PRACTICAL EXAMINATION 2021
SEMESTER-III
(CC6)
FULL MARKS -30

ANSWER ANY ONE QUESTION 1 X 30

1(i).Write down the theory relevant to the experiment “Determination of the co-efficient of linear expansion of a metal rod using an optical lever” 5
(ii). What is an optical lever ? How does it work ? 10
(iii). Determine the co efficient of linear expansion from the following data:- 15

a) Length of experimental rod:-100.8 cms
b) Arm of the optical lever=3.1cm
c) Distance between mirror and scale=100cms
d) Scale reading before passing steam=0cm
   Scale reading after passing of steam and after steady temp reached=9.4cms
e) Initial Temperature(in degrees) = 24
   Final Temperature(in degrees)=74

2(i) Write down the necessary theory for “Calibration of a thermocouple by direct measurement of the thermo-emf using potentiometer and the con-stants.
[one end in ice and another end at water bath which to be heated. 5
(ii) Draw the relevant circuit for the above experiment. 5
(iii) Draw the nature of the graph between thermo emf and temperature. 5
(iv) What value of emf is developed per degree centigrade for a copper constantan thermocouple ? 5
(v) What type of of galvanometer is suitable for this experiment ? 5
(vI) Why is potentiometer used for this experiment and not voltmeter? 5

3(i) Describe the various steps for determination of thermal conductivity of a bad Conductor by the method of Lees and Chorlton . 20
(ii) Write down the relevant Theory. 5
(iii)What are the precautions to be taken in the experiment ? 5

4(i) For determining the boiling point of a liquid using Platinum Resistance Thermometer (PRT) write down the relevant Theory and draw the necessary Circuit. (15 +5)
(ii) What type of voltmeter used in this experiment ? 2
(iii) Why is platinum selected for the thermometer ? 4
(iv) Write down four precautions for the experiment. 4

5(i)For determining Temperature Coefficient of Resistance using Carey Foster Bridge,write down the necessary theory along with relevant circuits. (5+5)

(ii)Calculate the Temperature co efficient from the following data: 10

Initial Temperature:-29(in degrees)

Final Temperature= 97(in degrees)

Resistance of coil at initial temperature=3.56 ohm

Resistance of coil at final temperature=4.48 ohm

(iii) Write down the precautions necessary for the above experiment. 10.