?

Q4. Explain why metals are a good conductor of heat.

Q5. Explain how a vacuum flask will reduce heat transfer by all three methods

Q6. Explain how a heat sink is suitable at maximizing heat loss.

Q7. The following surfaces were placed under the sun. Which one heats up faster and why?:

-a smooth surface

-a rough surface

-a black surface

-a white surface

**Week 2 (Heat capacity)**

Q1. Describe an experiment where you would determine the specific heat capacity of a liquid.

Your experiment should include:

-A list of equipment

-Procedure describing how each parameter would be obtained

-Equation

-Precautions

Q2. 5000cm3 of water was heated. The temperature changed from 297K to 350K. Calculate the Energy supplied to the water. Take density of water= 1000kg/m3, specific heat capacity of water= 4200J/kgK.

Q3. Find the specific heat capacity of a liquid of mass 500g, which was heated for 2.5minutes with a heater of power rating 1200W and the temperature change was from 300K to 380K.

Q4. Specific heat capacity of 5kg oil is 800J/kgK. It was heated by a 800W heater for 2 minutes. The initial temperature was 25◦C. What was the final temperature?

Q5. Describe an experiment where you would determine the specific heat capacity of a solid.

Your experiment should include:

-A list of equipment

-Procedure describing how each parameter would be obtained

-Equation

-Precautions

**Week 3 (Pressure)**

Q1. A cylinder has a mass of 14kg has a radius of 0.15m. Find the pressure exerted on the ground by the cylinder.

Q2. A cube has sides of 50cm and a weight of 580N. Find the pressure exerted on the ground by the box.

Q3. Point C is 5m under water and point B is 6m under water.

1. Which point will have a higher pressure?
2. Find the pressure due to liquid at point C and B
3. State the pressure at the surface of the liquid
4. Find the total pressure at point C and point B

Q4. A hydraulic system has area of 0.01m2 for the smaller piston and 0.1m2 for the larger piston. A force of 200N was applied at the smaller pistion.

1. Find the pressure created at the smaller piston
2. State the pressure at the larger piston and give the reason why?
3. Find the upward force exerted by the larger piston
4. State 2 uses of this system

Q5. Explain what will happen to a barometer when it is taken on top of a mountain.

Q6. Explain the working principle of a manometer and why there will be a difference in height when there is a difference in pressure?