

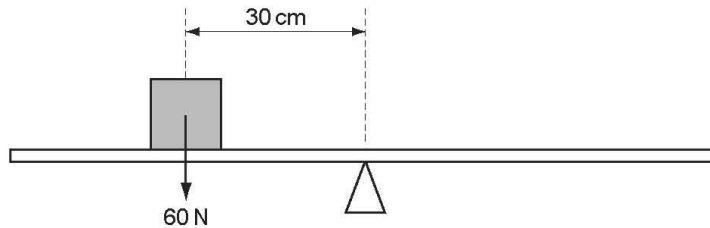


Class 10

Dated: 27th March 27, 2015

Worksheet # 05

1. A uniform beam is balanced at its midpoint. An object is placed on the beam, as shown.



Which force will rebalance the beam?

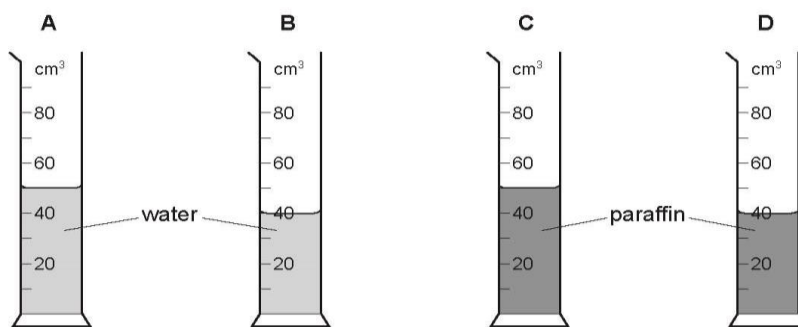
- A 30 N acting upwards, 60 cm to the left of the midpoint
- B 30 N acting upwards, 60 cm to the right of the midpoint
- C 45 N acting downwards, 45 cm to the right of the midpoint
- D 90 N acting downwards, 20 cm to the left of the midpoint

2. Four identical measuring cylinders contain liquid.

Two contain water of density 1000 kg / m^3 .

Two contain paraffin of density 800 kg / m^3 .

Which cylinder has the least pressure exerted on its base by the liquid it contains?



3. The diagram represents parts of a power station.



coal-fired boiler turbine electricity generator

What is the order of the energy changes taking place?

- A chemical → heat → kinetic → electrical
- B chemical → kinetic → heat → electrical
- C heat → chemical → kinetic → electrical

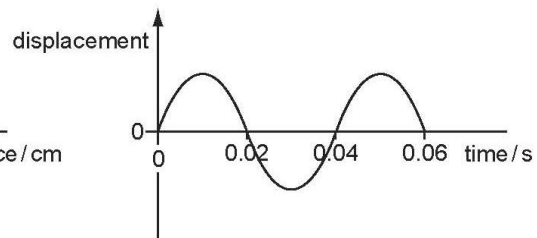
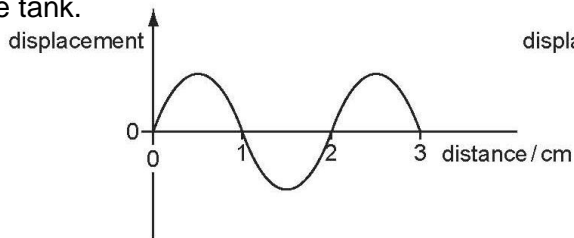
D kinetic → chemical → heat → electrical

4. A balloon filled with air is gently heated.

What happens to the mass and the density of the air inside the balloon?

	mass	density
A	decreases	decreases
B	decreases	stays the same
C	stays the same	decreases
D	stays the same	stays the same

5.. The displacement-distance and displacement-time graphs are for a water wave in a ripple tank.



What is the speed of the water wave?

A 0.02 cm / s B 0.08 cm / s C 25 cm / s D 50 cm / s

The City School

North Nazimabad Boys Campus



Class 9

Dated: 27th March 27, 2015

Worksheet #4

Submission Due by: 1st April 2015

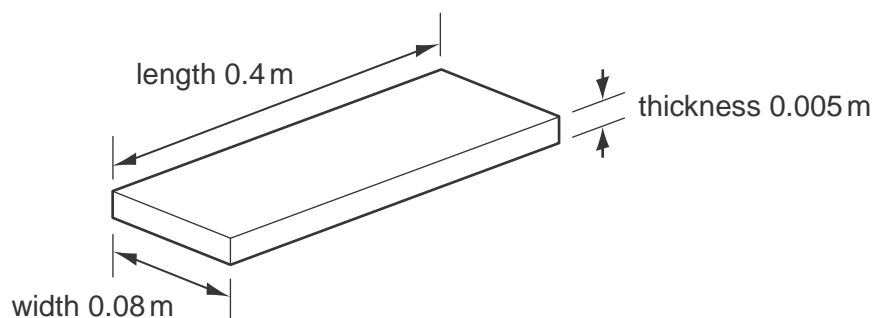
Instructions

No printouts of the assignment is required .
Just submit the answers in your study journal

Multiple Choice Questions (5054 Paper 1)

- 1 A manufacturer measures accurately the dimensions of a wooden floor tile.

The approximate dimensions of the tile are shown.



Which instruments are used to measure accurately each of these dimensions?

