

EASTERN UNIVERSITY, SRI LANKA  
SECOND YEAR FIRST SEMESTER EXAMINATION IN SCIENCE -  
2021/2022  
(Mar/Apr - 2024)  
PH 2042 - PHYSICAL OPTICS (Practical)

Time :  $1\frac{1}{2}$  hours

Answer ALL Questions

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When a parallel beam of light incident normal to the grating, the condition for bright fringes becomes  $d \sin\theta_m = m\lambda$ , where  $d$  is the distance between two adjacent lines in the grating.

- a) Perform the focusing, table setting, Schuster's method, normal incident setting to the given spectrometer.
- b) Mount the grating on the prism table such that the incident parallel rays are normal to the grating.
- c) Measure the telescope readings for angle of diffraction ( $\theta_m$ ), of several order  $m$ .
- d) Plot a suitable graph and determine the grating constant.
- e) If condition for first minima of the diffraction term is  $b \sin\theta_{p=1} = \lambda$ , then find the first missing order and hence calculate the width of a grating line  $b$ .

The wavelength of sodium light is  $5893 \text{ \AA}$