



St. Ignatius College
Boys Secondary School, Handaq
Half-Yearly Examination 2012

1

Form 3 (Track1)

Physics

Time: 1 hour 30 minutes

Name: _____

Class: _____

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Oral | Coursework | Total |
|---|---|---|---|---|---|---|---|---|----|------|------------|-------|
| | | | | | | | | | | | | |

Useful equations:

Volume = Length x Breadth x Height

Density = Mass ÷ Volume

Velocity = Distance ÷ Time

Answer **ALL** questions in the space provided. **ALL** working must be shown. The use of a calculator is allowed.

1. a. **Fill in the blanks** of the following table. The first one is done for you.

| Quantity | Units |
|----------|-------|
| Mass | Kg |
| Volume | |
| Length | |
| Time | |
| Velocity | |

(2 marks)

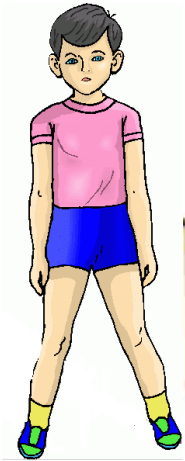
b. **Which measuring instrument** is used to measure:

i) Time: _____

ii) Mass: _____

(2 marks)

2. a. Match the correct instrument to measure the length of each object:



The height of a **boy**

The length of a **desk**

The length of a **book**

30cm ruler

Tape measure

Metre ruler



(3 marks)

b. Use your ruler to measure the length of each spring.

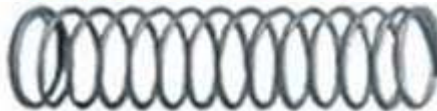
(i) _____

(ii) _____

(iii) _____



A



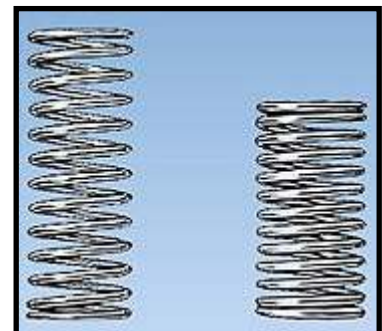
B



C

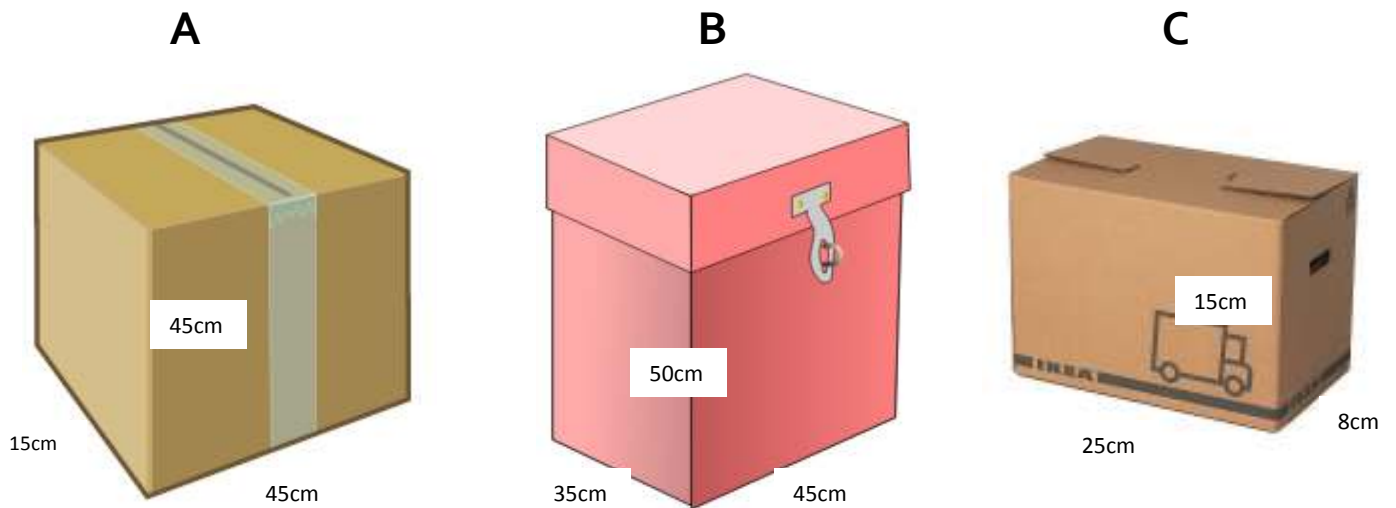
(3 marks)

iv) Spring A is compressed, and its length decreases by 1.5cm. What is its new length?



