

Name :

Class :

Trial
Paper 2
Science
KISAS
2007



KOLEJ ISLAM SULTAN ALAM SHAH KLANG

**TRIAL 2007
SCIENCE
FORM 5**

**2 HOURS 30 MINUTES
2 ½ HOURS**

DO NOT OPEN THIS PAPER UNTIL YOU ARE TOLD TO DO SO

INFORMATION FOR CANDIDATES

- 1. This question paper consists of three sections : Section A, Section B and Section C*
- 2. Answer all questions in Section A and Section B. For Section C, answer Question 1 and any one from Question 2 or Question 3.*
- 3. The diagram in the questions provided are not drawn to scale unless stated*
- 4. You may used a non-programmable scientific calculator*

Section	Question	Full marks	Marks
A	1	5	
	2	5	
	3	5	
	4	5	
B	1	6	
	2	6	
	3	6	
	4	6	
	5	6	
C	1	10	
	2	10	
	3	10	
Total			

This examination paper consists of 12 printed pages including the front page

Section A
[20 marks]

Answer all questions in this section.
The time suggested to answer this section is 60 minutes.

1.

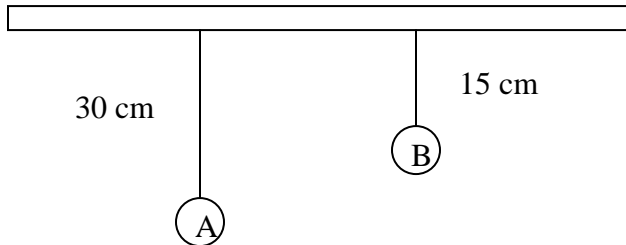


DIAGRAM 1

The time taken for each pendulum to make 10 complete swings is recorded as shown in Table 1.

Pendulum	Time taken to make 10 complete swings
A	40 seconds
B	20 seconds

Table 1

a) State a suitable hypothesis for this experiment.

.....[1]

b) State the following variables:

i) Constant variable :

ii) Manipulated variable :

iii) Responding variable :[3]

c) Write a conclusion for this experiment.

.....[1]

2. Diagram 2 shows the schematic diagram of a cross between red flowers pea plant with white flowers pea plant.

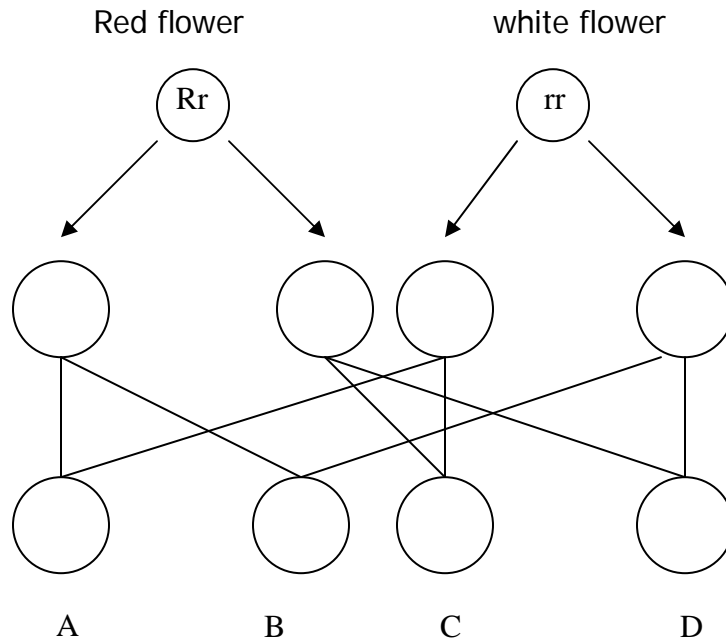


DIAGRAM 2

a) Complete the schematic diagram in Diagram 2. [2]

b) What is the ratio of red flowers to the white flowers in the first generation?
 [1]

c) Which gene is dominant?
 [1]

d) A from the first generation is cross-breed with a pure bred of red flowers pea plant. What is the chances of getting white flowers pea plant from the cross breeding?
[1]

3. Figure 3 shows a ticker tape that has been obtained from the movement of a trolley on a tilted platform. The trolley took 6 seconds to go from the top of the platform to the bottom.

