

Gifted Education Programme

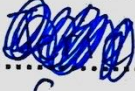
PRIMARY 5 SCIENCE

Common Test 2017

Part II

DATE: 9 May 2017

DURATION: 1 h 15 min (Part I and Part II)

Name:  (12)

Class: 5 Gen

Marks Scored

Part I:	32	34
Part II:	16	26
Total:	48	60

Parent's Signature:

Date: 16 May 17

Part II consists of 12 printed pages, including Part II cover page.

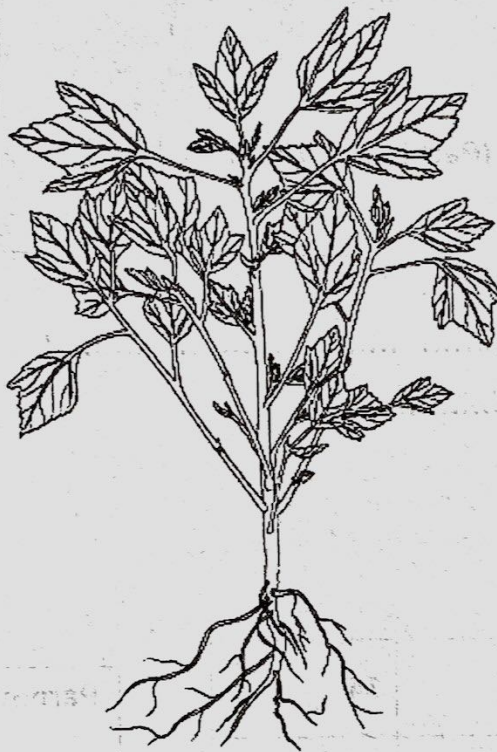
Part I and Part II consist of 28 printed pages, including both cover pages.

For questions 18 to 25, write your answers in this booklet.

The number of marks available is shown in brackets [] at the end of each question or part question.

(26 marks)

18 Study the two plants G and H carefully.



Plant G

(a) State the function of the stem in plant G.

[1]

It is to connect the roots to the leaves and allows
leaves to reach out for maximum sunlight.

why?

(0)

wooden pole



Plant H

(b) How does plant H reach for more sunlight?

[1]

It clings onto the wooden pole for support and
spaces out the leaves to absorb maximum sunlight.

0

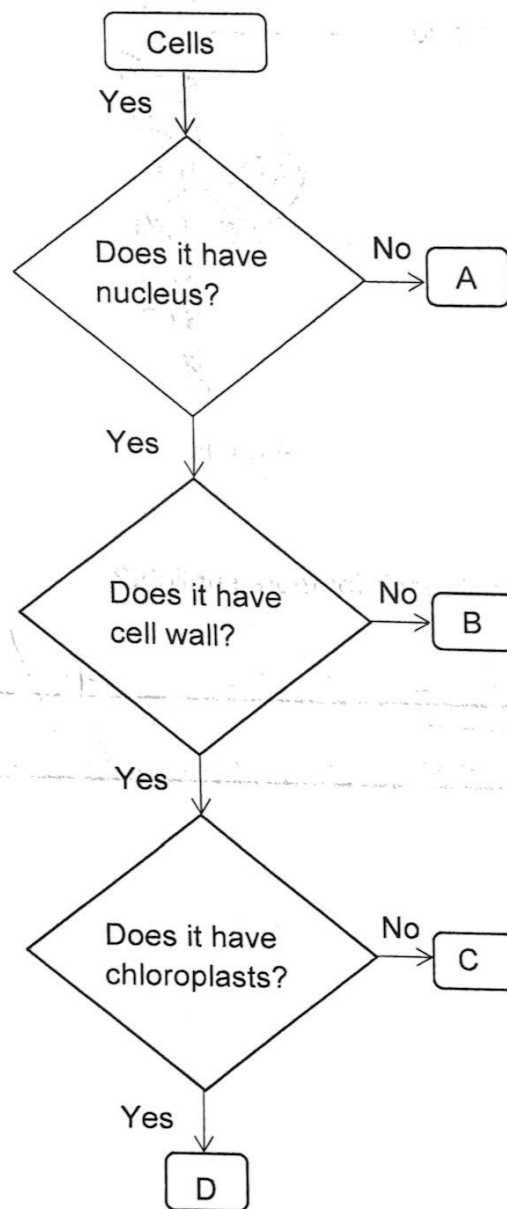
Does it have
chloroplasts?

