



**UNIT PEPERIKSAAN**  
**KOLEJ YAYASAN SAAD, MELAKA**

**FORMATIVE ASSESSMENT 2 2012**  
**SCIENCE FORM 3**

April  
1 hour

**55**  
**Confidential**

Name: ..... Form: .....

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**DO NOT OPEN THE QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO**

**Instructions:**

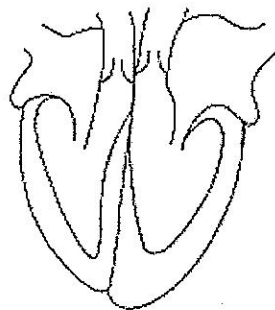
1. This paper contains **THREE** Sections: Section A - Biology, Section B - Chemistry and Section C - Physics
2. Each section is allotted 20 minutes to answer
3. Read the instructions carefully and answer the questions

Science Form 3 Test 2 2012  
Section A: Biology (20 minutes)

Name : ..... Form : .....

Answer the following questions

1. The figure given below shows an organ in the human circulatory system.



(a) Draw and label on the figure above the systemic and pulmonary circulations. (4 marks)

(b) (i) Label on the diagram above any two of the following. (2 mark)

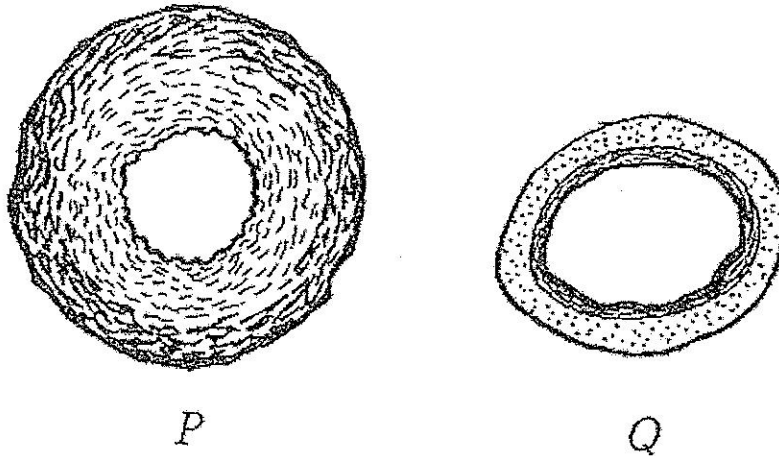
*Left ventricle*

*Aorta*

*Pulmonary artery*

(ii) Mark using an arrow (→) on the diagram you have drawn in (a), the path of deoxygenated blood back into the heart. (1 mark)

(c) The following figure below shows the cross section of blood vessels P and Q.



(i) Explain why blood vessel P has a much thicker wall than blood vessel Q.

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(1 mark)

(ii) Give one example of blood vessels in the body that have the structure of the blood vessels P and Q.

Example of blood vessel P: \_\_\_\_\_

Example of blood vessel Q: \_\_\_\_\_

(2 marks)

(Total 10 marks)

