Holiday Assignments

Section Name: A/L

Subject: Physics **Grade : 12 E Sci** **Medium:English**

Physics I *Model Paper-1* **1 hours**

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(01) The SI unit used to measure momentum is"

(1) Ns (2) $kgms^{-2}$ (3) kgm^2s^{-1} (4) Ns^{-1} (5) kgm^2s^{-2}

(02)The momentum K is given in terms of time t and displacement *x* by the equation'

$$K = AsinBx + CcosDt$$

The dimensional formular of D/B is

(1) $M^0L^0T^0$ (2) $M^0L^1T^{-1}$ (3) $M^0L^{-1}T^{-1}$ (4) ML^1T^{-1} (5) $ML^{-1}T^1$

(03)Circular scale of a spherometer having 250 divisions moves on the main scale 0.5 cm distance as it completes one revolution. The least count of the instrument is

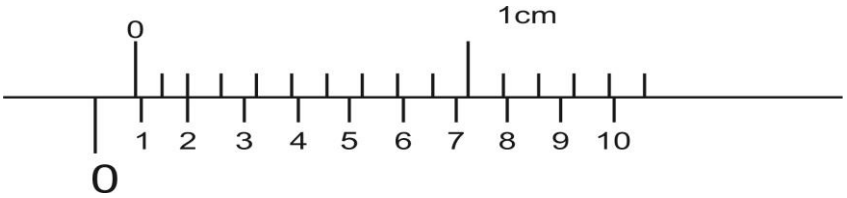
(1) $2X10^{-1}$cm (2) $2X10^{-2}$cm (3) $2X10^{-3}$cm (4) $2X10^{-4}$cm (5) $2X10^{-5}$cm

(04)Which of the following is/are units of energy

A) M W h B) N m C) eV

(1) Only A (2) Only C (3) Only A and B (4) Only A & C (5) All

(05) The main scale of above verneir caliper consist of 1 mm division and verneir scale made by such 19 division divided by 10 equal divisions. The zero error of verneir calliper is



(1) 0.2mm (2) 0.6mm (3) 0.8mm (4). 1.4mm (5) 1.8mm

(06)A racing car which started from 20 ms^{-1} speed accelerates constantly at $12ms^{-2}$ and cover's *x* displacement during the 5th second of its motion. *x* is equal to

(1) 62m (2) 74m (3) 86m (4) 125m (5) 250m

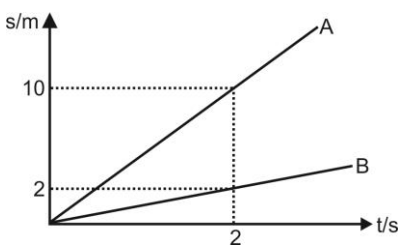
(07)An object A is prrojected with speed $80ms^{-1}$ speed vertically upwards against gravity. At the same time other object B is released from rest height above 80m from A. The time lapse before A and B collide is

(1) 0.5s (2) 1s (3) 2s (4) 4s (5) 8s

(08)An object is projected with vertical and horizontal velocities of $100ms^{-1}$ and $40ms^{-1}$ respectively on the earth surface. The horizontal range of the object is.

(1) 200m (2) 400m (3) 800m (4) 1600m (5) 3200m

(09)The displacement(s) – time (t) graph of an objects A and B as shown in figure. the velocity of A relative to B is" (ms^{-1})



(1) 1 (2) 2 (3) 4
(4) 6 (5) 8

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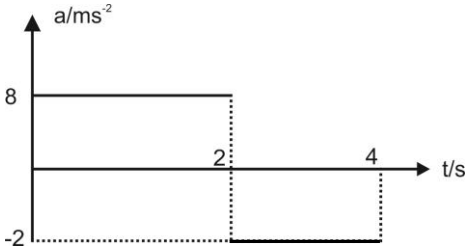
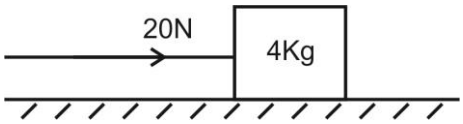
(10) Acceleration (a) – time (t) graph of an object stating with velocity 4 ms^{-1} as shown in figure. The velocity f the object at t = 4s is