No

Yes

A

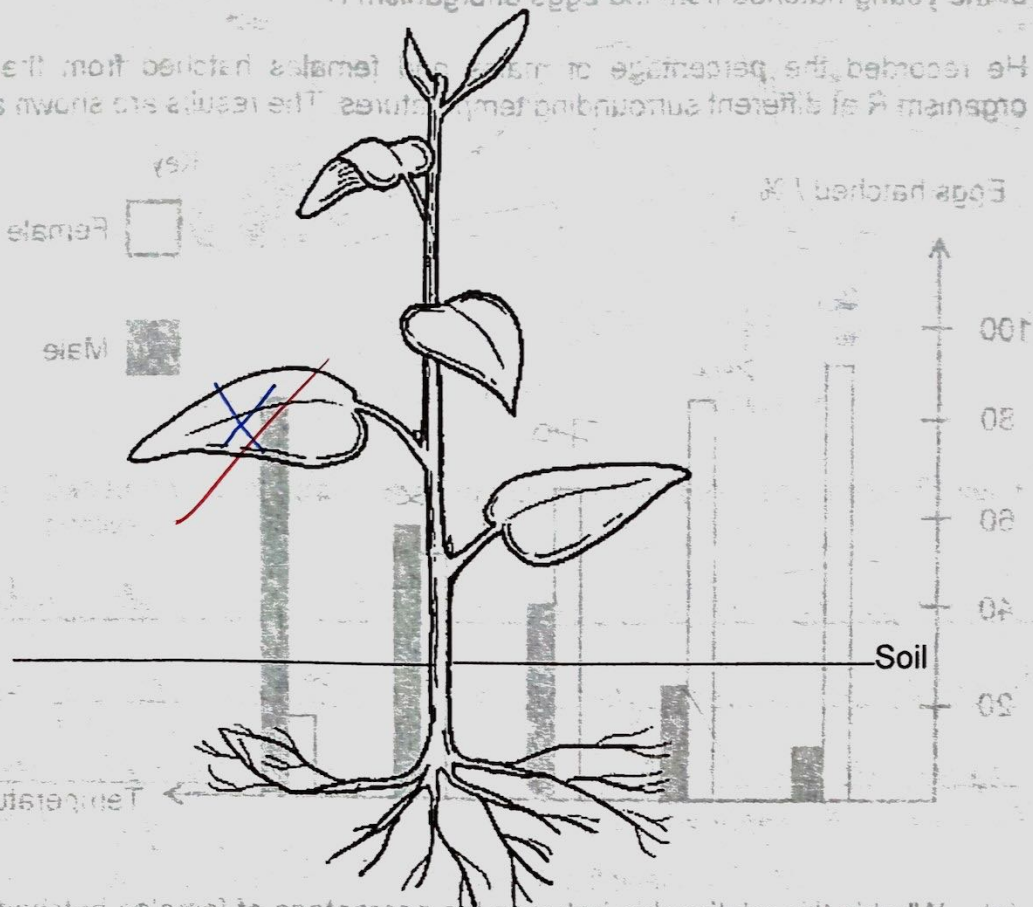
19 Study the diagram below.



- (a) Based on the information provided in the flowchart, put a tick (✓) in the correct box for each statement in the table below. [2]

	Statement	True	False	Not possible to tell
(i)	Cell A is unable to carry out cell division.	✓		
(ii)	Cell C is a leaf cell.		✓	

(b) Cell D is taken from a part of a plant.