2. The figure A given below shows the apparatus used in an experiment to investigate transpiration.

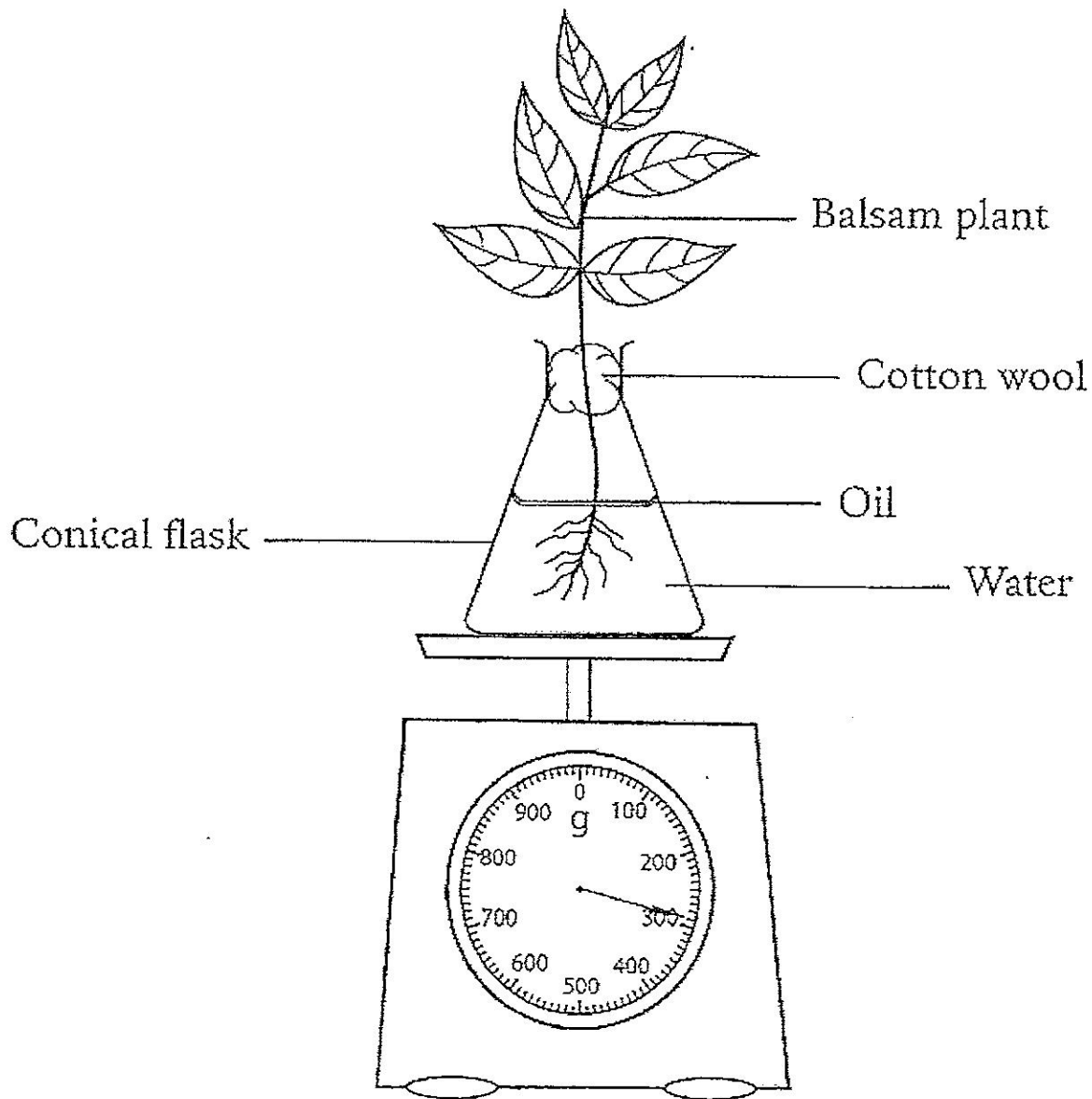
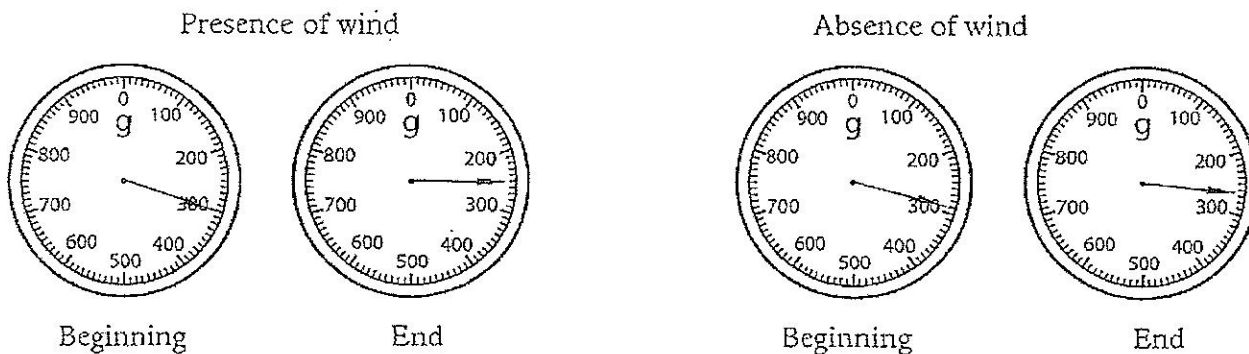