(1) $4ms^{-1}$ (2) $8ms^{-1}$ (3) $12ms^{-1}$
(4) $16ms^{-1}$ (5) $20ms^{-1}$

(11) A mass 4 kg is placed on smooth surface at rest as shown in figure. An external horizontal force 20N applied on the object as shown on the object. The velocity of the object achieved in 2s is



(1) $2ms^{-1}$ (2) $5ms^{-1}$ (3) $10ms^{-1}$ (4) $15ms^{-1}$ (5) $30ms^{-1}$

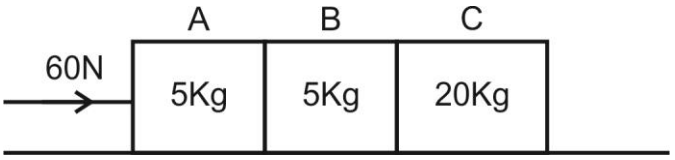
(12) The displacement (y) of the object Varying with time (t) according to the following equation.

$$Y = 8t^2 + 10t - 2$$

The velocity of the object in 5s is

(1) $10ms^{-1}$ (2) $30ms^{-1}$ (3) $50ms^{-1}$ (4) $70ms^{-1}$ (5) $90ms^{-1}$

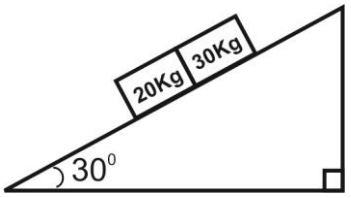
(13) A 60N force applies on the objects of A, B and C as shown in figure. If the surfae is smooth. The ratio between



$$\frac{Reaction\ force\ between\ A\ \&\ B}{Reaction\ force\ between\ B\ \&\ C}$$ is

(1) 0.8 (2) 1.25 (3) 1.6 (4) 2.5 (5) 3.2

(14) The objects 20 kg and 30 kg is placed on smooth inclined plane contact with each other at rest. The reaction force between them when they move is



(1) 0N (2) 50N (3) 100N
(4) 150N (5) 200N

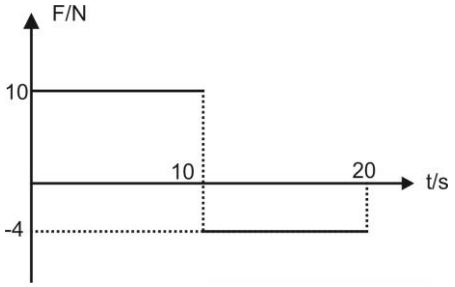
(15) An object of mass 5 kg is placed on a horizontal surface of coefficient of friction between the object and surface 0.5. If a horizontal force 20N is applied on the object, the magnitude of frictional force and acceleration of the object are,

	Frictional Force	Acceleration
(1)	25 N	0
(2)	25 N	$1ms^{-2}$
(3)	25 N	$-1ms^{-2}$
(4)	20 N	0
(5)	20 N	$1ms^{-2}$

(16) A shell is projected from a gun that is positioned on horizontal ground, so that shell would land at a target" which is located at a distance 1000m from the position of the gun. Accidentally the shell explodes into three identical pieces at a certain point of its trajectory. Three pieces land at the same moment after travelling in the same vertical plane. If two pieces land at distances 400m and 1200m in the direction of the target from the gun. The distance to the landing point of third particle from the gun is

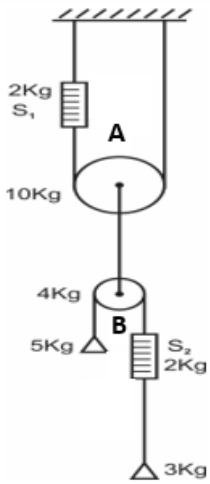
(1) 200m 12) 600m (3) 1000m (4) 1400m (5) 1800m

(17) A force F varying with time as indicated in the figure is applied to the object of mass 10 kg which is moving initially with the velocity 4 ms^{-1}. After 20s the speed of the object is



(1) $2ms^{-1}$ (2) $6ms^{-1}$ (3) $10ms^{-1}$
(4) $14ms^{-1}$ (5) $20ms^{-1}$

(18) The mass of A and B pulleys are 10kg and 4kg respectively. Two identical spring balance of S1 and S2 mass 2 kg each connect to the pulley as shown in figure. The readings of S1 and S2 respectively are