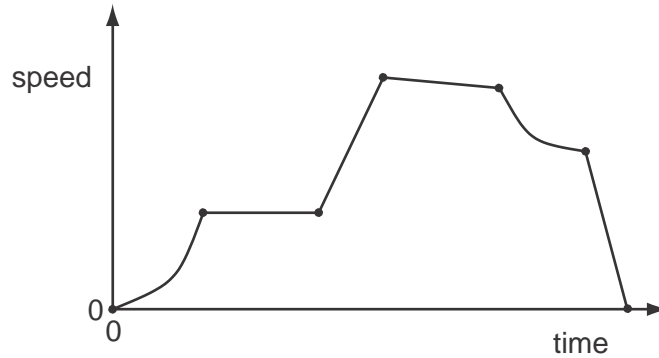
	length	thickness	width
A	metre rule	micrometer	vernier calipers
B	metre rule	vernier calipers	micrometer
C	micrometer	metre rule	vernier calipers
D	vernier calipers	micrometer	metre rule

- 2 Which pair of quantities includes one scalar and one vector?

- A mass time
B temperature time
C temperature velocity
D velocity weight

3 The speed-time graph represents the journey of a car.

The dots separate different sections of the journey. There are six different sections.



How many sections represent the car moving with non-uniform acceleration?

4 A steel ball is released just below the surface of thick oil in a cylinder.

During the first few centimetres of travel, what is the acceleration of the ball?

- A constant and equal to 10 m/s^2
- B constant but less than 10 m/s^2
- C decreasing
- D increasing

A 0 B 1 C 2 D 3

5. A car of mass 1500 kg is towing a trailer of mass 1100 kg along a level road. The acceleration of the car is 1.30 m/s^2 .

Ignoring friction and air resistance, what is the driving force on the car?

- A 1430 N B 1950 N C 2000 N D 3380 N



Answer **all** the questions in this section..

- 1 A student wishes to find the density of a stone. He uses a measuring cylinder and a spring balance with a scale marked in newtons. The measuring cylinder, spring balance and stone are shown in Fig. 1.1.

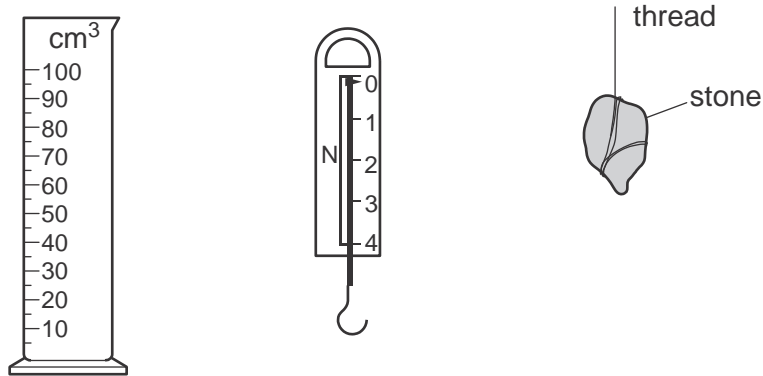


Fig. 1.1

The student knows that the gravitational field strength is 10 N/kg.

- (a) Describe how the student uses the spring balance to find the mass of the stone.

.....

 [2]

- (b) Describe how the student uses the measuring cylinder to find the volume of the stone.

.....

 [2]

- (c) The mass of the stone is 150 g and its volume is 70 cm³.
 Calculate the density of the stone.

density of stone = [1]

- (d) The stone is taken to another place, where the gravitational field strength is less than 10 N/kg. State how this affects the mass and the weight of the stone.

mass
 weight

- 2 Fig. 2.1 illustrates the journey of a cyclist from point A to point B. Points A and B are at the same height.

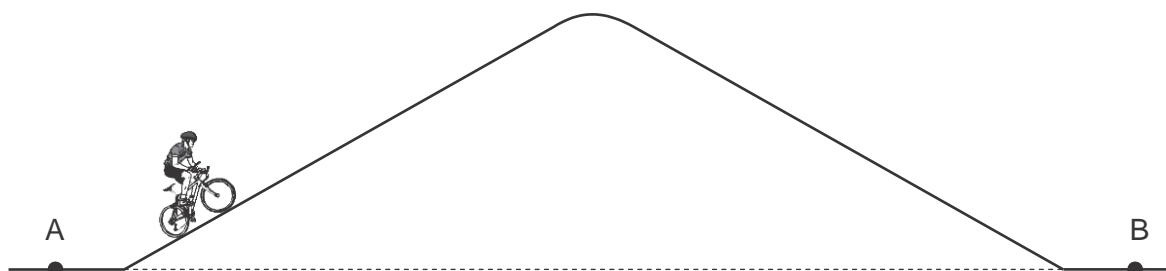


Fig. 2.1

The cyclist starts from rest at A and pedals up and over a hill. Near the bottom of the hill, she starts to brake and comes to rest at B.

- (a) Describe the energy changes that take place as she pedals up the hill at constant speed.

.....
.....
.....[3]

- (b) Explain how the law of conservation of energy applies to the complete journey from A to B.

.....
.....
.....[1]

- (c) At one point in the journey, the gravitational potential energy of the cyclist has increased by 5400 J. The mass of the cyclist is 60 kg. The gravitational field strength is 10 N/kg.

Calculate the height above A of the cyclist at this point.

height above A =[2]

3 (a) Explain, using ideas about molecules,

(i) why a balloon filled with gas expands when heated,

.....
.....
.....
.....[2]

(ii) why a balloon filled with water expands very little when heated.

.....
.....[1]