(1 mark)

3. Joe and Linda are moving to a new house, and want to pack their things in the right boxes. They have the following three boxes:



a) Find the volume of each box:

Box A: _____

Box B: _____

Box C: _____

(6 marks)

b) Which box should be used for packing their:

i) Clothes (volume = 75000cm^3) **Box** _____

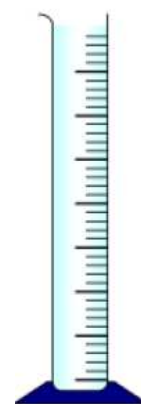
ii) Books (volume = 30000cm^3) **Box** _____

iii) Food (volume = 3000cm^3) **Box** _____

(3 marks)

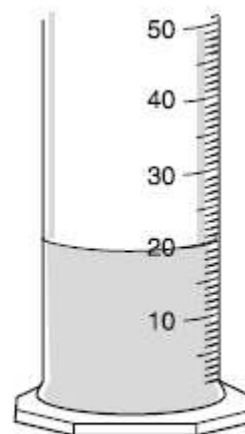
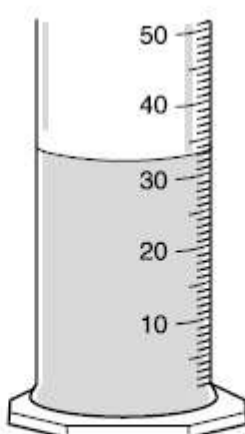
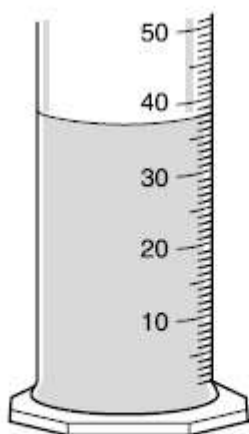
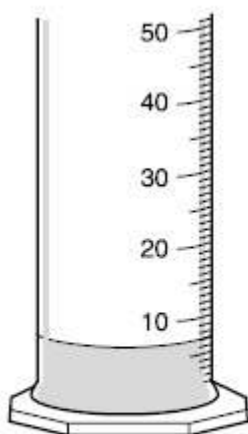
4. **Underline** the correct answer.

- a. The instrument in the picture needs to be placed on a (horizontal, clean, large) surface.
- b. The instrument is used to measure the (mass, volume, length) of (gases, liquids, tables).
- c. The name of this instrument is a (displacement can, beaker, measuring cylinder).
- d. When reading from this instrument, readings should be taken at (nose level, eye level, line level).
- e. Readings must be taken from the bottom of the (density, line, meniscus).



(6 marks)

f. **Give the value shown** on this instrument.



i) _____

ii) _____

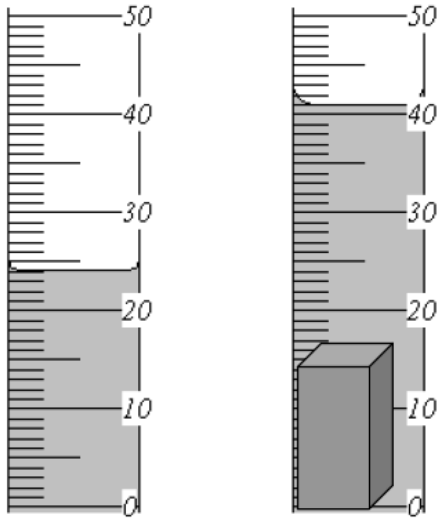
iii) _____

iv) _____

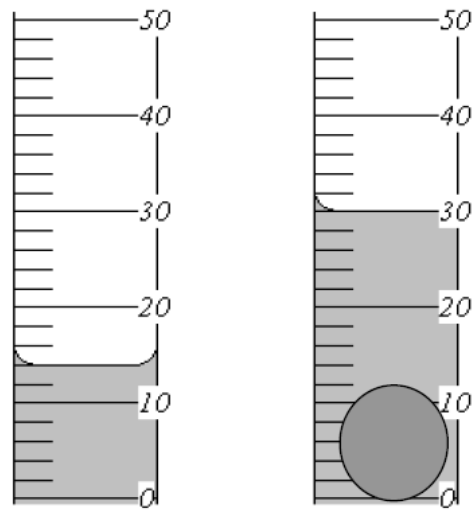
(4 marks)

5. Find the volume of the following objects.

a.



b.