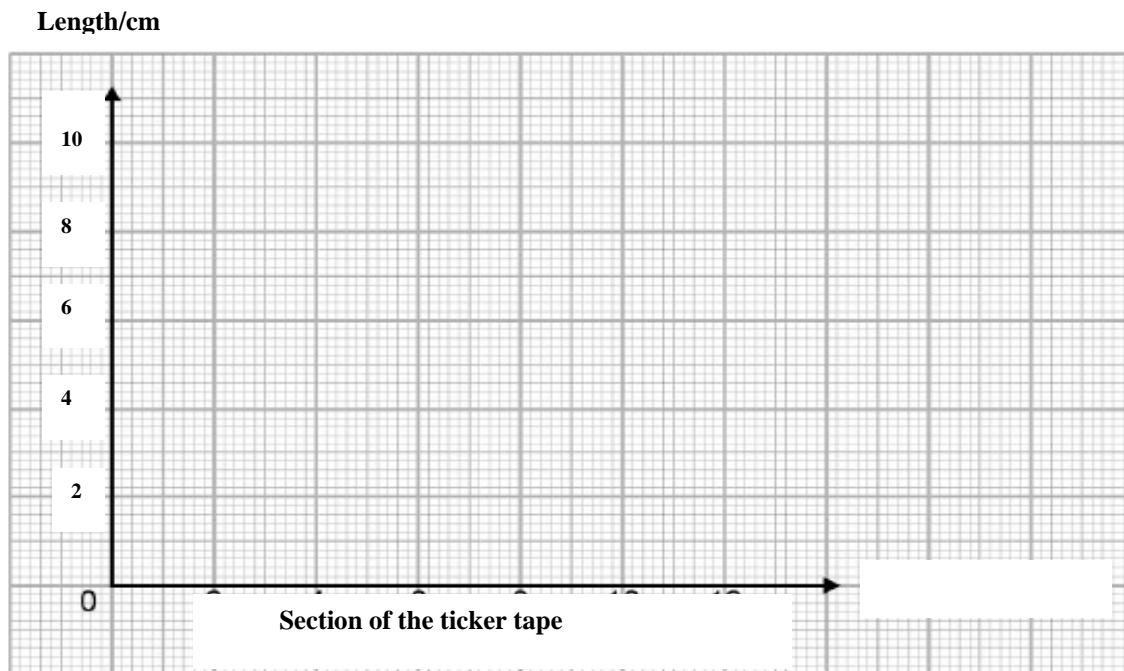
Figure 3

Table 3 shows information about the ticker tape above.

Section of the ticker tape	1	2	3	4
Length of section / cm	2.0		4.0	5.0

Table 3

- a) Measure the length of Section 2 of the ticker tape and record it in Table 3.
- b) Using Table 3, draw a bar chart on the graph paper below.



[2]

c) Using your bar chart in (b), state the type of movement made by the trolley.

.....[1]

d) Section 5 of the ticker tape follows section 4 and also represents as 1 second interval. Using Figure 3, predict the length of Section 5.

Length : cm [1]

4. A student has carried out an experiment to study the effects of nutrient deficiency on the growth of plants. All seedlings used in this experiment are of the same size. Diagram 4 shows four seedlings in four different culture solutions after one month of experiment.

