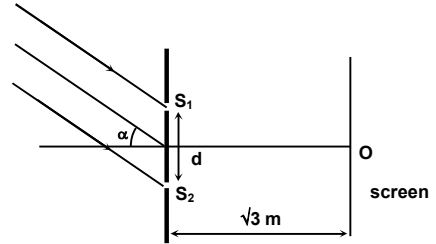
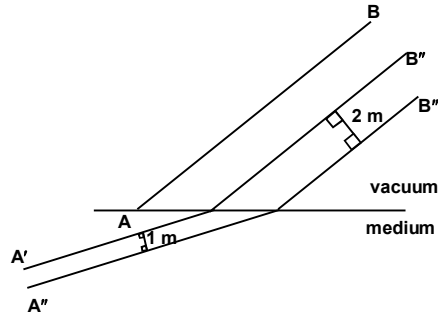


4. A parallel beam of light ($\lambda = 5000 \text{ \AA}$) is incident at an angle $\alpha = 30^\circ$ to the slits plane as shown in YDSE experiment. Intensity due to each slit at any point on screen is I_0 . The distance between slits is 1 mm. The intensity at point O on the screen is KI_0 . The value of K is

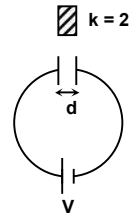


5. Some plane wavefronts are shown in figure. The value of refractive index of medium is $\sqrt{2K}$. The value of K is

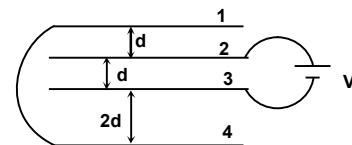


6. A radioactive element P disintegrates into Q which successive disintegrates into R as shown $P \xrightarrow{\lambda} Q \xrightarrow{2\lambda} R$. At $t = 0$ number of nuclei of P, Q and R are $N_0, 0, 0$ respectively. At time t number of nuclei of P, Q and R are N_1, N_2 and N_3 respectively. The ratio of N_1 to N_2 when N_2 is maximum is K. the value of K is

7. A parallel plate capacitor is connected to a battery of emf V volts as shown. Now a slab of dielectric constant $k = 2$ is inserted between the plates of capacitor without disconnecting battery. The electric field between the plates of capacitor after inserting the slab is $E = \frac{PV}{2d}$. The value of P is



8. Four identical metal plates are arranged as shown. Plates 1 and 4 are connected by a connecting wire. A battery of emf V volts is connected between plates 2 and 3. The electric field between plates 3 and 4 is $\frac{2V}{Kd}$. The value of K is



Space for rough work