

NEET WORK, ENERGY AND POWER — POTENTIAL ENERGY, POTENTIAL ENERGY OF A SPRING — PYQS

Max. Marks: 32
Questions: 8

Section A (MCQ) — 8 questions

- Q.1** The potential energy of a long spring when stretched by 2 cm is U . If the spring is stretched by 8 cm, potential energy stored in it will be :

[NEET (UG) 2023]

- (1) $4U$ (2) $8U$ (3) $16U$ (4) $2U$

Scan or tap for the full solution



- Q.2** Two similar springs P and Q have spring constants K_P and K_Q , such that $K_P > K_Q$. They are stretched first by the same amount (case a), then by the same force (case b). The work done by the springs W_P and W_Q are related as, in case (a) and case (b) respectively

[AIPMT 2015 (Cancelled)]

- (1) $W_P > W_Q$; $W_Q > W_P$ (2) $W_P < W_Q$; $W_Q < W_P$
 (3) $W_P = W_Q$; $W_P > W_Q$ (4) $W_P = W_Q$; $W_P = W_Q$

Scan or tap for the full solution



- Q.3** A block of mass M is attached to the lower end of a vertical spring. The spring is hung from a ceiling and has force constant value k . The mass is released from rest with the spring initially unstretched. The maximum extension produced in the length of the spring will be

[AIPMT 2009]

- (1) $2Mg/k$ (2) $4Mg/k$ (3) $Mg/2k$ (4) Mg/k

Scan or tap for the full solution



- Q.4** A vertical spring with force constant k is fixed on a table. A ball of mass m at a height h above the free upper end of the spring falls vertically on the spring so that the spring is compressed by a distance d . The net work done in the process is

[AIPMT 2007]

- (1) $mg(h+d) - \frac{1}{2}kd^2$ (2) $mg(h-d) - \frac{1}{2}kd^2$
 (3) $mg(h-d) + \frac{1}{2}kd^2$ (4) $mg(h+d) + \frac{1}{2}kd^2$

Scan or tap for the full solution



- Q.5** The potential energy of a long spring when stretched by 2 cm is U . If the spring is stretched by 8 cm the potential energy stored in it is

[AIPMT 2006]

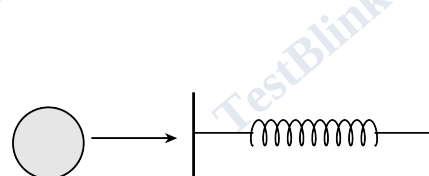
- (1) $U/4$ (2) $4U$ (3) $8U$ (4) $16U$

Scan or tap for the full solution



- Q.6** A mass of 0.5 kg moving with a speed of 1.5 m/s on horizontal smooth surface, collides with a nearly weightless spring of force constant $k = 50$ N/m. The maximum compression of the spring would be

[AIPMT 2004]



- (1) 0.15 m (2) 0.12 m (3) 1.5 m (4) 0.5 m

Scan or tap for the full solution



- Q.7** When a long spring is stretched by 2 cm, its potential energy is U . If the spring is stretched by 10 cm, the potential energy stored in it will be

[AIPMT 2003]

- (1) $U/5$ (2) $5U$ (3) $10U$ (4) $25U$

Scan or tap for the full solution



- Q.8** Two springs A and B having spring constant K_A and K_B ($K_A = 2K_B$) are stretched by applying force of equal magnitude. If energy stored in spring A is E_A , then energy stored in B will be

[AIPMT 2001]

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

Scan or tap for the full solution



ANSWER KEY

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