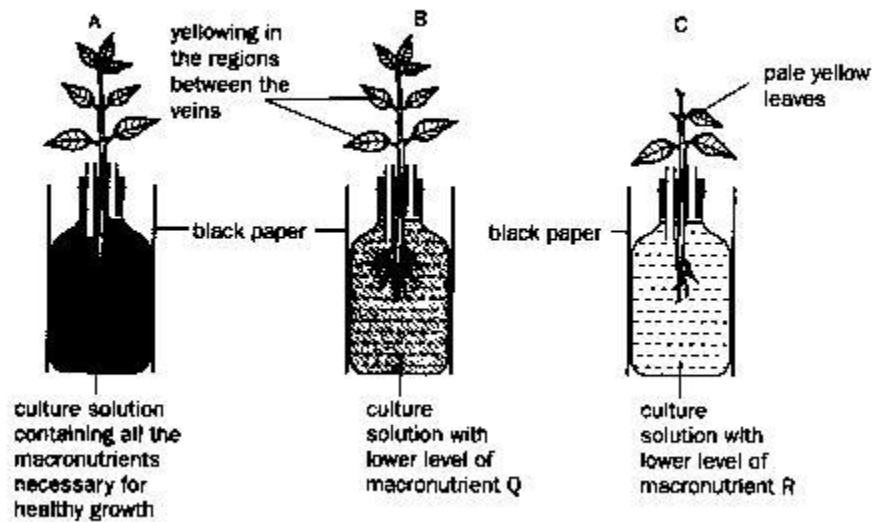


Diagram 4

a) What is the purpose of preparing jar A?

.....[1]

b) State one condition which should be constant during the experiment.

.....[1]

c) Name the macronutrients Q and R.

Q: R:.....[2]

d) Why the jars are covered with black paper?

.....
[1]

SECTION B

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

The time suggested to answer this section is 50 minutes.

5. Figure 5(a) shows an arrangement of apparatus to study the formation of a spectrum.

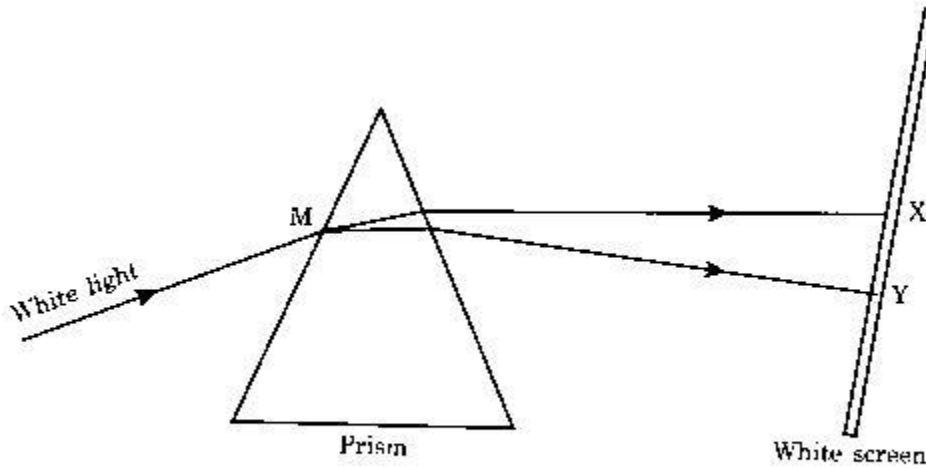


Figure 5(a)

a) i) What happens to the white light at M?

.....[1]

ii) Give a reason for your answer to a(i).

.....[1]

b) Fill in the boxes below to show the arrangement of the colours formed in the spectrum from X to Y.

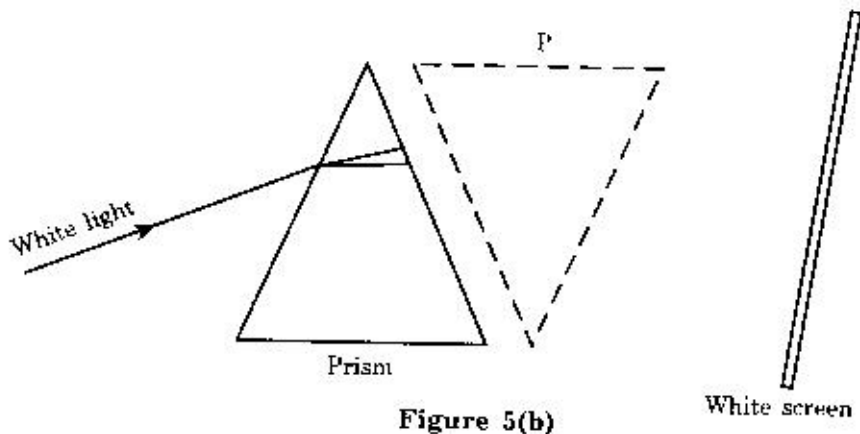
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[2]

c) Name a natural phenomenon where a spectrum can be seen.

