2021
Kandi Raj College
Department of physics
Practical Examination

Paper VI   **Part II**   **Full Marks: 50**

Answer any five questions   (5×10)

1. Describe the construction of a Krater's pendulum. How is the acceleration due to gravity 'g' measured with it?   (3+7)
2. Describe Jaeger's method for determination of the surface tension of a liquid.   (10)
3. How is the coefficient of viscosity of a fluid measured with Stoke's method?   10)
4. Describe the construction of a Kundt's tube. How is the velocity of sound measured with it?
                                                                                        (4+6)
5. Describe Lee and Chorlton's method of determination of thermal conductivity of a bad conductor. State Bedford's correction for the same.   (7+3)
6. How is the boiling point of a liquid measured with a platinum resistance thermometer? 10
7. Describe an experimental technique to determine the refractive index of the material of a thick prism using a spectrometer.   (10)
8. What is meant by thermo-emf of a thermocouple? Describe a technique to plot the variation of the thermo emf of a thermocouple with temperature. Define thermoelectric power.   (2+6+2)
9. How is the melting point of a solid determined with a thermocouple?   (10)
10. Describe Callendar and Barne's apparatus. How is the mechanical equivalent of heat `J' determined with it?   (3+7)
11. Describe an experimental technique to draw the phase diagrams for determination of ohmic losses of series L-R and C-R ac circuits. Draw the frequency response curve of the same.   (8+2)
12. Describe an experimental technique to draw the response curve of a series L-C-R circuit. How is the resonant frequency of the circuit determined? Describe a technique to study the variation of Q with C, where the symbols have their usual meanings.   (6+2+2)
13. Describe an experimental technique to draw the response curve of a parallel L-C-R circuit. How is the resonant frequency of the circuit determined? Describe a technique to study the variation of Q with C, where the symbols have their usual meanings.   (6+2+2)
14. How can a high resistance be determined by the method of leakage using a capacitor and a ballistic galvanometer. Why is this method not suitable for measuring low resistance?   (9+1)
15. What is meant by B-H curve of a ferromagnetic material? Describe an experimental technique to plot the curve. How is the area under the plot determined?   (2+6+2)
16. What is Anderson's bridge? How can the inductance of two coils be measured separately and in series with Anderson's bridge? How is it used to measure the coefficient of coupling between the two coils?   (2+6+2)