(1) 26kg, 5kg
(2) 24kg, 3kg
(3) 13kg, 3kg
(4) 12kg, 5kg
(5) 12kg, 3kg

(19) A stream of water of density 1000 kgm^{-3} flowing horizontally with speed 2 ms^{-1} gushes out of tube of area 100 cm^2 hits at a vertically wall normally. Assuming that speed of water after impact is zero, the force exerted on the wall by water is

(1) 0.04N (2) 0.4N (3) 4N (4) 40N (5) 400N

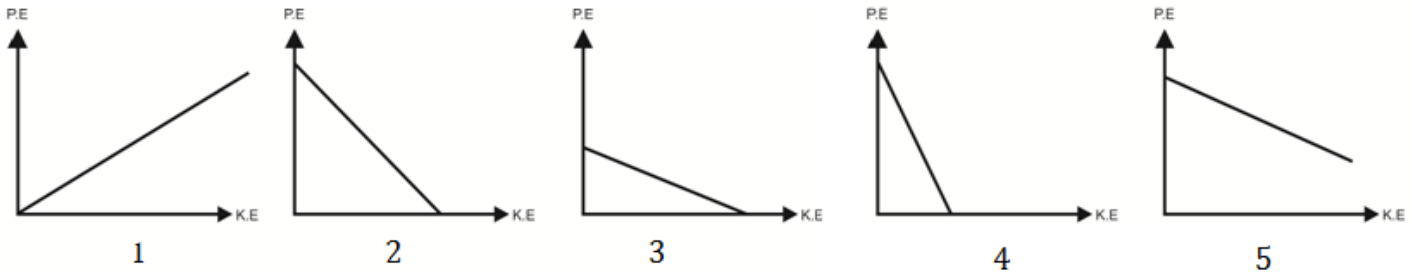
(20) A ball is thrownup at an angle of 60º to the horizontal with kinetic energy E. The kinetic energy at the highest point of its flight will be

(1) 0 (2) $\frac{E}{\sqrt{2}}$ (3) $\frac{E}{4}$ (4) $\frac{E}{2}$ (5) $\frac{3E}{4}$

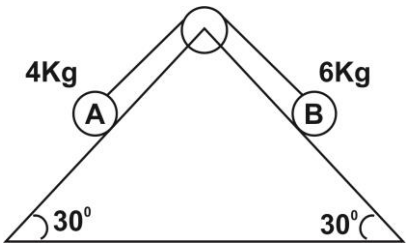
(21) If the linear momentum of an object is increased by 30%, the kinetic energy increases by

(1) 30% (2) 69% (3) 99% (4) 130% (5) 169%

(22) An object is released at height h from the ground. The best variation of potential energy (P.E) Vs kinetic energy. (K.E) is,



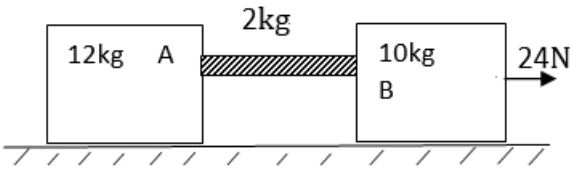
(23) A and B are two objects of mass 4kg & 6kg are connected to a light string passing over a smooth pulley. If the system is released at rest on smooth surface, consider the following statements.



A. Acceleration of the both objects are same'
B. Tension on string is 24N'
C. Velocity of the object A after 5s is 5ms^{-1}

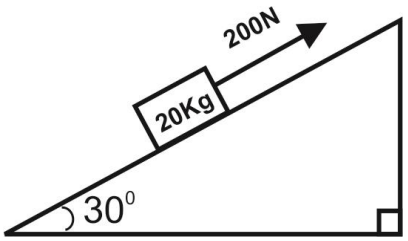
(1) Only A and B (2) Only B and C (3) Only A and C (4) Only B (5) All

(24) The objects of 1mass 2kg and 10kg are connected by heavy rope AB mass 2kg as shown in figure. When an external horizontal force 24 Napplies on 10 kg, tension of the rope at middle is



(1) 10N (2) 11N (3) 12N (4) 13N (5) 15N

(25) 20 kg object moving along the rough surface of coefficient of friction μ at a constant speed 10 ms^{-1} under the influence of 200N external force. The value of μ is



(1) $\sqrt{\frac{2}{3}}$ (2) $\frac{1}{3}$ (3) $\frac{1}{\sqrt{3}}$ (4) $\frac{\sqrt{3}}{2}$ (5) 0.5