Figure A

The flask with the Balsam plant is weighed at the beginning of the experiment. The apparatus is placed near a table fan on a laboratory bench. The fan is switched on and after 4 hours, the flask with the plant is reweighed. The experiment is repeated with the apparatus without the fan. The readings of the weighing scales are shown in the figure B.



**Figure B**

(a) Based on figure B, record the readings of the weighing scales in the following Table 1

	Presence of moving air	Absence of moving air
Mass (g) of apparatus at the beginning of experiment		
Mass (g) of apparatus at the end of experiment after 4 hours		

**Table 1**

(4 marks)

(b) (i) State the variables in the experiment.

Manipulated variable	
Responding variable	
Controlled variable	

(3 marks)

(ii) State one hypothesis for the experiment.

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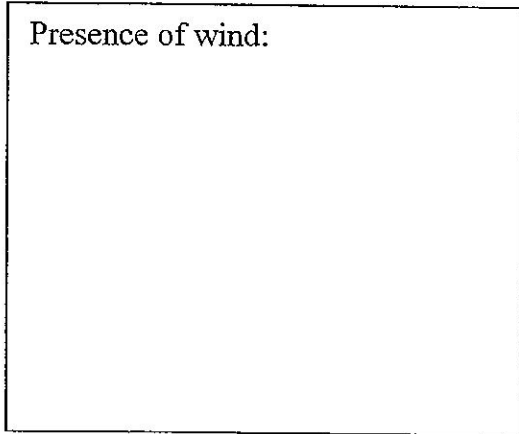


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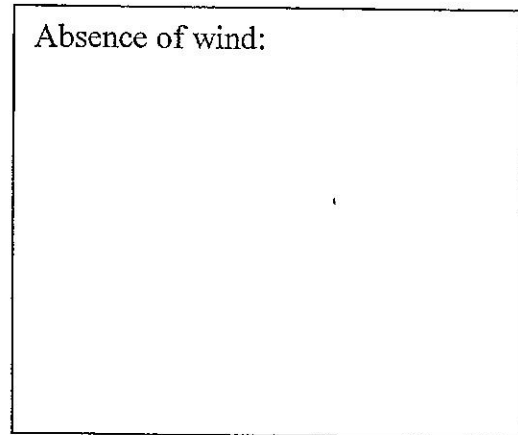
(1 mark)

(iii) Based on the results in Table 1, calculate the rate of transpiration in each case. Show your calculations in the space provided below.

Presence of wind:



Absence of wind:



(2 marks)  
(Total 10 marks)

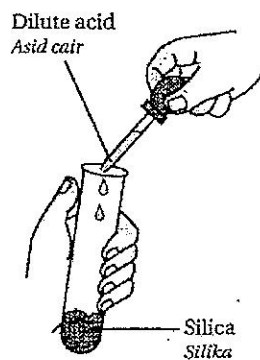
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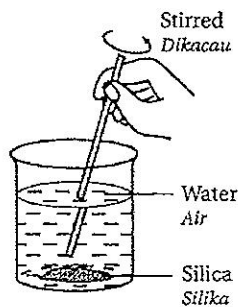
**KOLEJ YAYASAN SAAD**  
**SCIENCE FORM 3 APRIL TEST 2012**  
**Section B : Chemistry (20 marks)**

Name : ..... Form : .....

