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# RK Academy

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## WEEKLY TEST CHAPTER 10,11 TEST

CLASS: XII

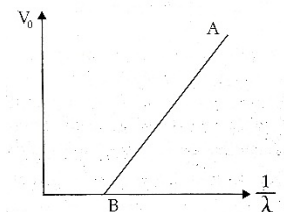
SUBJECT: PHYSICS

FM: 20

TIME: 45 MIN

### (1 MARK)

- The type of wave front earth gets from sun light  
(a) cylindrical (b) plane (c) spherical (d) none
- Two coherent monochromatic light beams of intensities  $I$  and  $4I$  superimpose. What will be the ratio of maximum to minimum intensity.  
(a) 1:9 (b) 5:3 (c) 3:5 (d) 9:1
- In Young's double slit experiment, the distance between the slits is reduced to half and the distance between the slits and the screen is doubled. The fringe width  
(a) will be double. (b) will remain same. (c) will be half. (d) will be four times
- The minimum frequency of light used for electron emission from metal plate of work function 3.2 eV  
(a)  $4.82 \times 10^{14}$  Hz (b)  $7.72 \times 10^{15}$  Hz (c)  $7.72 \times 10^{14}$  Hz (d)  $7.72 \times 10^{13}$  Hz
- Figure shows a plot of stopping potential ( $V$ ) versus  $\frac{1}{\lambda}$  is the wavelength of the radiation causing photoelectric emission from a surface. The slope of the line is equal to:



- (a)  $\Phi_0$  (b)  $\frac{h}{e}$  (c)  $\frac{hc}{e}$  (d) none
- What is Huygens principle? Prove wave form of light follow laws of refraction. (2 MARKS)
  - What is photoelectric effect? Write Einstein's photo electric equation. (2 MARKS)
  - A proton and a-particle are accelerated through different potentials  $V_1$  and  $V_2$  respectively so that they have the same de Broglie wavelengths. Find  $V_1/V_2$  (3MARKS)
  - Plot a graph showing the variation of photo electric current, as a function of anode potential for two light beams having the same frequency but different intensities  $I_1$  and  $I_2$  ( $I_1 > I_2$ ). Mention its important features.
    - If light of wavelength 412.5 nm is incident on each of the metals given below, which ones will show below w photoelectric emission and why?

Metal	Work Function (eV)
Na	1.92
K	2.15
Ca	3.20
Mo	4.17

(3 MARKS)

### 10. (5 MARKS)

Light consisting of two wavelengths 600 nm and 480 nm is used to obtain interference fringes in a double slit experiment. The screen is placed 1.0 m away from slits which are 1.0 nm apart.

- Calculate the distance of the third bright fringe on the screen from the central maximum for wavelength 600 nm.
- Find the least distance from the central maximum where the bright fringes due to both the wavelengths coincide.