(a) What is the relationship between the percentage of females hatched from the eggs and the surrounding temperature?

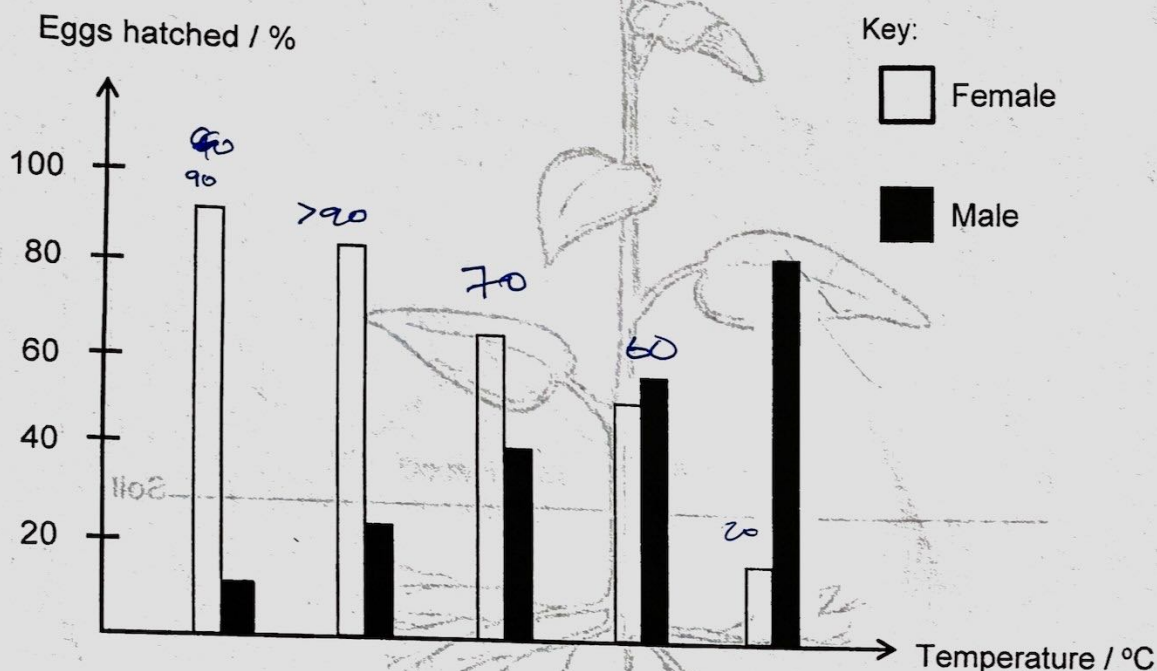
- (i) Mark out with a cross 'X', on the plant in the diagram above, to show where cell D is taken from. [1]
- (ii) Explain your answer in (b)(i). [1]

Cell D has chloroplasts which contain chlorophyll to make food. Only leaf cells have chloroplasts.

2

- 20 Timothy wanted to find out how the surrounding temperature will affect the gender of the young hatched from the eggs of organism R.

He recorded the percentage of males and females hatched from the eggs of organism R at different surrounding temperatures. The results are shown as below.



- (a) What is the relationship between the percentage of females hatched from the eggs and the surrounding temperature? [1]

