Nalanda College - Colombo 10

Unit Evaluation

Grade 10 | Science | Unit 4 - Newton's Laws of Motion(Physics)

01 Farce applied on a 10Kg object to reach $4ms^{-2}$ of acceleration.

(1) 20 N (2) 40 N (3) 10 N (4) 80 N

02 Masses and magnitudes of external forces acting on three objects x, y and z moving in a straight line are given in a table. The object with equal acceleration are,

	Mass	External force
x	4	28
y	9	63
z	6	12

(1) x and y (2) y and z (3) x and z (4) All x, y and z

03 Whish is not explained with Newton's third low?

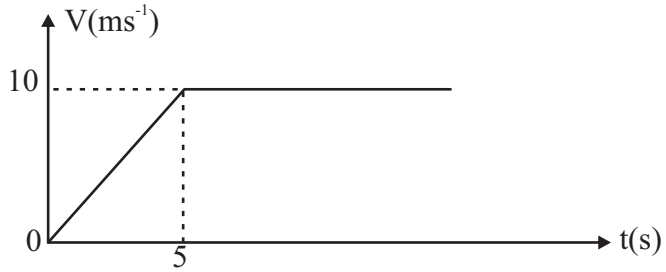
(1) falling a stone from a mountain. (2) Swimming

(3) rowing a steam boat (4) motion of roclet

04 Unbalanced force of 100N is applied to a motor car with a mass of 25Kg. When it is moving, what is the acceleration?

(1) $0.25ms^{-2}$ (2) $4ms^{-2}$ (3) $2500ms^{-2}$ (4) $400ms^{-2}$

• Questions from5 - 7 are based on the following velocity - time graph.



05 Acceleration during first 15S.

(1) $2.5ms^{-2}$ (2) $5ms^{-2}$ (3) $10ms^{-2}$ (4) $2ms^{-2}$

06 If the mass of this moving object is 20Kg. What is the unbalanced force acting on it during first 5S?

(1) 40N (2) 400N (3) 100N (4) 10N

07 Which of the following formulae does not relative with the motion of an object?

(1) force = pressure x area.

(2) Acceleration = $\frac{\text{Final velocity - Initial velocity}}{\text{Time}}$

(3) Force = mass x acceleration

(4) momentum = mass x velocity

08 An object of mass 10Kg was moved on a surface using a force of 30N. If an object of similar mass was placed on it, What is not possible to happen,

(1) Object c coming stationary.

(2) Frictional force acting on the body to increase

(3) Velocity of the object to decrease.

(4) Object moving with constant velocity

09 If the mass of the ball is 0.01Kg, the gravitational force acting on it is,

(1) 1 N (2) 0.1 N (3) 0.001 N (4) 10 N

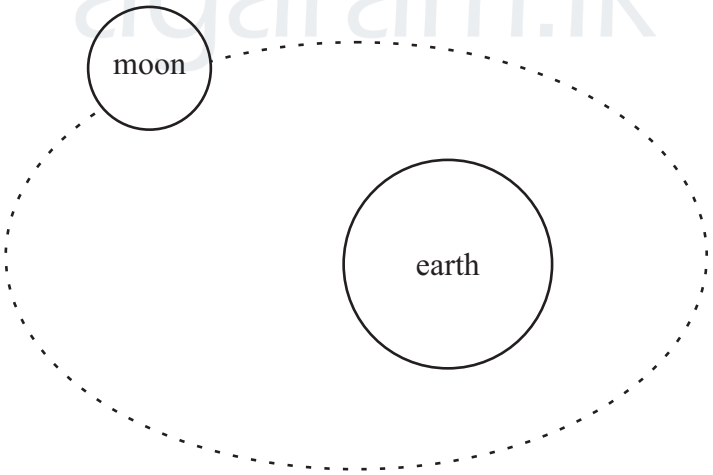
10 What is the unit if the momentum?

(1) $Kgms^{-2}$ (2) N (3) Nm (4) $Kgms^{-1}$

Structured Essay Questions

01 Moon is the only satellite of the planet

(A) earth



(i) The gravitational acceleration on the moon is 1/6 th that of the earth. What would be the weight of an astronaut of mass 70Kg on the moon? ($g = 10ms^{-2}$)

.....

(ii) What is the attractive force exerted by the earth on a mass of 4Kg

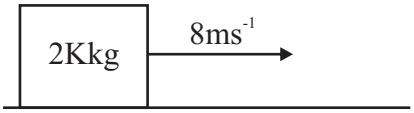
.....

(iii) State Newton's second law

.....

(iv) As shown in the figure an

(a) Object of mass 2Kg moving at a uniform velocity of 8ms-1 subsequently came to rest due to uniform deceleration. If the time that it decelerated n is 4S, what is the momentum before the deceleration starts?



.....

(b) Find the deceleration of the object given in the figure.

.....

Essay Questions

01 (i) State Newton's first law.

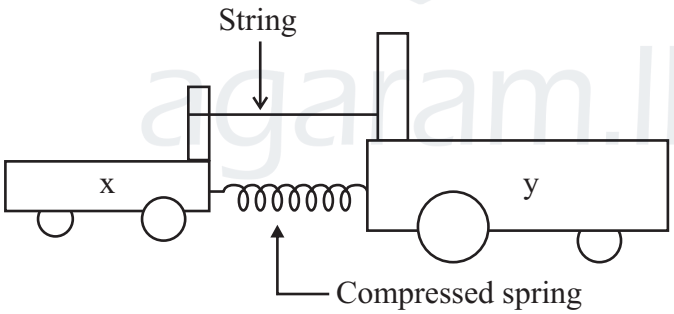
(ii) Why are the passengers standing on a moving bus, thrust forward when brakes are suddenly applied?

(iii) What is the benefit of wearing seat belts when traveling in vehicles?

(iv) At a certain instance, the momentum of an object is 12Kgms^{-1}. If its velocity at that instant is 6ms^{-1}, what is its mass?

(v) What are the factors affecting the momentum of an object.

02



An instance illustrating the action and reaction is shown in the given figure.

(i) Write two observations you expect to see when the string is cut?

(ii) What is the direction of the movement at the trolley 1 x

(iii) Explain the reason for the movement.

(iv) If you use any law for explanation write down it.

Agaram.LK - Keep your dreams alive!