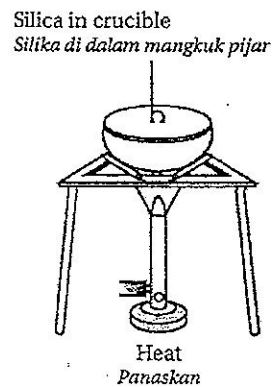
1. A group of students carried out some activities to determine the properties of silica. The diagram shows the apparatus set-up.



**Activity J**  
Action with dilute acid



**Activity K**  
Solubility in water



**Activity L**  
Effect of heat

- (a) Circle two elements that can be found in silica from the following words.

Carbon	Oxygen	Metal	Silicon
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[1 mark]

- (b) Give two examples of silica.

(i) ..... (ii) .....

[2 marks]

- (c) Based on activities J, K and L, what can be said about the properties of silica?

<i>Activity</i>	<i>Properties of silica</i>
J	
K	
L	

[3 marks]

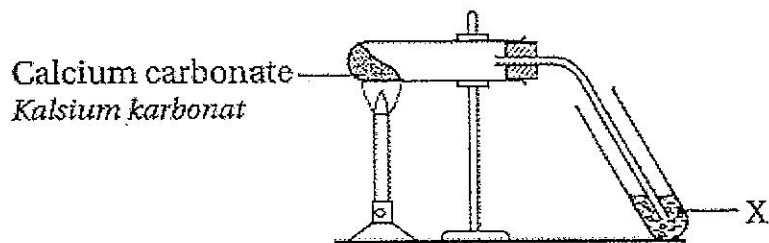
(d) What can you conclude about the relationship of properties of silica and its stability?

.....  
[1 mark]

(e) Suggest two uses of silica in our daily lives.

.....  
[1 mark]

2. The diagram shows the set-up of an experiment to investigate the effect of heat on calcium carbonate.



(a) (i) Name liquid X.

.....  
[1 mark]

(ii) What will happen to liquid X at the end of the experiment?

.....  
[1 mark]

(b) Write the word equation for the reaction.

.....  
[1 mark]

(c) Write one conclusion for the experiment.

.....  
[1 mark]



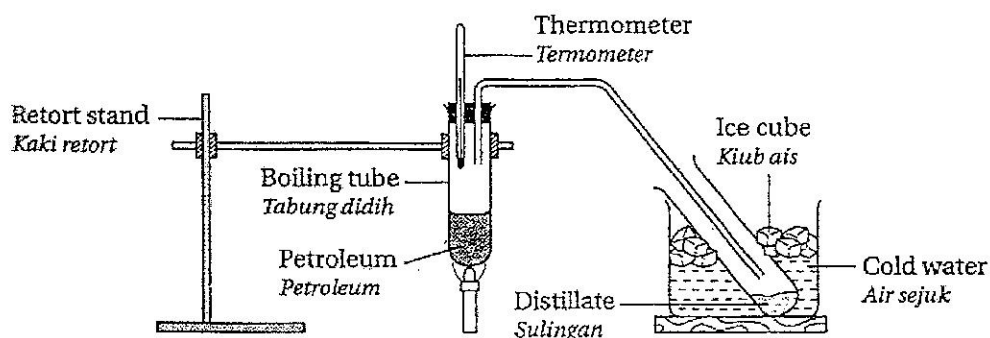
(d) Suggest how slaked lime can be produced from pieces of seashells.

.....

.....

[2 marks]

3. (a) The diagram shows the set-up of an apparatus to study the separation of petroleum into four various fractions.



<i>Distillate</i>	<i>Temperature (<math>^{\circ}</math>C)</i>	<i>Viscosity</i>	<i>Colour of distillate</i>
First fraction	25 - 90	Very low	Colourless
Second fraction	91 - 130	Low	Pale yellow
Third fraction	131 - 180	Moderate	Dark yellow
Fourth fraction	181 - 220	High	Brown

Based on the results recorded in the table,

(i) State the relationship between the temperatures and the colour of the fractions.

.....

[1 mark]

(ii) State the relationship between the temperatures and the viscosity of the fractions.

.....  
[1 mark]

(iii) State one use of the first fraction.