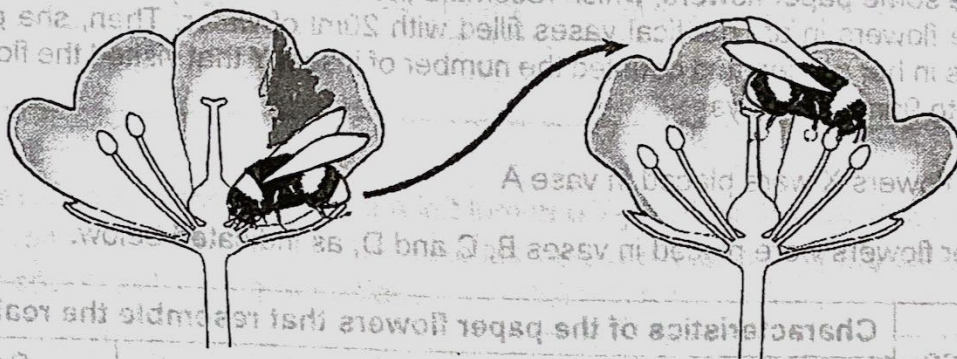
As the temperature of surroundings increases, the percentage of females hatched from eggs decreases.

- (b) Based on the information provided above, give a reason why Timothy observed that the total number of organism R decreases when surrounding temperature increases. [The total number of organism R refers to number of adult and young of R.] [1]

As the temperature increases, the number of females hatching from the eggs decreases. This decreases the chance of some eggs hatching into females, so that they can develop into adults and laying more eggs.

~~(1)~~ (2)

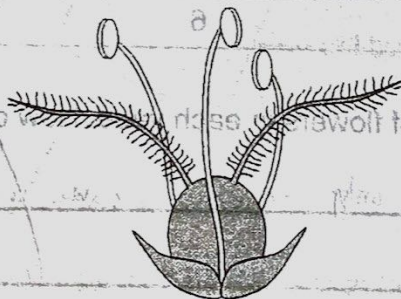
- 21 The diagram below shows an insect visiting two flowers of the same type.



- (a) Based on the diagram, describe clearly how the insect helps flower Y to be fertilised. [2]

When the insect feeds on the nectar of the flower, pollen grains stick onto the insect's body and will be shaken off. When the insect lands on flower Y, it increases the chance of the pollen grains from flower X landing on the stigma of flower Y, helping flower Y to be fertilised.

The diagram below shows a wind pollinated flower.



Flower Z

- (b) Based on the diagram, state the differences in characteristics between flower X and flower Z in terms of:

- i) structure of stigma [1]

The stigma of flower Z is feathery-like and hangs out of the petals. The stigma of flower X is not feathery-like and does not hang out of the petals.

- ii) position of stamen (anther and filament) [1]

The filament of flower Z is long and pendulous but the filament of flower X is not long and pendulous.

- 22 Mary wanted to find out the characteristics of flower X that attract insect Y. She made some paper flowers, which resemble the actual flower X and put each type of these flowers in an identical vases filled with 20ml of water. Then, she placed the vases in her garden and counted the number of insect Y that visited the flowers from 8am to 9am for 3 days.

Real flowers X were placed in vase A

Paper flowers were placed in vases B, C and D, as indicated below.

Vase	Characteristics of the paper flowers that resemble the real flowers			
	Shape	Size	Colour	Scent
B	✓	✓	✓	
C	✓	✓		✓
D	✓	✓	✓	✓

The table below shows the results of Mary's experiment.

Vase	Average number of insect Y that visited the flowers per day
A	8
B	1
C	7
D	6

- (a) Mary put five stalks of flowers in each vase. How does this ensure a fair test? [1]

It ensures that only the characteristics are changed.

- (b) Why did Mary collect the data for three days? [1]

It is to ensure results are reliable.

