

Internal Examination 2021

Class - B.SC (vi sem)

Subject - Physics (Gen)

Answer all the questions

1. The de Broglies wavelength is given by

$\lambda = \frac{h}{2mv}$ (b) $\lambda = \frac{h}{mv}$ (c) $\lambda = \frac{mv}{h}$ (d) $\lambda = \frac{2mv}{h}$

2. the half life and average life period of radio active element is related by

(a) $t^{1/2} = \log e^2 \tau_{av}$ (b) $t^{1/2} = \frac{\tau_{av}}{\log e^2}$ (c) $t^{1/2} = \log_{10^2} \tau_{av}$ (D) $t^{1/2} = \frac{\tau_{av}}{\log_{10^2}}$

3. uncertainty relation was given by

(a) Maxwell (b) Einstein (c) Faraday (d) Heisenberg

4. The group velocity is equal to the

(a) particle velocity (b) phase velocity (c) wave velocity (d) all of them

5. Semiempirical mass formula was derived on the bass of

(a) Shell model (b) collective model (c) optical model (d) liquid drop model

6. Hydrogen bomb is based upon principle of

(a) Nuclear fission (b) Nuclear fusion (c) thermal reaction (d) chemical reaction

7. For chain reaction to be steady a critical the value of reproduction factor (k) should be

(a) $k < 1$ (b) $k > 1$ (c) $k = 1$ (d) $k = 0$

8. The mean life time for meta stable state of laser action is

(a) 10^{-3} s (b) 10^{-8} s (c) 10^{-6} s (d) 10^{-1} s

9. The nuclear radius of aluminium (Al27) is

(a) r_0 (b) $2 r_0$ (c) $3 r_0$ (d) $4 r_0$ where $r_0 = 1.3 \times 10^{-15}$ m

10. Schrodinger time independent wave equation for free particle is

(a) $\nabla^2 \psi + \frac{2m}{\hbar^2} (E - V) \psi = 0$ (b) $\nabla^2 \psi + \frac{2m}{\hbar^2} E \psi = 0$
(c) $\nabla^2 \psi + \frac{2m}{\hbar^2} V \psi = 0$ (d) $\nabla^2 \psi - \frac{2m}{\hbar^2} E \psi = 0$