Volume of block = _____

Volume of marble = _____

(6 marks)

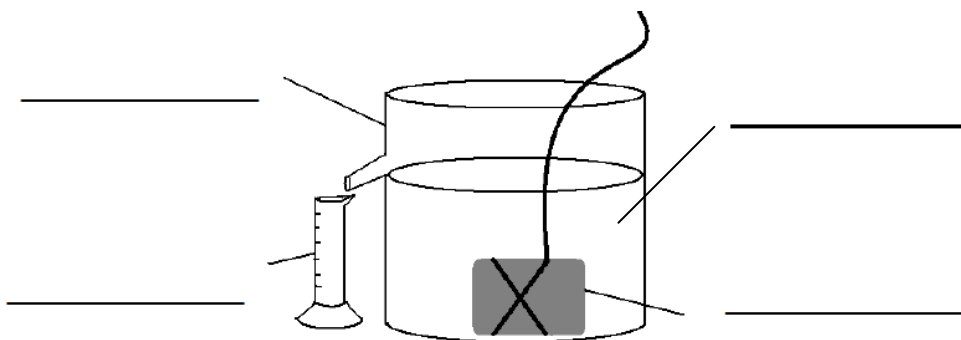
6. a. **Underline** the correct word.

The instrument used below is called a (displacement can, water can, measuring can).

(1 mark)

b. **Label the diagram.**

(4 marks)



7. Paul wants to do an experiment with liquids of different densities. He uses the following liquids:

| Liquid | Mass (g) | Volume (cm ³) |
|-------------|----------|---------------------------|
| Water | 240 | 240 |
| Cooking Oil | 288 | 360 |
| Detergent | 360 | 400 |
| Juice | 250 | 200 |

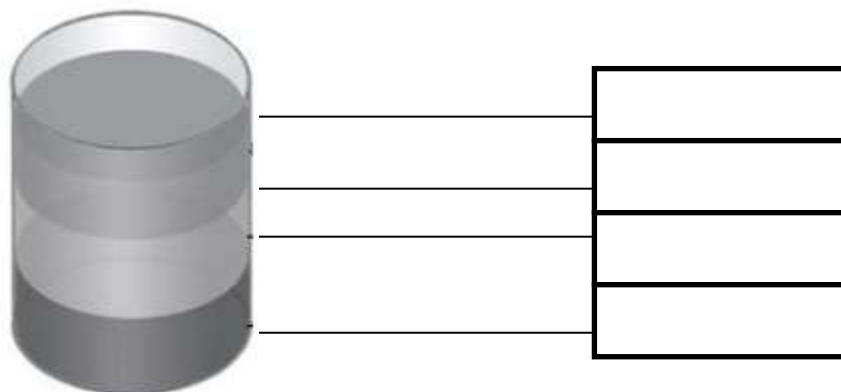
Work out the densities of the 4 liquids:

- a) Density of water: _____
- b) Density of cooking oil: _____
- c) Density of detergent: _____
- d) Density of juice: _____

(4 marks)

e) Paul then puts the 4 liquids into a container and waits for them to settle.

Write on the diagram the order in which the liquids settle:



(2 marks)

8. A **Ferrari** and a Lamborghini race against each other.

a. Find their **velocities** if:

(i) The Ferrari runs a distance of **150m** in **1.8s**



(ii) The Lamborghini runs a distance of **300m** in **3.2s**

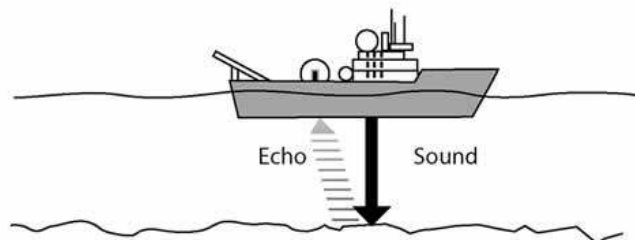


(4 marks)

(iii) Which car will win? _____

(1 mark)