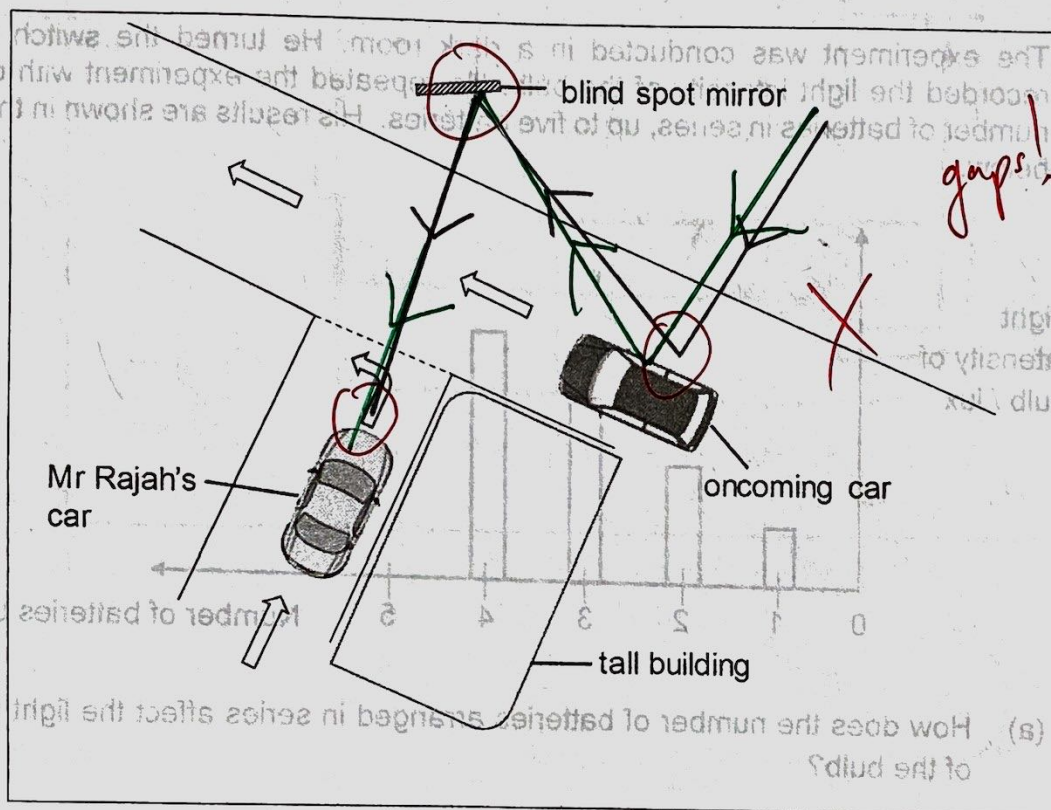
- (c) If Mary wants to find out if the colour of the flower affects the number of insect Y visiting the flowers, which two vases should she use for comparison? [1]

She should use vase C and D.

- (d) Based on the results of this experiment, what conclusion can Mary draw? [1]

The scent of the flower attracts insect.

- 23 Mr Rajah was trying to make a left turn at a T-junction. He could not see the oncoming car on the right because his view was blocked by the tall building as shown in the diagram below.

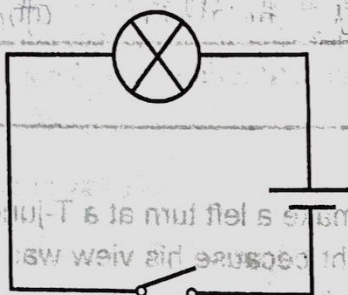


- (a) Mr Rajah was in his car and he was not able to see the oncoming car directly from his current position. State a property of light that supports this. [1]