.....  
[1 mark]

(b) Most natural fuel resources used in Malaysia are limited and non-renewable. Therefore, we need to conserve them. Suggest **two** ways to use natural fuel resources more efficiently in the industrial sector.

1. ....

2. ....

[2 marks]

(c) Bitumen is a product which can be produced from the petroleum. State how bitumen is produced.

.....  
[1 mark]

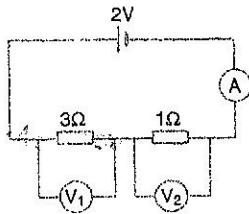
**Science Form 3, Formative test 2, 2012**  
**Section C: Physics 20 minutes**

Name..... Form.....

**Section A**

**Objective Questions (Answer All)**

1. The figure shows a circuit .

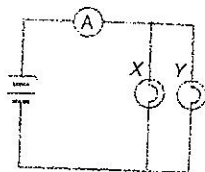


Which of the following is correct ?

- I The ammeter reading is 0.5 A
- II The voltmeter reading of  $V_1$  is less than the voltmeter reading of  $V_2$
- III  $V_1 + V_2 = 2 \text{ V}$

- A I and II
- B I and III
- C II and III
- D I, II and III

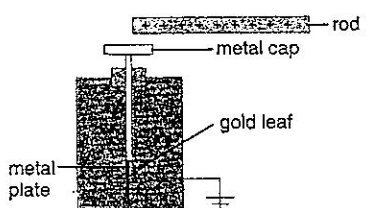
2. In the figure , X and Y are two similar bulbs connected in parallel.



When bulb X burns out, what will happen to the ammeter reading and the brightness of the bulb Y ?

	Ammeter reading	Brightness of bulb Y
A	Increases	Increases
B	Increases	Remains the same
C	Decreases	Decreases
D	Decreases	Remains the same

3. Diagram shows a negatively charged electroscope.



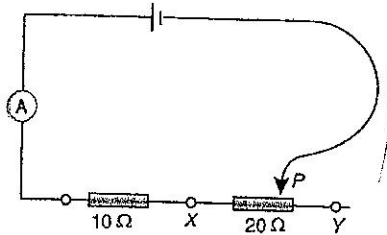
What happens to the gold leaf if a positively charged rod is brought near the metal cap ?

- A It remains stationary
  - B It deflects more
  - C It collapses completely
  - D The deflection decreases
4. A positive charged rod is made neutral if it is rubbed with the fingers. This is because :
- A electrons flow from the rod to the fingers
  - B electrons flow from the fingers to the rod
  - C proton flow from the fingers to the rod
  - D protons flow from the rod to the fingers
5. Electric current is defined as the flow of :
- A atoms
  - B electrons
  - C protons
  - D neutrons

6. Which of the following causes the flow of electrical charges from one point to another in a closed circuit.

- A Current
- B Static electricity
- C Voltage
- D Electrical conductor

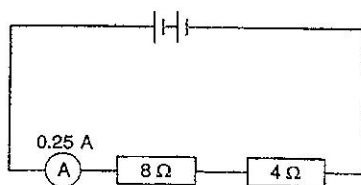
7. Diagram shows an electrical circuit.



When P is connected to X, the reading of the ammeter is 0.6 A. What is the reading of the ammeter if P is at Y?

- A 0.2 A
- B 0.4 A
- C 0.6 A
- D 1.2 A

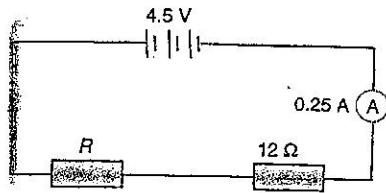
8. Diagram shows an electric circuit.



What is the voltage of the battery?