.....[1]

d) An identical prism is placed at P as shown in Figure 5(b).



What can be observed on the white screen?

.....[1]

6. Figure 6 shows a food label.



a) State two types of food additives found in the food.

1.[1]

2.[1]

b) What are the functions of the food additives named in (a)?

1.[1]

2.[1]

c) Artificial food additives can be replaced with natural additives. Name one natural food additive and its uses.

.....[2]

7. Figure 7 shows the radio receiver system.

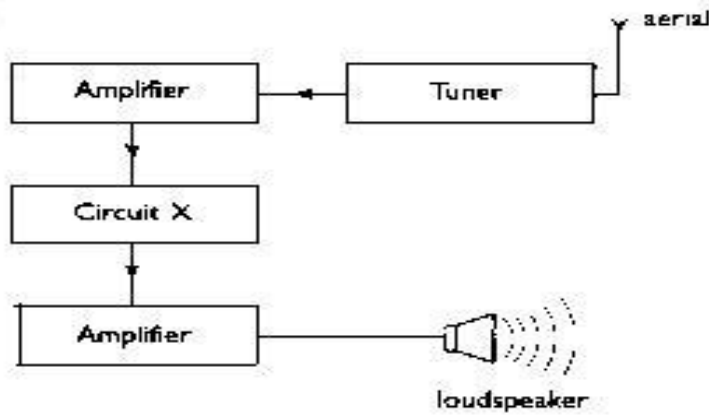


Figure 7

a) What is the name of circuit X?

.....[1]

b) State the function of X.

.....[1]

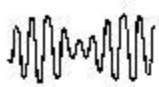

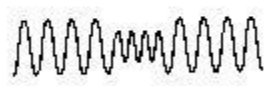
c) i) Name an electronic component that can be found in circuit X.

.....[1]

ii) Draw the symbol for the electronic component named in c(i).

.....[1]

d) Which of the following is labelled correctly? Tick (/) your answer in the correct box.

	<input type="checkbox"/>	modulated wave
	<input type="checkbox"/>	carrier wave
	<input type="checkbox"/>	audio wave

[2]

8. Table 8 shows the characteristics of two different types of plastics.

Criteria	Plastic P	Plastic Q
Effect of heating	Can be heated and cooled many times. It becomes soft when heated and hard when cooled.	Can be heated once only. Only it is cooled, it remains hard.
Flexibility	Can be stretched and twisted.	Cannot be stretched or twisted.

Table 8

a) Identify plastics P and Q.

i) Plastic P : [1]

ii) Plastic Q: [1]

b) Give an example for each type of plastic.

i) Plastic P : [1]

ii) Plastic Q : [1]

c) Which plastic is more environment friendly? Give a reason for your answer.

..... [2]

9. Figure 9 shows nuclear fission which produces nuclear energy.

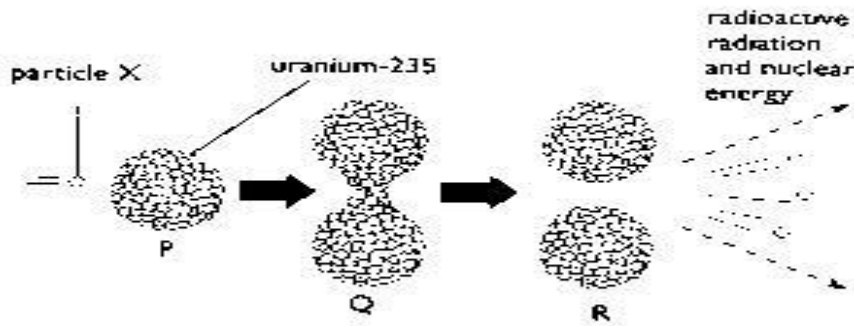


Figure 9

a) What is particle X?

