

KAMONYI DISTRICT

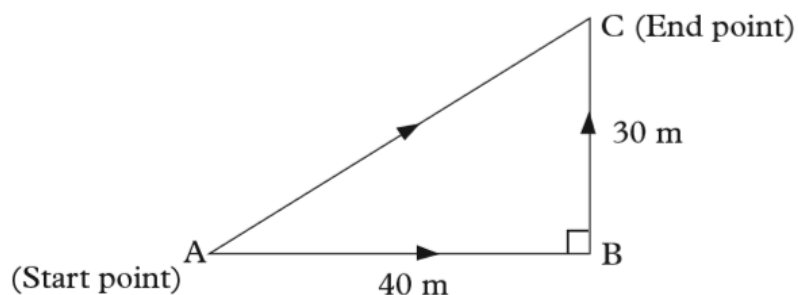
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RUNDA SECTOR

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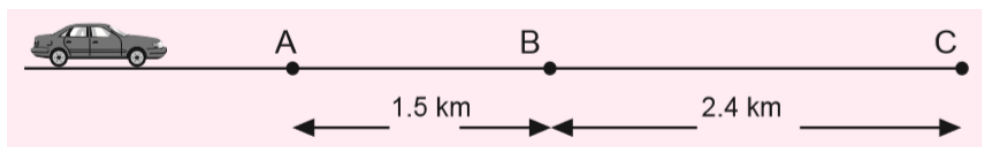
PHYSICS REVISION EXERCISES FOR S3A,B&C

1. a) define: i) fundamental quantity ii) derived quantity
b) give any two examples of derived quantity and fundamental quantity
c) write the S.I unit for: density, velocity, mass, force and acceleration.
2. calculate the volume of a cuboid which has length of 10m, width of 5m and height of 8m.
3. an object of volume 0.00425 m^3 has 36kg. determine its density in kg/m^3 .
4. a) the density of mercury is 13.6g/cm^3 . What is the volume if its mass 200g?
b) what do you understand by density?
5. a) differentiate distance from displacement.
b) consider the figure below



determine: a) distance b) displacement

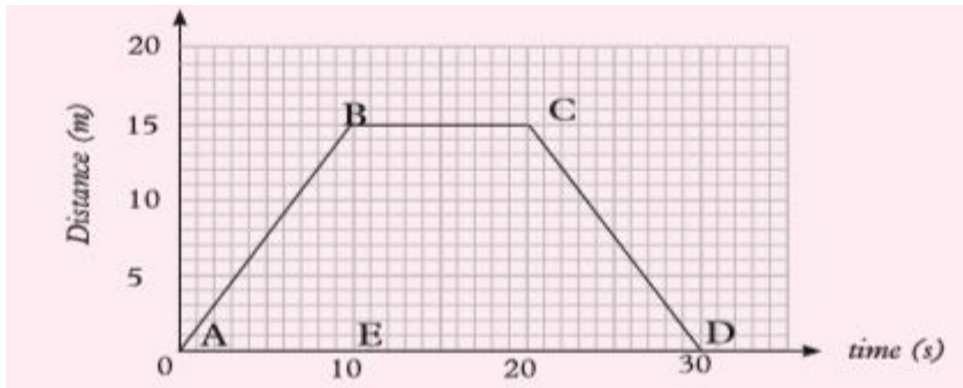
6. a car moving along a straight road ABC as shown below the average speed of a car is 90km/h between point A and B and 36km/h between point B and C.



Calculate the: (a) Total time taken in seconds by the car between points A and C.

(b) Average speed in metres per second of the car between points A and C.

7. The Fig. below shows a distance-time graph for a motorist. Study it and answer the questions that follow.

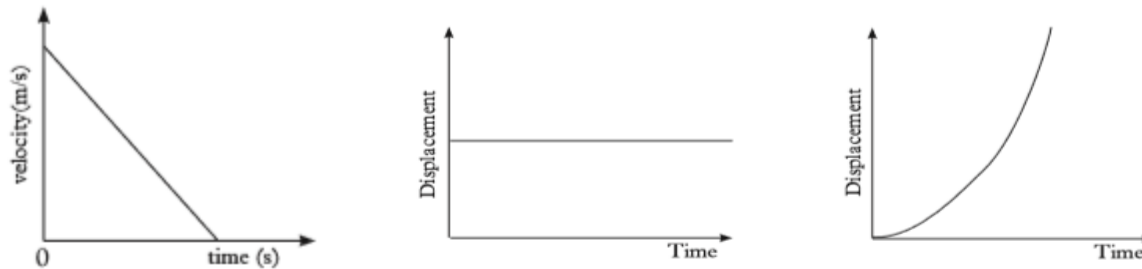


(a) How far was the motorist from the starting point after 10 seconds?