- A 1.0 V
- B 2.0 V
- C 2.5 V
- D 3.0 V

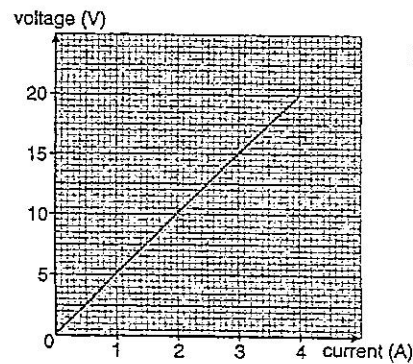
9. Below is an electric circuit.



If the reading of the ammeter is 0.25 A , what is the resistance R ?

- A 3  $\Omega$
- B 5  $\Omega$
- C 6  $\Omega$
- D 9  $\Omega$

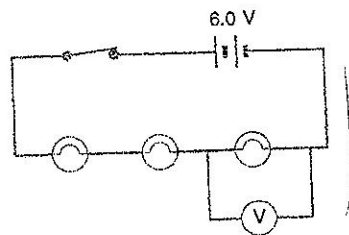
10. Diagram shows the results of an experiment to determine the resistance of a wire.



What is the resistance of the wire?

- A 3.0 ohms
- B 4.0 ohms
- C 5.0 ohms
- D 8.0 ohms

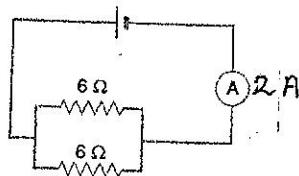
11. Diagram shows an electric circuit.



The bulbs in the diagram are identical. What is the reading of the voltmeter ?

- A 1.0 V
- B 1.5 V
- C 2.0 V
- D 3.0 V

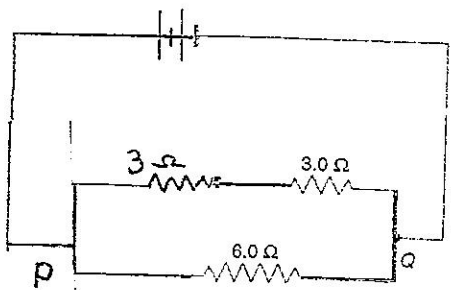
12. Diagram shows a parallel circuit



What is the voltage of the battery ?

- A 2.0 V
- B 3.0 V
- C 4.0 V
- D 6.0 V

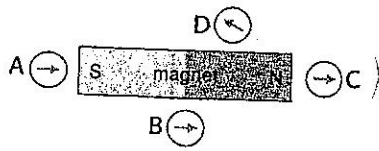
13. Diagram shows an electric circuit.



What is the total resistance between points P and Q ?

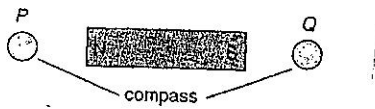
- A 3 ohms
- B 6 ohms
- C 9 ohms
- D 12 ohms

14. A student uses a compass to plot the magnetic field of a bar magnet.



Which compass in the diagram is facing the wrong direction ?

15. Diagram shows compasses P and Q in the magnetic field of a bar magnet.



Which arrows show the directions of the two compasses ?

	P	Q
A	→	→
B	→	←
C	←	→
D	←	←



Section B  
(Structured Questions) Answer All

1. The bulbs in diagram 3.1 and 3.2 are identical.

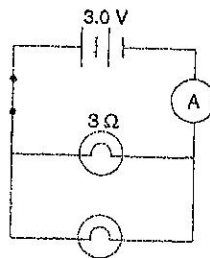


Diagram 3.1

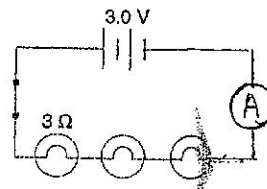


Diagram 3.2

a) What is the voltage of each bulb in diagram 3.1 ?

.....(2 mark)

b) What is the voltage of each bulb in diagram 3.2

.....(1 marks)

c) Find the total resistance in diagram 3.1

.....(2 marks)

d) What is the reading of the ammeter in diagram 3.1 ?

.....(2 marks)

e) What is the total resistance in diagram 3.2 ?

.....(2 marks)

f) What is the ammeter reading in diagram 3.2 ?

.....(2 marks)

END OF QUESTION PAPER