TEST PAPER: PHYSICS

Time: 45 Minutes   **Class: 10th I.C.S.E.**

Max. Marks: 30 Marks   **Date: 3rd October, 2018**

Question 1:

a. A hot solid of mass 60 g at 100 ºC is placed in 100 g of water at 18 ºC. The final steady temperature recorded is 20 ºC. Find the specific heat capacity of the solid.

Given: Specific heat capacity of water is 1 cal/g °C.

b. Two lamps, one rated 220 V, 50 W and the other rated 220 V, 100 W, are connected in series with mains of voltage 220 V. What is the power consumed by the 50 W lamps and the 100 W lamp

c. A cube of ice of mass 30 g at 0 °C is assed into 200 g water at 30 °C. Calculate the final temperature of water when whole of the ice cube has melted. Given: Specific latent heat of ice is 80 cal/g and Specific heat capacity of water is 1 cal/g °C.

Question 2:

a. How many 176 ohm resistors (in parallel) are required to carry 5 A on a 220 V line?

b. 10125 J of heat energy boils off 4.5 g of water at 100 ºC to steam at 100 ºC. Find the specific latent heat of steam.

c. i. Define the term specific heat capacity of a substance. Give its SI unit.

ii. Define specific latent heat of fusion of ice. Give its SI unit.

Question 3:

a. State three factors on which the internal resistance of a cell depends.

b. A piece of wire of resistance R is cut into five equal parts. These parts are then connected in parallel. If the equivalent resistance of this combination is R', calculate the ratio R/R'

c. 45 g of water at 50 °C in a beaker is cooled when 50 g of copper at 18 °C is added to it. The contents are stirred till a final constant temperature is reached. Calculate the final temperature. Specific heat capacity of Copper is 0.39 J/g K and that of water is 4.2 J/g K.