(b) Calculate the average speed of the motorist for the first 10 seconds.

(c) Describe the motion of the motorist in regions (i) BC (ii) CD

8. observe the graphs below and identify the types of motion for each case.



9. a) give any two types of contact forces

b) use a table to differentiate weight and mass.

10.a) a metal bob of mass 20g is suspended using a light thread. Calculate the tension developed in the thread. Take $g=10\text{N/Kg}$

b) define force and state its S.I unit.

c) state newton's first law of motion.

11. a) an object of mass 4kg accelerates to 5m/s^2 . Calculate the resultant force.

b) state third newton's law of motion.

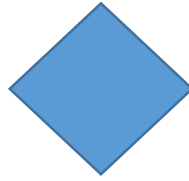
12. determine the force of gravitational attraction between a student of mass 60kg and the earth of distance $6.4 \times 10^6\text{m}$ from the Centre of earth (mass of the earth = $5.98 \times 10^{24}\text{Kg}$, $G = 6.67 \times 10^{-11}\text{Nm}^2/\text{Kg}^2$)

13. find the centre of gravity of the following figures.

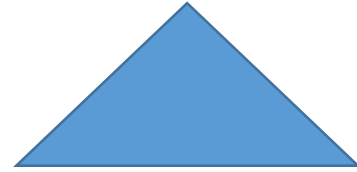
a)



b)



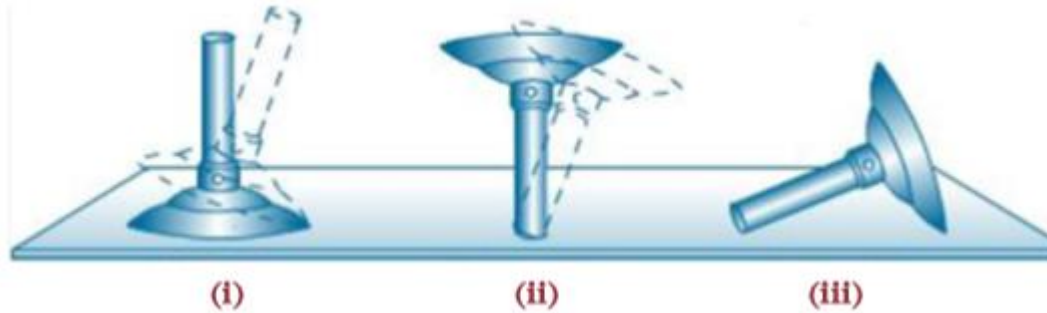
c)



d)



14. state the types of stable equilibrium.



15. a) find the work done in lifting a mass of 2Kg vertically up words through 10m ($g=10\text{m/s}^2$)

b) what power is developed by a boy who lifts a 300N block through 10m in 10 seconds?

c) define: a) energy b) power

d) give any four forms of energy.

16. A crane is used to lift a body of mass 30Kg through a vertical distance of 6.0m.

a) how much work is done on the body?

b) what is the Potential energy (P.E) stored in the body?

17. a) differentiate potential energy from kinetic energy.

b) a brick of mass 0.5Kg moves at a velocity of 10m/s. calculate its kinetic energy.

c) give any three sources of energy.

18. a) name any changes in energy that takes place when a torch is switched on.

b) name the energy changes that takes place when lighting match box.

C) state the law of conservation of energy.

19. a) define simple machine

b) An effort of 250N raises a load of 900N through 5m in a machine. if the effort moves through 25m, find: a) the useful work done in raising the load

b) the work done by the effort.

- c) the efficiency of the machine
- d) give any two types of simple machine

20. a) state the kinetic theory of matter

b) define: i) evaporation

ii) boiling point

c) i) differentiate heat and temperature.

ii) express the room temperature of 27°C in kelvin.

iii) convert 302°F to Celsius scale.

21. a) define. i) magnet ii) ferromagnetic material

b) differentiate permanent magnet from temporary magnet

22. The magnets shown in Fig. below, pole B attracts pole P and pole Q attracts pole X. If pole Y is South pole:



(a) What is the polarity of P?

