

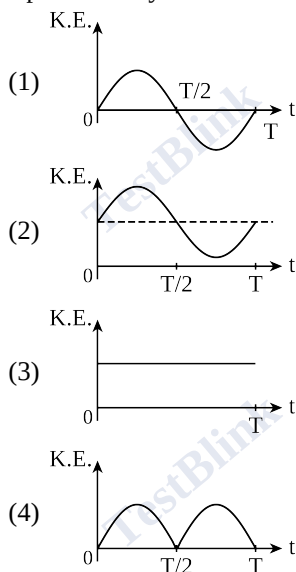
NEET OSCILLATIONS — ENERGY IN SHM — PYQS

Max. Marks: 40

Questions: 10

Section A (MCQ) — 10 questions

- Q.1** For a simple pendulum, having time period T , the variation of kinetic energy (K.E.) with time (t) is represented by : [NEET (UG) 2026]



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- Q.2** The sum of kinetic energy and potential energy of a simple pendulum bob is 0.02 joule. The speed of the simple pendulum bob at equilibrium position is approximately :
(Consider mass of the bob = 20 g)

[NEET (UG) 2026]

- (1) 2.0 m/s (2) 0.2 m/s (3) 14.1 m/s (4) 1.41 m/s

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- Q.3** Consider a spring-mass simple harmonic oscillator in one dimension. The mass of the particle is m kg and the spring constant is k Nm^{-1} . At a given instant, the extension of the spring is x -meter and the speed of the particle is v ms^{-1} . On the $x - v$ plane, if the graph of v as a function of x is a circle, then the correct option is: [RE-NEET (UG) 2026]

- (1) $k = \sqrt{m}$ (2) $k = \frac{1}{m}$
(3) $k = m$ (4) $k = m^2$

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- Q.4** A particle executing simple harmonic motion with amplitude A has the same potential and kinetic energies at the displacement [RE-NEET (UG) 2024]

- (1) $2\sqrt{A}$ (2) $\frac{A}{2}$ (3) $\frac{A}{\sqrt{2}}$ (4) $A\sqrt{2}$

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- Q.5** A body is executing simple harmonic motion with frequency ' n ', the frequency of its potential energy is : [NEET (UG) 2021]

- (1) $4n$ (2) n (3) $2n$ (4) $3n$

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- Q.6** The particle executing simple harmonic motion has a kinetic energy $K_0 \cos^2 \omega t$. The maximum values of the potential energy and the total energy are respectively [AIPMT 2007]

- (1) $K_0/2$ and K_0 (2) K_0 and $2K_0$
(3) K_0 and K_0 (4) 0 and $2K_0$

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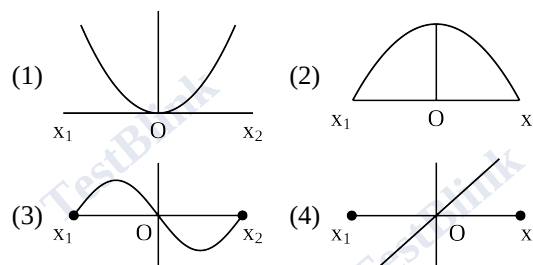
- Q.7** The potential energy of a simple harmonic oscillator when the particle is half way to its end point is [AIPMT 2003]

- (1) $\frac{2}{3}E$ (2) $\frac{1}{8}E$ (3) $\frac{1}{4}E$ (4) $\frac{1}{2}E$

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- Q.8** A particle of mass m oscillates with simple harmonic motion between points x_1 and x_2 , the equilibrium position being O . Its potential energy is plotted. It will be as given below in the graph [AIPMT 2003]



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Q.9 Displacement between maximum potential energy position and maximum kinetic energy position for a particle executing simple harmonic motion is

[AIPMT 2002]

- (1) $\pm a/2$ (2) $+a$ (3) $\pm a$ (4) -1

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Q.10 The total energy of particle performing SHM depends on

[AIPMT 2001]

- (1) k, a, m (2) k, a (3) k, a, x (4) k, x

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ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	
Ans.	4	4	3	3	3	3	3	1	3	2	