INDIAN SCHOOL DARSAIT
DEPARTMENT OF PHYSICS

Subject : Physics	**Chapter** : Thermal Properties of Matter	**Worksheet No**. 11
Resource Person : Mrs. Jayalakshmi Ratish		**Date** :
Name of the Student :_____	**Class & Division** : XI A/B	**Roll Number** : ___

1. Why are pendulums of clocks made of invar? 1

2. It is advisable not to wear wet clothes. Why? 1

3. At what temperature do the Kelvin and Fahrenheit scales coincide? 1

4. State Newton's Law of cooling. 1

5. Why do two layers of a cloth of equal thickness provide warmer covering than a single layer of cloth of double the thickness? 1

6. The triple points of neon and carbon dioxide are 24.57 K and 216.55 K respectively. Express these temperatures on the Celsius and Fahrenheit scales. 2
(As. Neon : -248.58°C, 415.44°F
Carbon dioxide : -56.60°C, -69.88°C)

7. Name the three modes of heat transfer of heat from one body to the other. Also give one example for each one of them. 2

8. 2 kg of water at 80°C is mixed with 3kg of water at 20°C. Assuming no heat losses, find the final temperature of mixture. (As. 44°C) 2

9. A copper block of mass 2.5kg is heated in a furnace to a temperature of 500°C and then placed on a large ice block. What is the maximum heat the copper block can lose? (specific heat of copper = 0.39 $Jg^{-1}K^{-1}$) (As. 487500 J) 2

10. Why do houses made of concrete roofs get very hot during summer days? What can be done to reduce temperature? 2

11. A steel beam is 5m long at a temperature of 20°C. On a hot day, temperature rises to 40°C. So what is change in length of beam due to thermal expansion, given that $\alpha = 1.2 \times 10^{-5}\ C^{-1}$. (As. 5.0012 m) 3

12. Explain the heat retention capacity of Dewar flask (thermos-flask). 3

13. Calculate the rate of loss of heat through a glass window of area 1000 cm^2 and thickness 0.4cm when temperature inside is 37°C and outside is -5°C. Coefficient of thermal conductivity of glass is $2.2 \times 10^{-3}\ cals^{-1}cm^{-1}K^{-1}$. (As. 970.2 J/s) 3

14. A faulty thermometer has its fixed points marked as 5°C and 95°C. Temperature of a body as measured by it is 59°C. Find the correct value of temperature of body in terms of °C. (As. 60°C) 3

15. Two rods A and B are of equal length. Each rod has its ends at temperature T_1 and T_2. What are the conditions that will ensure equal rates of flow of heat through the rods A and B? 3