(b) What would happen if the following poles are brought close together: (i) pole B and X

(ii) pole A and pole Q

(iii) pole B and pole Y

(c) Draw a magnetic field pattern when pole B and P are placed near each other.

23. a) Identify any 4 methods of charging bodies

b) State the basic law of electrostatics.

c) State Coulomb's law.

24. Two point charges each with a charge of 2.0C and 5C are separated by a distance of 3m .

Determine the magnitude of the electrostatic force between them. ($K=9 \times 10^9 \text{Nm}^2/\text{C}^2$)

25. Name the following electrical symbols:



26. Draw a simple circuit that contains the following elements:

i) cell ii) bulb iii) switch iv) connecting wire

27. Calculate the amount of charge that pass through the point in a circuit in 3 seconds if the current in the circuit is 0.5A .

28)a) state Ohm's law.

b) Calculate the voltage if the current of 2A pass through a resistance of 100Ω .

29. An electrical bulb with power 40W and voltage of 240V calculate:

a) the resistance of the filament used in the bulb.

b) the current through the filament when the bulb works normally.

30.a) Identify any 2 sources of light.

b) Identify any 2 non-luminous sources of light.

c) State the laws of reflection.

31.a) Identify the types of errors

b) Differentiate precision from accuracy.

32. You measure a zero value (starting point) of a meter stick as; $x = (0.10 \pm 0.05)$ cm. You measure the position of the end of an object as being $y = (10.34 \pm 0.05)$ cm.

Calculate the length of the object.

33. The length of the window is estimated to be 50.5cm when one measured, he got 50cm. Calculate:

a) Absolute error

b) Relative error

34. use the table below to calculate the following:

Measurement	Data set in cm
X_1	80
X_2	81
X_3	84
X_4	85
X_5	87
X_6	90

a) The mean b) the range c) the uncertainty in measurement d) the uncertainty in the mean e) the measured value

35.a) Round off the following numbers to the nearest tens: i)135 ii)234 iii)525

b) Identify the number of significant figures in the following: i)0.005 ii)65.002 iii)50.0500

36.a) As a bus comes to stop, it slows from 9.00m/s to 0.00m/s in 360s. Find the average acceleration of the bus.

b) A ball thrown upward with an initial velocity of 20 m/s. What will its velocity be after 3s if it undergoes a constant acceleration of $a = 10\text{m/s}^2$ downward?

37. A stone is thrown vertically upwards with an initial velocity of 14m/s. Neglecting air resistance,

Find: a) The maximum height reached;

b) The time taken before it reaches the ground. (acceleration due to the gravity is 9.8m/s^2)

38.a) define friction force

b) write down any two advantages and disadvantages of friction force.

c) identify the factors that affect the friction force.

39. a) calculate the pressure on the surface when a force of 30N acts on area of 0.2m^2

b) define pressure and state S.I unit in which pressure can be expressed.

c) A brick of mass 3Kg measures 6m by 4m by 3m .

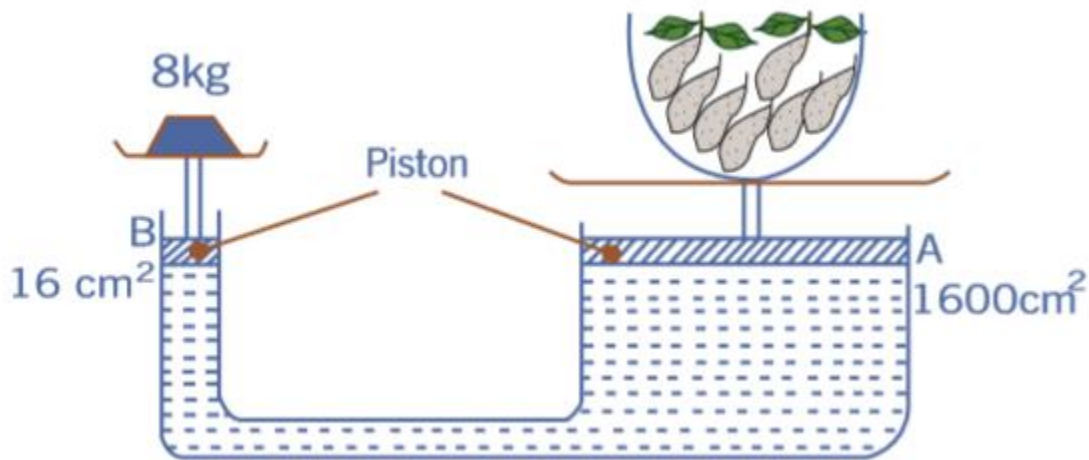
i) what is the greatest pressure it can exert when placed on a flat surface?

ii) what is the least pressure it can exert?

d) calculate the pressure at a depth of 2m in swimming pool filled with water.

e) what is the instrument that is used to measure the pressure?

