NOVA SCOTIA ADVANCED PHYSICS 12 · UNIT B

Static Equilibrium, Gravitation and Collisions — Practice Test

Nova Scotia Advanced Physics 12 • 25 questions

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 seesaw pivot has a clockwise torque from 20 newtons at 2 metres and an anticlockwise torque from 10 newtons at 3 metres. The net torque, in newton metres, is**



ANSWER

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2 **A pivot has a clockwise torque from 30 newtons at 2 metres and an anticlockwise torque from 20 newtons at 2 metres. The net torque, in newton metres, is**

ANSWER

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3 **A pivot has a clockwise torque from 10 newtons at 4 metres and an anticlockwise torque from 5 newtons at 4 metres. The net torque, in newton metres, is**

ANSWER

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4 **Two masses attract with force 100 newtons. If one mass doubles and the distance doubles, the new force, in newtons, is**

ANSWER

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5 **Two masses attract with force 200 newtons. If one mass doubles and the distance doubles, the new force, in newtons, is**



ANSWER

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6 **Two masses attract with force 80 newtons. If one mass doubles and the distance doubles, the new force, in newtons, is**

ANSWER _____

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7 **Objects of momentum 20 and 30 kilogram metres per second move in the same direction and stick together. Their total momentum is**

ANSWER _____

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8 **Objects of momentum 15 and 25 kilogram metres per second move in the same direction and stick together. Their total momentum is**

ANSWER _____

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9 **Objects of momentum 10 and 10 kilogram metres per second move in the same direction and stick together. Their total momentum is**

ANSWER _____

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10 **A 4 kilogram object at 5 metres per second collides with a 2 kilogram object at 3 metres per second in the opposite direction. The total momentum, in kilogram metres per second, is**



ANSWER

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11 **A 6 kilogram object at 4 metres per second collides with a 3 kilogram object at 2 metres per second in the opposite direction. The total momentum, in kilogram metres per second, is**

ANSWER

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12 **A 5 kilogram object at 6 metres per second collides with a 2 kilogram object at 4 metres per second in the opposite direction. The total momentum, in kilogram metres per second, is**

ANSWER

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13 **Surface gravity is 10 metres per second squared. At a distance of 2 Earth radii from the centre, the gravity is**

ANSWER

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14 **Surface gravity is 20 metres per second squared. At a distance of 2 Earth radii from the centre, the gravity is**

ANSWER

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15 **Surface gravity is 40 metres per second squared. At a distance of 2 Earth radii from the centre, the gravity is**



ANSWER

Understand It with Pulse | Flag a mistake

16 **A uniform beam weighs 100 newtons and carries a load of 50 newtons at its centre. The total upward support force needed, in newtons, is**



ANSWER

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17 **A uniform beam weighs 200 newtons and carries a load of 100 newtons at its centre. The total upward support force needed, in newtons, is**

ANSWER

Understand It with Pulse | Flag a mistake

18 **A uniform beam weighs 80 newtons and carries a load of 20 newtons at its centre. The total upward support force needed, in newtons, is**

ANSWER

Understand It with Pulse | Flag a mistake

19 **The moment of a force is zero when the force acts**

- A through the pivot
- B far from the pivot
- C at an angle
- D upward only

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20 **A couple consists of two equal and opposite forces that produce**

- A translation only
- B rotation without net force
- C no effect
- D a net force

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21 **Newton's law of gravitation states that force is proportional to the product of the masses and inversely proportional to the**

A distance

B cube of the distance

C square of the distance

D sum of masses

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22 **Geostationary satellites orbit above the equator with a period of**

A 12 hours

B 1 hour

C 1 year

D 24 hours

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23 **In a perfectly elastic collision between equal masses, one moving and one at rest, the moving mass**



A stops and the other moves off with its speed

B bounces back

C sticks to the other

D doubles its speed

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24 **The centre of mass of a system moves as if all mass were concentrated at**

- A the heaviest object
- B one point acted on by external forces
- C the pivot
- D the lightest object

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25 **For a body in equilibrium under three forces, the forces must be**

- A equal in size
- B all vertical
- C concurrent or parallel with zero vector sum
- D all horizontal

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ANSWER KEY

1.	10	**10.**	14	**19.**	A
2.	20	**11.**	18	**20.**	B
3.	20	**12.**	22	**21.**	C
4.	50	**13.**	2.5	**22.**	D
5.	100	**14.**	5	**23.**	A
6.	40	**15.**	10	**24.**	B
7.	50	**16.**	150	**25.**	C
8.	40	**17.**	300		
9.	20	**18.**	100		

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