

Yakeen NEET 2.0 2026

Physics by Saleem Sir

DPP: 3

Work, Energy and Power

- Q1** A particle is moved from a position $\vec{r}_1 = (3\hat{i} + 2\hat{j} - 6\hat{k})$ metre to a position $\vec{r}_2 = (14\hat{i} + 13\hat{j} - 9\hat{k})$ metre under the action of a force $\vec{F} = (4\hat{i} + \hat{j} + 3\hat{k})$ N. The work done is equal to:
 (A) 32 J (B) 64 J
 (C) 96 J (D) 46 J
- Q2** A body of mass m is moving in a circle of radius r with a constant speed v . The force on the body is $\frac{mv^2}{r}$ and is directed towards the centre. What is the work done by this force in moving the body over half the circumference of the circle?
 (A) $\frac{mv^2}{\pi r^2}$
 (B) Zero
 (C) $\frac{mv^2}{r^2}$
 (D) $\frac{\pi r^2}{mv^2}$
- Q3** A particle is projected at 60° to the horizontal with a kinetic energy K . Find the kinetic energy at the highest point?
 (A) $\frac{K}{4}$
 (B) $\frac{K}{2}$
 (C) K
 (D) 0
- Q4** A running man has half the kinetic energy of that of a boy of half of his mass. The man speeds up by 1 m/s so as to have same K.E. as that of the boy. The original speed of the man will be
 (A) $\sqrt{2}m/s$ (B) $(\sqrt{2} - 1)m/s$
 (C) $\frac{1}{(\sqrt{2}-1)}m/s$ (D) $\frac{1}{\sqrt{2}}m/s$
- Q5** Two bodies of masses m and $4m$ are moving with equal K.E. The ratio of their linear momentums is—
 (A) 4 : 1 (B) 1 : 1
 (C) 1 : 2 (D) 1 : 4
- Q6** If momentum is increased by 20%, then K.E increases by—
 (A) 44% (B) 55%
 (C) 66% (D) 77%
- Q7** If the increase in the kinetic energy of a body is 21%, then the increase in the momentum will be:
 (A) 22% (B) 44%
 (C) 10% (D) 300%
- Q8** The ratio of the kinetic energy of a particle projected from the ground at the highest point to point of projection is $1/4$. The angle of projection with horizontal is
 (A) 30°
 (B) 60°
 (C) 45°
 (D) 53°



Answer Key

Q1 (D)

Q2 (B)

Q3 (A)

Q4 (C)

Q5 (C)

Q6 (A)

Q7 (C)

Q8 (B)



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