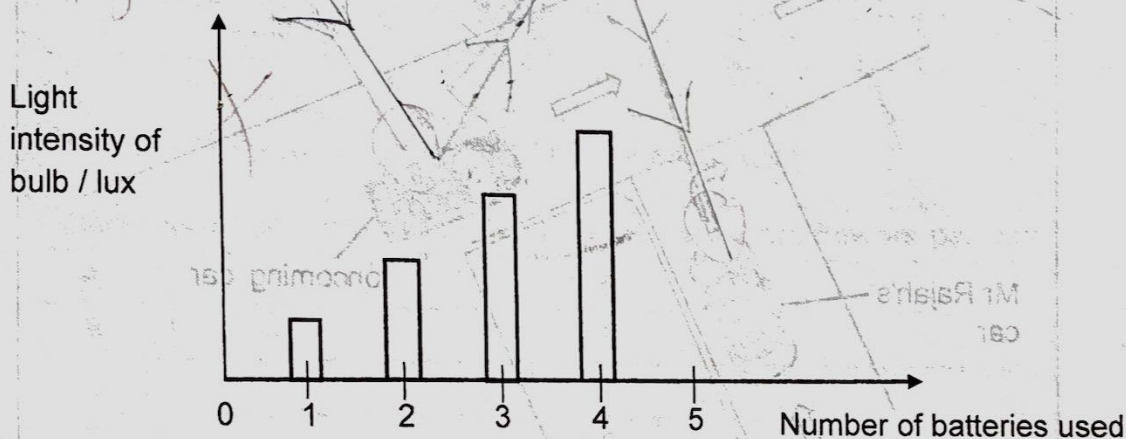
Light travels in a straight line.

- (b) Mr Rajah was able to see the oncoming car using the blind-spot mirror. Draw arrows on the diagram above to show how Mr Rajah was able to do so. [1]

- 24 Paul set up an electrical circuit as shown in the circuit diagram below.



The experiment was conducted in a dark room. He turned the switch on and recorded the light intensity of the bulb. He repeated the experiment with different number of batteries in series, up to five batteries. His results are shown in the graph below.



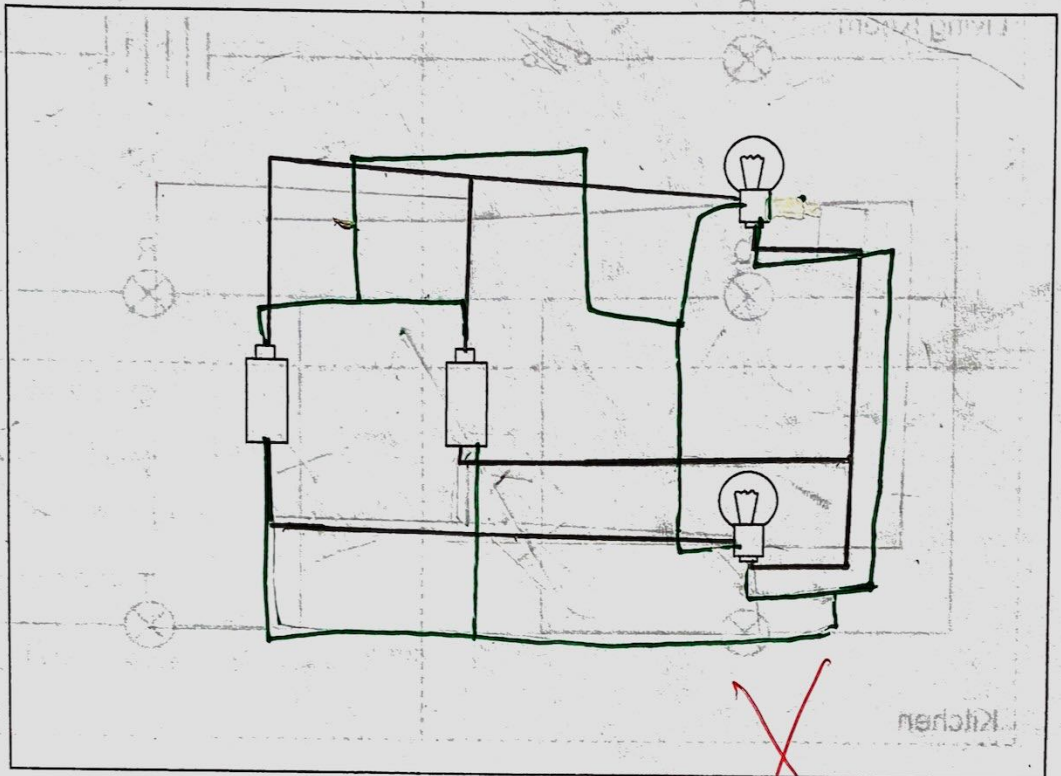
- (a) How does the number of batteries arranged in series affect the light intensity of the bulb? [2]

As the number of batteries arranged in series increases, the light intensity of bulb increases, but once the number of batteries reached five the bulb fuses.

