

JEE Main 2024 Physics Question Paper Jan 27 Shift 1 (B.E./B.Tech)

JEE Main Physics Questions

Ques 1. A body of mass 1000 kg has a velocity of 6 m/s. If an extra 2000 kg mass is embedded in it, then what will be the velocity of the combined mass?

- A. 5 m/s**
- B. 4 m/s**
- C. 2 m/s**
- D. 3 m/s**

Ans. A

Ques 2. Two infinite current carrying wires having current I in opposite directions are shown below. Find the magnetic field in S.I units, at point

- A. $7\mu_0 I/\pi$**
- B. $10\mu_0 I/\pi$**
- C. $5\mu_0 I/\pi$**
- D. $\mu_0 I/\pi$**

Ans. B

Ques 3. If the diameter of earth becomes half keeping mass to be constant, then the acceleration due to gravity at surface of earth becomes

- A. half**
- B. four times**

- C. twice
- D. three times

Ans. C

Ques 4. Two masses $m_1 = 4 \text{ gm}$ and $m_2 = 25 \text{ gm}$ are having same kinetic energy; find the ration of linear momentum

- A. 1:5
- B. 2:5
- C. 1:1
- D. 1:6

Ans. B

Ques 5. A rod of length l having resistance R , is cut into two equal parts. These parts are connected in parallel then new resistance shall be?

- A. R
- B. $R/2$
- C. $R/4$
- D. $2R$

Ans. C

Ques 6. A charge $Q=10^{-6}\text{C}$ is placed at origin. Find the potential difference between two points A and B whose position vectors are $(\sqrt{3}\hat{i} + \sqrt{3}\hat{j}) \text{ m}$ and $\sqrt{6}\hat{j}$ respectively

- A. zero
- B. 1000 Volts
- C. 2000 Volts
- D. 500 Volts

Ans. A

Ques 7. Consider the system shown. Find the moment of inertia about the diagonal shown.

- A. 1 kg.m^2**
- B. 2 kg.m^2**
- C. 4 kg.m^2**
- D. 6 kg.m^2**

Ans. C

Ques 8. Statement 1: Linear momentum and moment of force have same dimensions.

Statement 2: Planck's constant and angular momentum have same Dimension.

- A. Statement 1 is correct while statement 2 is false**
- B. Statement 1 is false while Statement 2 is correct**
- C. Both statements are correct**
- D. Both statements are false**

Ans. B

Ques 9. A prism has a refractive index $\cot(A/2)$, where A is the refractive angle of the prism. The minimum deviation due to this prism is

- A. $\pi-3A$**
- B. $\pi-2A$**
- C. A**
- D. $A/2$**

Ans. B

Ques 10. A particle performing simple harmonic motion is such that its amplitude is 4 m and speed of particle at mean position is 10 m/s. Find the distance of particle from mean position where velocity becomes 5 m/s.

- A.** $\sqrt{3}$ m
- B.** $2\sqrt{3}$ m
- C.** $\sqrt{3/2}$ m
- D.** $1/\sqrt{2}$ m

Ans. B