.....[1]

b) What happens when particle X bombards the nucleus of Uranium-235 at stage P?

.....[1]

c) What happens at Q?

.....[1]

d) Name the two new elements produced in stage R.

1. 2.[2]

SECTION C

[20 marks]

Answer Question 10 and either Question 11 or Question 12.

10. Study the following statement:

Iron rusts easily but steel which is an alloy composing mainly of iron is very resistant to corrosion.

- a) Suggest a hypothesis to investigate the above statement. [1]
- b) Describe an experiment to test your hypothesis in (a) based on the following criteria:
- Aim of the experiment [1]
 - Identification of variables [2]
 - List of apparatus and materials [1]
 - Procedure [4]
 - Tabulation of data [1]
- 11.a) What are the differences between mitosis and meiosis? [4]
- b) Diagram 10 shows a type of cell division.

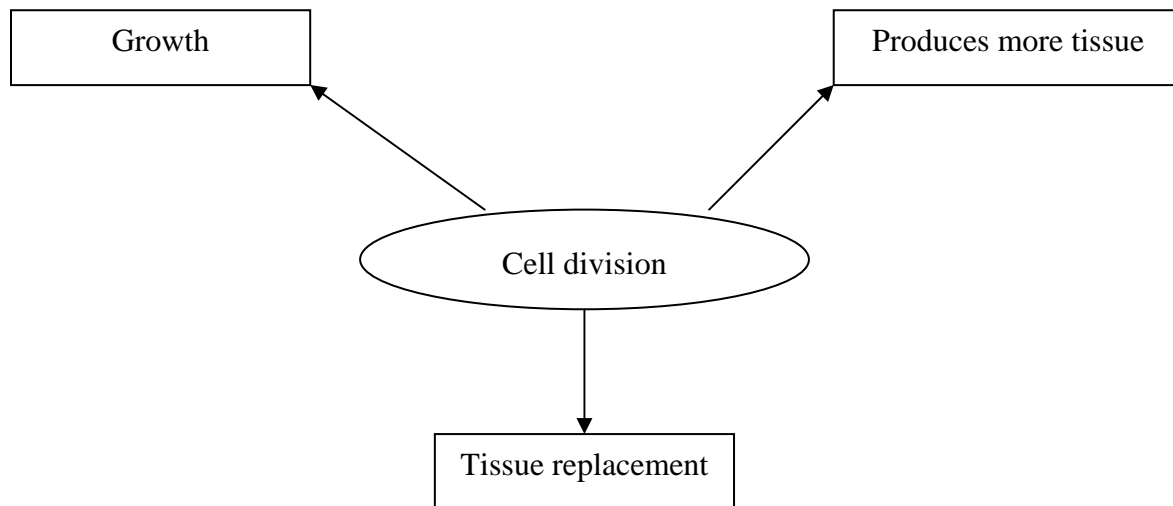


Diagram 10

Study the information given and construct the concept of this type of cell divisions. Your answer should be based on the following steps.

- Identify two common characteristics [2]
- Develop an initial concept [1]
- Give one example using this type of cell division and one example which does not. [2]
- State the actual concept [1]

12.a) State four reasons for maintaining forests in order to maintain the balance of nature. [4]

b) A group of researchers want to investigate the species of animals and plants in a deforestation area. It was found that certain animals and plants have become extinct. Explain how the researchers overcome the problem. Your answer should include the following.

- Identify the problem [1]
- Methods of solving [3]
- Choose the best method and explain your choice [2]

END OF QUESTIONS PAPER

Prepared by :

Pn Farhanah bt Abdullah
Head of Science Panel

Verified by :

En Ch'ng Teng Hong
Head of Science and Math Dept