40.



a) What is the pressure at B?

b) What is the pressure at A?

c) What is the weight of the vegetable on the large piston A if the weight bridge is in equilibrium?

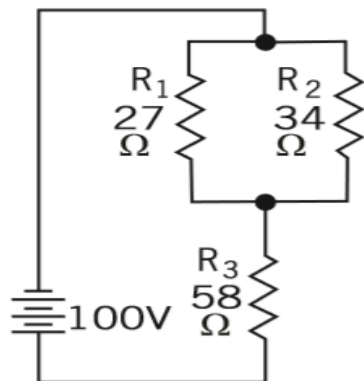
41. A body weighs 450g in air and 310g when completely immersed in water. Find:

a) the loss in weight of the body

b) the up thrust on the body

c) the volume of the body

- d) the relative density of the solid.
42. The mass of a block made of certain material is 13.5kg and its volume is $15 \times 10^{-3} \text{m}^3$. Will the block float or sink in water? Give a reason for your answer.
43. A 7.00kg bowling ball moves at 3.00m/s. How much kinetic energy does the bowling ball have? How fast must a 2.45g table tennis ball move in order to have the same energy as the bowling ball?
44. A person performs 120J of work in order to a desk across a floor. How much force should be applied to move the desk through a distance of 60cm.
45. a) define ideal gas.
b) state Dalton's law of partial pressure.
46. a) differentiate magnetization from demagnetisation.
b) identify any three mods of magnetisation.
c) give any two methods of demagnetisation.
47. a) state Gauss's law
b) give any two application of electrostatics.
48. a) state ohms' law.
b)



- i) Find the equivalent resistance.
ii) Calculate the total current in the circuit.
49. Define: a) velocity b) acceleration c) displacement
50. A body A of a mass 4 kg moves to the left with a velocity of 7 m/s. Another body B of mass 7 kg moves to the right with a velocity of 6 m/s as shown in Fig. below



Calculate: (a) the momentum of A, (b) the momentum of B, (c) the total momentum of A and B.

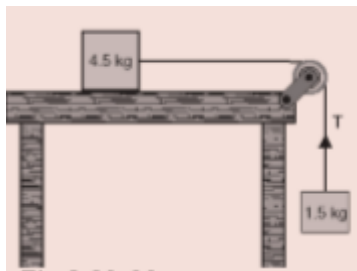
51.a) Use the table to differentiate linear momentum from impulse.

b) A hammer strikes a metal rod with a force of 20 N. If the impact lasts 0.4 s, calculate the impulse due to this force.

52. A truck of mass 2.5 tones accelerate at 7.5 m/s^2 . Calculate the force generated by the truck's engine to attain this acceleration.

53. A car of mass 1 500 kg is brought to rest from a velocity of 25 m/s by a constant force of 3 000 N. Determine the change in momentum produced by the force and the time it takes the car to come to rest.

54. The following Fig. shows a block of mass 4.5 kg resting on a smooth horizontal surface. It is attached to another block of mass 1 kg using a light inextensible string passing over a frictionless pulley.



Determine:

(a) The acceleration of the system. (b) The tension in the string.

55. A 5 kg mass moving with a velocity of 10 m/s collides with a 10 kg mass moving with a velocity of 7.0 m/s along the same line. If the two masses join together on impact, find their common velocity if they were moving: (a) in opposite direction

(b) in the same direction

56. A force of 25 N just limits the motion of a block of mass 50 kg which is being dragged on the horizontal ground. Calculate the coefficient of static friction force.

57.a) define the term “atmospheric pressure”

b) Describe the existence of an atmospheric pressure.

c) Explain how an altitude and humidity influence the atmospheric pressure.

d) Name the liquid that is used for constructing instruments the measures atmospheric pressure. Give a reason why the liquid is preferred over others.

58. An object is placed 15Cm from a convex mirror of focal length 10Cm. find the image distance and the magnification produced.

End