

2. The number of degrees of freedom required to fix the configuration of a rigid body is

- (a) Three
- (b) Five
- (c) Six
- (d) Nine.

3. According to the law of equipartition of energy, the average energy associated with each degree of freedom is

- (a) $\frac{1}{4} kT$
- (b) $\frac{1}{3} kT$
- (c) $\frac{1}{2} kT$
- (d) $\frac{1}{2} kT^2$.

4. Richardson-Dushman equation of thermionic emission is

- (a) $J = AT^2 e^{(e\phi/kT)}$
- (b) $J = AT^2 e^{-(e\phi/kT)}$
- (c) $J = AT^2 e^{-(e\phi/kT)}$
- (d) $J = AT^2 e^{-(kT/e\phi)}$

5. Einstein's relation between momentum and energy is

- (a) $E^2 = p^2 c^2 + m_0^2 c^4$
- (b) $E^2 = p^2 c^2 - m_0^2 c^4$
- (c) $E^2 = p^2 c^2 + m_0 c^4$
- (d) $E^2 = p^2 c^2 + m_0^2 c^2$.

Fill up the blanks :

6. If L and P denote the matrices of Lagrange and Poisson brackets respectively, then $LP =$ _____.

7. Apart from translational motion, the top has the following three types of motion, _____, _____ and _____.

8. The Maxwell-Boltzmann distribution law is applicable to _____ but _____ particles.

9. _____ Bose-Einstein distribution approaches Maxwell-Boltzmann distribution.

10. Unlike the classical theory, the theory of relativity predicts _____ Doppler's effect.

Previsional