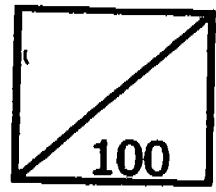




SA 2

Rosyth School
Second Semestral Assessment for 2005
SCIENCE
Primary 5



Name: _____

Total
Marks:

Class: Pr _____

Register No. _____

Duration: 1 h 45 min

Date: 27/10/05

Parent's Signature: _____

Booklet A

Instructions to Pupils:

1. Do not open the booklet until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets, Booklet A and Booklet B.
4. For questions 1 to 30 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 31 to 46, give your answers in the spaces given in the Booklet B.

| | Maximum | Marks Obtained |
|------------------|------------------|----------------|
| Booklet A | 60 marks | |
| Booklet B | 40 marks | |
| Total | 100 marks | |

* This booklet consists of 16 pages. (pg. 1 to 16)

31

Part 1: (60 marks)

Each question is followed by four possible answers. Choose the most suitable answer and shade the corresponding oval (1, 2, 3 or 4) in the Optical Answer Sheet.

1. Which of the following statements about both the Moon and man-made satellite are incorrect?

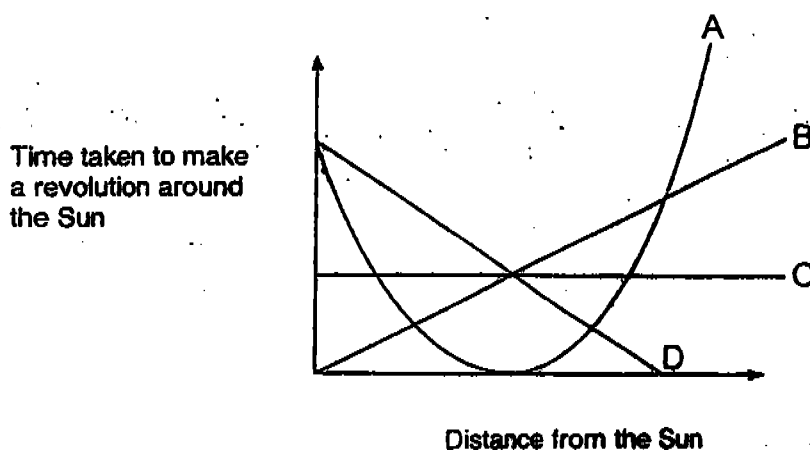
- A: They only appear at night.
- B: They are planets of the Solar System.
- C: They orbit around the planet Earth.
- D: They take about one month to complete a rotation.

- (1) A and B only
- (2) C and D only
- (3) A, B and D only
- (4) A, C and D only

2. The table below gives information about Planets Beta, Charlie and Delta.

| Planet | Beta | Charlie | Delta |
|---|----------|----------|-----------|
| Distance from the Sun (million km) | 160 | 778 | 5915 |
| Time taken to make a revolution around the Sun | 370 days | 13 years | 249 years |

Which one of the following graphs represents the relationship between the distance the planet is from the Sun and the time taken for it to revolve around the Sun once?



- (1) A
- (2) B
- (3) C
- (4) D

3. Which one of the following about a part of the cell is incorrect?

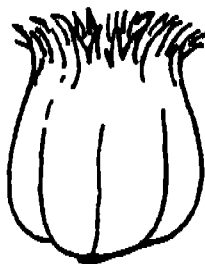
| | Part of cell | In animal | In plant | Function |
|-----|---------------|-----------|----------|------------------------------------|
| (1) | Nucleus | Present | Present | Controls cell activities |
| (2) | Cell membrane | Present | Present | Allows some substances to enter |
| (3) | Cytoplasm | Present | Present | Gives cell its shape |
| (4) | Chloroplast | Absent | Present | Captures light energy from the Sun |

4. Which of the following statements are true of a human baby?

- A: The cells in a human baby live forever.
- B: The human baby has many kinds of cells of different shapes.
- C: Budding occurs as the human baby grows.
- D: The nuclei in the cells of a human baby contain genetic materials.

- (1) A and B only
- (2) B and D only
- (3) A, B and D only
- (4) A, B, C and D

5. The picture below shows a drawing of a fruit.



Beatrice wants to find out whether the fruit is scattered in the same way as the coconut. She plans to do the following:

- A: Place it in water.
- B: Examine it to see if it has a fibrous husk.
- C: Open to see if it contains water.
- D: Measure its mass before placing it in the water.

Some of the above actions are useful for her purpose but some are not. Which of the above actions are useful?

