UG 2ND YEAR EXAMINATION – 2021

UNIVERSITY OH KALYANI

PHYSICS GENERAL　　　　　　PAPER – III (PRACTICAL)

FULL MARKS: 100　　　　　　　　　　　　　　　　　　　　　　TIME: 4 HRS

1. Answer any five of the following questions.　　　　　　　$5 \times 20 = 1000$

A. Applying the Kirchhoff's law find the current through the galvanometer in an unbalanced Wheatstone bridge. Hence find the condition of balance. What do you mean by the terms resistivity and Conductivity?

B. What do you mean by Seebeck, Peltier and Thomson effects? What is positive and negative Thomson effect?

C. What is series resonance in LCR circuit? Explain sharpness of resonance? Define quality factor of a series resonant circuit.

D. State Fermat's principle. Proof the law of reflection and refraction at plane surface from Fermat's principle?

E. Write short notes on Ramsden and Huygens Eyepieces. Define magnifying power of a telescope.

F. Give the theory of Newton's ring experiment to determine the wavelength of a monochromatic light. If the diameters of 3rd and 23rd dark rings of a produced Newton's ring pattern are 0.181cm and 0.501cm respectively, calculate the wavelength of light. Given radius of curvature of the plano-convex lens is 50 cm.

G. Write a short note on plane diffraction grating? What do you mean by resolving power of a plane diffraction grating?

H. What do you mean by a particle accelerator? Write briefly the basic principles of a linear accelerator. Describe the working principles of a cyclotron?