

HOLIDAY REVISION WORK

HEAT

SENIOR FOUR

- 1.(a) Define **temperature**.
- (b) Mention three scales upon which temperature of a substance can be measured.
- (c) State any three physical properties upon which temperature of a substance depends.
- (i)
- (ii)
- (iii)
- (d) Draw a thermocouple thermometer.
- (e) Give two advantages of the thermocouple thermometer over a liquid in glass thermometer.

- 2.(a) Define the terms **heat capacity** and **specific heat capacity** of a substance. State the units of each of the above terms.

Heat capacity.....

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Specific heat capacity.....

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(b) Write down an equation relating the two terms.

(c) A block of metal of mass 1.5kg which is insulated is heated from $30^{\circ}C$ to $50^{\circ}C$ in 8minutes and 20 seconds by an electric heater coil rated 54W.Find:

(i) the quantity of heat supplied by the heater.

(ii) the heat capacity of the block.

(iii) its specific heat capacity.

(d) A lady wanted to have a warm bath at $40^{\circ}C$.She had 5kg of water in a basin at $85^{\circ}C$.What mass of cold water at $25^{\circ}C$ must she have added to the hot water to obtain her choice of bath? Neglect heat losses and take specific heat capacity of water to be $4200Jkg^{-1}K^{-1}$.

(e) Describe how you can measure the specific heat capacity of a block of aluminium by the electrical method.

3.(a) Define thermal expansion of a substance.

(b) Explain how you can demonstrate expansion of liquids using water?

(c) Describe how you can show that Benzene expands more than Alcohol ?

(d) State and explain one application of a bimetallic strip.

(e) Draw a volume –temperature and a density –temperature graph to show the anomalous expansion of water.

(f) Give two reasons why water is not used as a thermometric liquid.