NOVA SCOTIA ADVANCED PHYSICS 12 · UNIT C · 25 QUESTIONS

Simple Harmonic Motion — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **A pendulum of length 1 metres has period 2 seconds. A pendulum with 4 times the length has period, in seconds, of**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **A pendulum of length 2 metres has period 1.5 seconds. A pendulum with 4 times the length has period, in seconds, of**

ANSWER _____

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3 **A pendulum of length 0.5 metres has period 1 seconds. A pendulum with 4 times the length has period, in seconds, of**

ANSWER _____

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4 **A spring period is 2 seconds. If the spring constant is multiplied by 4, the new period, in seconds, is**

ANSWER _____

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5 **A spring period is 4 seconds. If the spring constant is multiplied by 4, the new period, in seconds, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **A spring period is 1 seconds. If the spring constant is multiplied by 4, the new period, in seconds, is**

ANSWER _____

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7 **An oscillator has amplitude 0.5 metres and angular frequency 4 radians per second. Its maximum speed, in metres per second, is**

ANSWER _____

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8 **An oscillator has amplitude 0.2 metres and angular frequency 10 radians per second. Its maximum speed, in metres per second, is**

ANSWER

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9 **An oscillator has amplitude 1 metres and angular frequency 3 radians per second. Its maximum speed, in metres per second, is**

ANSWER

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10 **An oscillator has amplitude 0.5 metres and angular frequency 4 radians per second. Its maximum acceleration, in metres per second squared, is**

ANSWER

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11 **An oscillator has amplitude 0.2 metres and angular frequency 10 radians per second. Its maximum acceleration, in metres per second squared, is**

ANSWER

Understand It with Pulse | Flag a mistake

12 **An oscillator has amplitude 1 metres and angular frequency 3 radians per second. Its maximum acceleration, in metres per second squared, is**

ANSWER

Understand It with Pulse | Flag a mistake

13 **An oscillator has angular frequency 2 times pi radians per second. Its period, in seconds, is**

ANSWER

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14 **An oscillator has angular frequency 4 times pi radians per second. Its period, in seconds, is**

ANSWER

Understand It with Pulse | Flag a mistake

15 **An oscillator has angular frequency 1 times pi radians per second. Its period, in seconds, is**

ANSWER

Understand It with Pulse | Flag a mistake

16 **A spring of constant 100 newtons per metre is stretched 0.2 metres. The elastic potential energy, in joules, is**

ANSWER

Understand It with Pulse | Flag a mistake

17 **A spring of constant 200 newtons per metre is stretched 0.1 metres. The elastic potential energy, in joules, is**

ANSWER

Understand It with Pulse | Flag a mistake

18 **A spring of constant 50 newtons per metre is stretched 0.4 metres. The elastic potential energy, in joules, is**

ANSWER

Understand It with Pulse | Flag a mistake

19 **In simple harmonic motion the acceleration is proportional to displacement and directed towards**

A equilibrium

B the extreme

C the start

D away from equilibrium

Understand It with Pulse | Flag a mistake

20 **The phase difference between displacement and velocity in simple harmonic motion is**

A 0 degrees

B 90 degrees

C 180 degrees

D 45 degrees

Understand It with Pulse | Flag a mistake

21 **The total energy of an undamped oscillator stays**

A increases

B decreases to zero

C constant

D doubles

Understand It with Pulse | Flag a mistake

22 **A driven oscillator at resonance has amplitude limited only by**

A mass

B length

C gravity

D damping

Understand It with Pulse | Flag a mistake

23 **The period of a mass-spring system is independent of**

- **A** amplitude for ideal springs
- **B** mass
- **C** spring constant
- **D** displacement

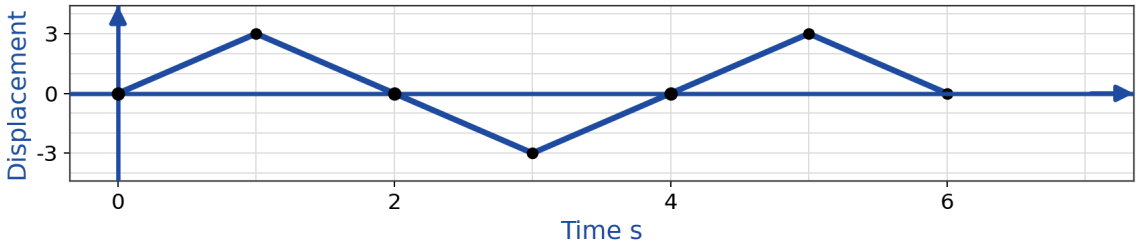
Understand It with Pulse | Flag a mistake

24 **Simple harmonic motion can be modelled as the projection of**

- **A** linear motion
- **B** uniform circular motion
- **C** projectile motion
- **D** wave motion only

Understand It with Pulse | Flag a mistake

25 **The graph shows displacement against time for an oscillator. The amplitude of the oscillator is**



A 6

B 1.5

C 3

D 4

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	4	**10.**	8	**19.**	A
2.	3	**11.**	20	**20.**	B
3.	2	**12.**	9	**21.**	C
4.	1	**13.**	1	**22.**	D
5.	2	**14.**	0.5	**23.**	A
6.	0.5	**15.**	2	**24.**	B
7.	2	**16.**	2	**25.**	C
8.	2	**17.**	1		
9.	3	**18.**	4		

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