- (b) Why was it important for Paul to carry out the experiment in the dark room? [1]

It is to ensure that the light intensity is affected only by the bulb and not from other sources of light.

- (c) In the box below, complete the electrical circuit by drawing in wires such that when one of the bulbs fuses, the other will still light up. [1]



(a) State two disadvantages of using the electrical circuit shown in the diagram above. [2]

Disadvantage 1:

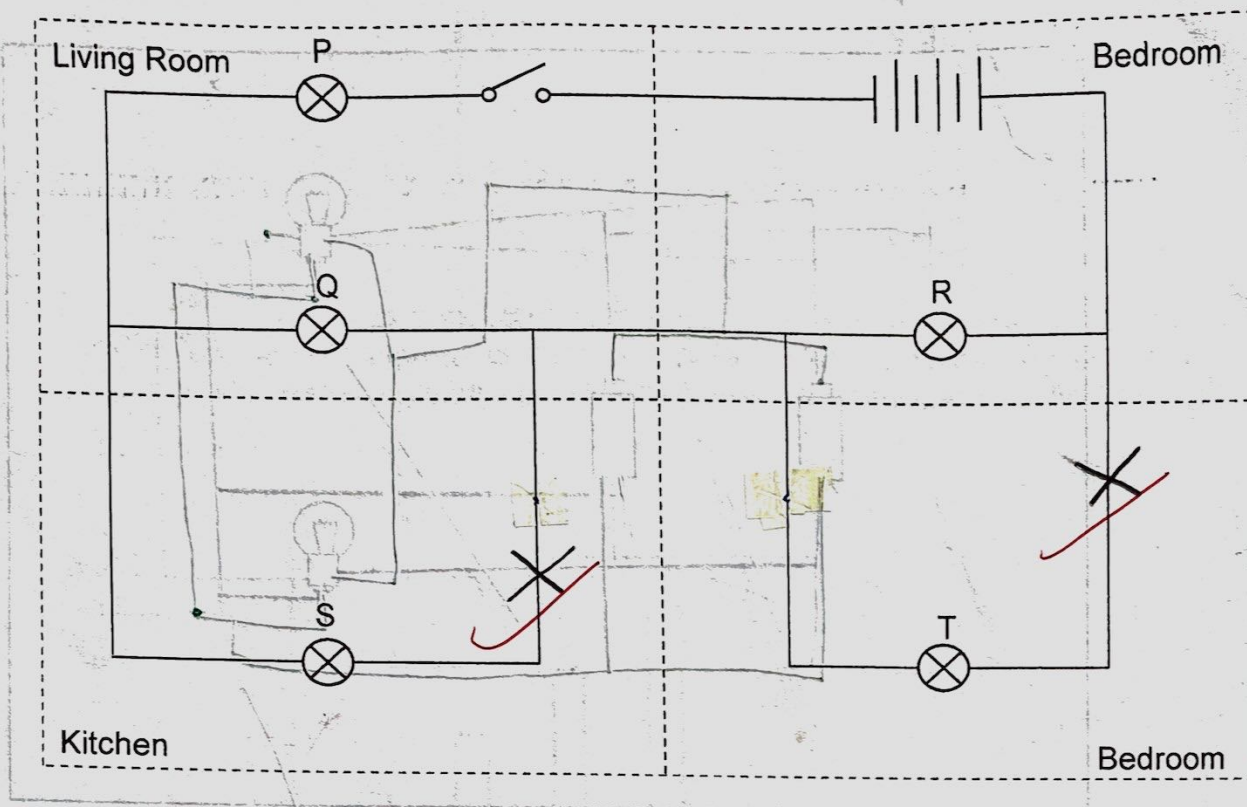
1. If one bulb fuses, the other bulb will not light up.