9. The diagram below shows how echo sounding is used to find how deep the sea level is.



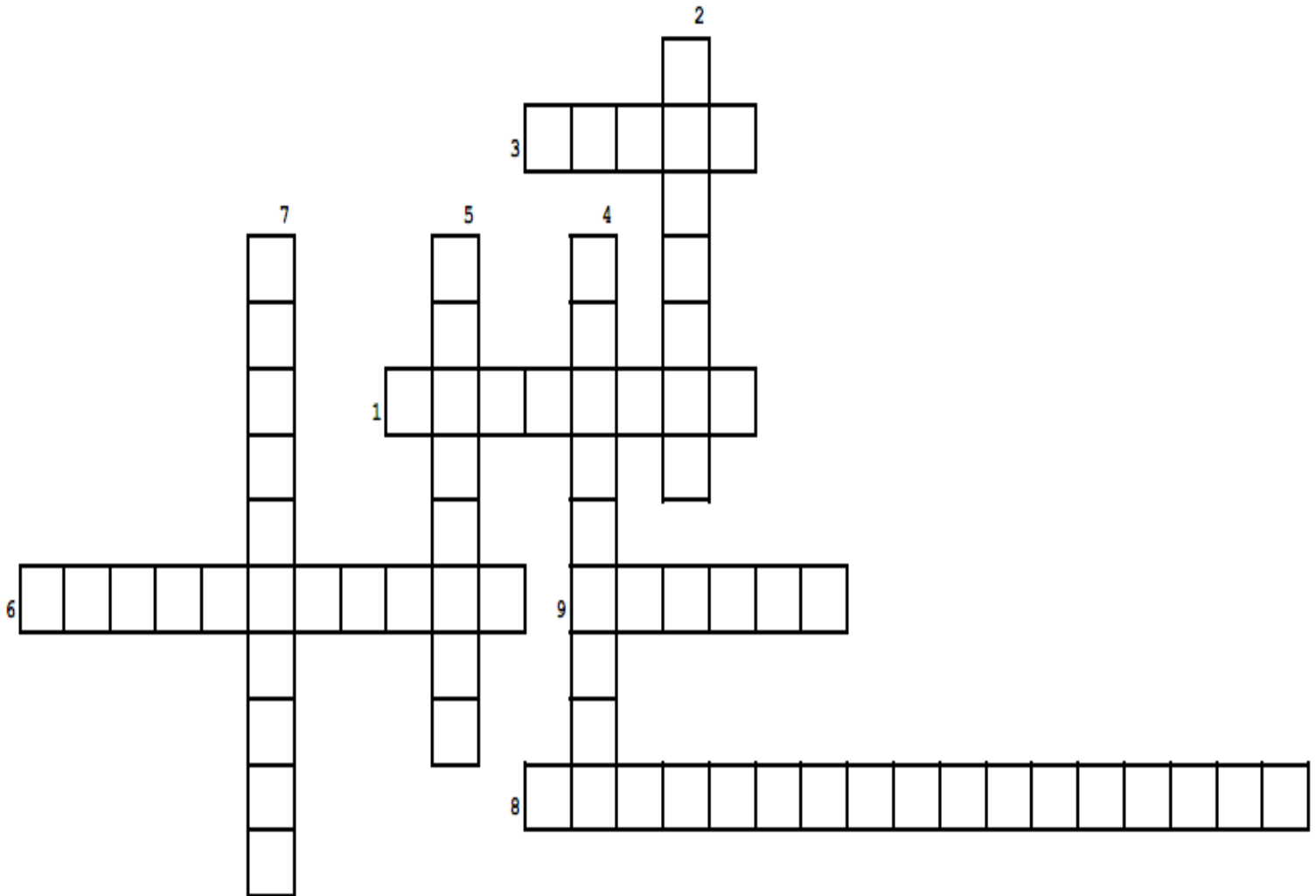
a) Find the speed of sound in water if the sound took 1.5 seconds to travel down a distance of 2220m.

_____ (2 marks)

b) The speed of sound in air can be found in the school laboratory by using (underline TWO):

electronic balance , datalogger , measuring cylinder , sound sensors , speedometer. (2 marks)

10. Fill in the crossword by answering the questions below. The answers are given in a random order at the bottom of the page.



Across:

- 1. The dataloggers and sensors give a more measure of time than a stopwatch.
- 3. The density of water is than that of a stone.
- 6. Measures the speed of a car.
- 8. Can be used to measure the volume of a liquid.
- 9. The speed of light is than the speed of sound.

Down:

- 2. Can be found by using mass ÷ volume.
- 4. The greater the area of a the lower its velocity.
- 5. Are used to measure the level of sound.
- 7. Used to measure the speed of sound.

Datalogger, Higher, Lower, Accurate, Vernier caliper, Measuring cylinder, Density, Decibels, Speedometer, Parachute.

(9 marks)