REVISION QUESTIONS ON THERMOMETRY

1 (a) What is meant by

(i) Thermometric property
(01mark)

(ii) Triple point of water
(01mark)

(b) (i)Describe the steps taken to establish a temperature scale (05marks)

(ii) Explain why the thermometers may give different values for the same unknown the temperature.
(02marks)

(c) (i)Describe with the aid of a diagram, how a constant volume gas thermometer may be used to measure temperature
(06marks)

(ii) State three corrections that need to be made when using the thermometer in c(i) above. (iii)State and explain the sources of in accuracies in using mercury-in-glass thermometer.

2.(a) (i) State the desired properties a material must have to be used as a thermometric liquid substance.
(02marks)

(ii) Explain why scales of temperature based on different thermometer properties may not agree
(01marks)

(b) (i) Draw a labelled diagram to show the structure of a simple constant volume gas thermometer.
(03marks)

(ii) Describe how a simple-constant volume gas thermometer can be used to establish a Celsius scale of temperature.
(05marks)

(iii) State the advantage and disadvantage of mercury in glass thermometer and a constant volume gas
(03marks)

(c) The resistance of the element of a platinum resistance thermometer is 4Ω at the ice point and 5.46 Ω at the steam point. What temperature on the platinum resistance scale would correspond to a resistance of a 9.84
An[400^{0}C] (03marks)

3. (a)(i) State four desirable properties a material; must have to be used as a thermometric substance
(02marks)

(ii) State why scales of temperature based on different thermometric property may not agree
(01mark)

(b) (i) Two thermometers are used to measure the temperature of a body. Explain why the temperature values may be different
(02marks)

(ii) A platinum resistance thermometer has a resistance of 5.42 Ω at triple point of water. Calculate its resistance at a temperature of 50
(02marks)

5.(a) (i)Define the term thermometric property and give four examples (02marks)

(ii) State two qualities of a good thermometer property
(01marks)

(c) (i)With reference to the a liquid in glass thermometer, describe the steps involved in setting up a Kelvin scale of temperature (03marks)

(ii) State one advantage and disadvantage of the resistance thermometer.
(01mk)

6(a) (i) Define a thermometric property and give two examples
(02marks) (ii) When is the temperature 0 K attained
(02marks)

(b) (i) With reference to a constant-volume gas thermometer define temperature on the Celsius scale
(02marks)

(ii) State two advantages and two disadvantages of constant-volume gas thermometer. (02marks)

(c) (i) Define the triple point of water (01mark)

(ii) Describe how you would measure the temperature of a body on thermodynamic scale using a thermo couple. (03marks)

7(a)(i)What is meant by the term fixed points in thermometry. Give two examples of such points (02marks)

(ii) How is temperature on a Celsius scale defined on a platinum resistance thermometer? (02marks)

(b) Explain the extent to which thermometer based on different properties but calibrate using the same fixed points are likely to agree when used to measure a temperature

(i) Near one of the fixed points
(02marks) (ii) Midway between the two fixed points
(02marks)

(d) What are the advantages of a thermocouple over a constant volume gas thermometer in measuring temperature.