Disadvantage 2:

(b) Two switches are shown in the diagram above. Indicate the positions of the switches with crosses (X) in the diagram above. [2]

End of Paper

- 25 The diagram below shows how bulbs P, Q, R, S and T are arranged in a toy house consisting of a living room, a kitchen and two bedrooms.



- (a) State two disadvantages of using the electrical circuit shown in the diagram above. [2]

Disadvantage 1:

The bulbs would fuse faster.

Disadvantage 2:

The other bulbs would not light up when one bulb fuses.

- (b) Two switches are installed in two of the rooms to improve the control of the lightings.

Indicate the positions of the switches with crosses (X) in the diagram above. [2]

End of Paper

2017 Primary 5 GEP Science CT

Name: ~~_____~~

Date: ~~_____~~

Class: 5Gen

*

Qn 18	Concept: Plant parts and their functions
	Things to note: Use only information that can be observed from the diagram given; do not use prior knowledge!
(a)	Corrections: The stem keeps the plant upright.
(b)	Corrections: Plant It will coil around a support to help them grow higher.
Qn 19	Concept: Cells and their functions.
	Things to note: Read the flowchart flowchart carefully. Relate function of cell parts in relation to question by mentioning 'Cell B'.
(b)(ii)	Corrections:

Qn 20	Concept: <u>Life cycle of animals</u>
	Things to note: Format of writing relationship statement: "As [I.V.] ^{decreases} increases, the [P.V.] increases/decreases. COPY exactly the terms used for the variables.
(a)	Corrections:
* (b)	Corrections: As temperature increases, there will be less females hatched from eggs which results in less females for reproduction to take place, thus the total number of organism R decreases when temperature of the surroundings increases.
Qn 21	Concept: <u>Reproduction in Plants Structure of flower and Pollination.</u>
	Things to note: Use only information that can be observed from the diagram given; do not use prior knowledge! Confused between structure of stigma and style Please mention the parts involved in pollination carefully with reference to the diagram.
* (a)	Corrections: When the insect was feeding nectar from flower X, the anther of filament X rubbed against its body and transferred pollen grains to its body. When the insect visited flower Y, the pollen grains on the insect's body was transferred to the stigma of flower Y.
* (b)(i)	Corrections: Stigma Flower X has a small stigma whereas flower 2 has a big stigma.
* (b)(ii)	Corrections: Postion <u>Stamen</u> Stamen The stamen of flower X is found in the <u>flower</u> petals whereas the stigma <u>stamen</u> of flower Z <u>protrudes</u> out of the petals of the flower.

Qn 22	Concept:
	Things to note: Using the words 'results / experiment' without specifying the DV? Confused between 'reliability' and 'accuracy'
* (a)	Corrections: This ensures that the average number of insects that visited the flowers per day is only affected by the characteristics of the flower and not the number of other flowers for each vase.
(b)	Corrections:
(c)	Corrections:
(d)	Corrections: Light and its properties
Qn 23	Concept: <u>Light and its properties</u>
	Things to note: Confused between properties of materials and light. Light rays must be a continuous line that has arrowheads and touches objects.
(a)	Corrections:

Qn 24	Concept: Electrical System
	Things to note: [Interpretation of Data. CTrend 3 Number)
* (a)	Corrections: As the number of batteries increases up to four batteries, the intensity of light increases. When the fifth battery is added, the light intensity becomes zero.
(b)	Corrections:
* (c)	Corrections:
Qn 25	Concept:
	Things to note:
* (a)	Corrections: When Bulb P in the living room fuses, all the other bulbs in the house would not light up. Bulbs / Lamps cannot be controlled independently.