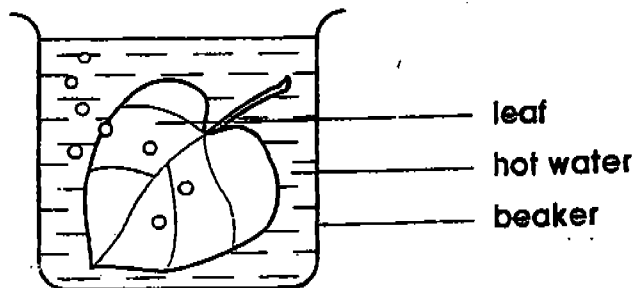
- (1) A and B only
- (2) B and D only
- (3) A, B and C only
- (4) B, C and D only

6. Which of the following statements describe reproduction in plants correctly?

- A: The male reproductive cells are called pollen grains.
- B: The female egg cell is stored in the ovule.
- C: The ovule develops into a fruit.
- D: Pollination takes place before fertilisation.

- (1) A, B and C only
- (2) A, B and D only
- (3) B, C and D only
- (4) A, B, C and D

7. Jess plucked a leaf from her rose plant in the garden and placed it into a beaker of hot water.



Which of the following statements are likely to be the observation made?

- A: The leaf loses its green colour.
- B: Sugar and starch are released from the leaf.
- C: Tiny openings on the leaf surface allow air to escape.
- D: There are more bubbles escaping on the underside of the leaf.

- (1) A and C only
- (2) C and D only
- (3) B, and C only
- (4) A, B and C only

8 Study the plant parts of the potato and the radish.



potato

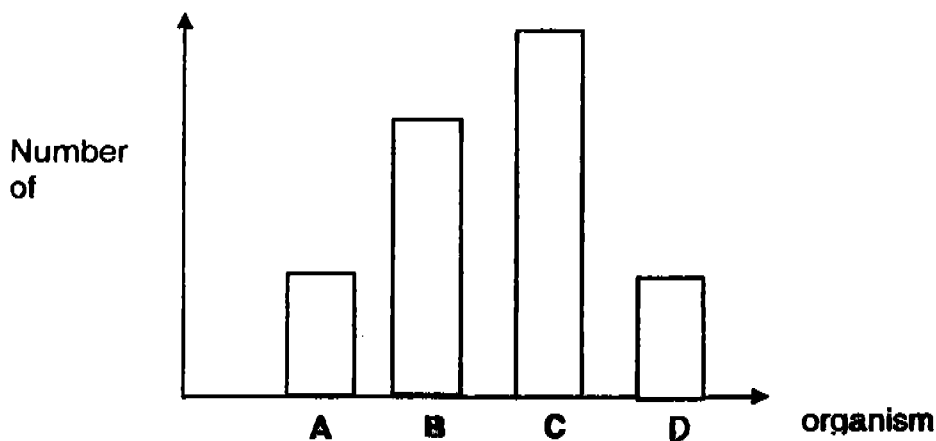


radish

Which statement about their plant parts is true?

- (1) Both plants store starch in the roots.
 - (2) Both plants store starch in the underground stems.
 - (3) The potato stores starch in its underground stem while the radish stores starch in its roots.
 - (4) The potato stores starch in its roots while the radish stores starch in its underground stem.
9. Why do living things carry out respiration?
- (1) To replenish oxygen in the air.
 - (2) To get energy for doing work.
 - (3) To remove carbon dioxide from their bodies.
 - (4) To allow circulation of food in the body.

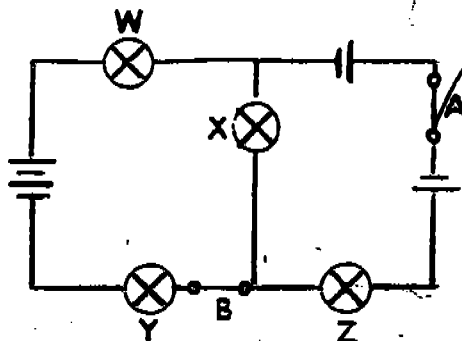
12. The bar graph below shows the number of 4 organisms, A, B, C and D living together in an area.



Based on the bar graph, which one of the following food chains shows the possible food relationship amongst the 4 organisms, A, B, C and D?

- (1) D → B → C → A
- (2) C → A → B → D
- (3) C → B → A → D
- (4) D → C → A → B

Refer to the diagram below and answer questions 13 and 14



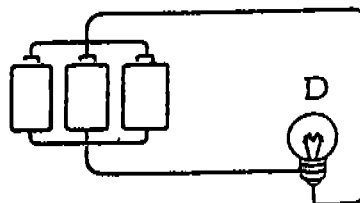
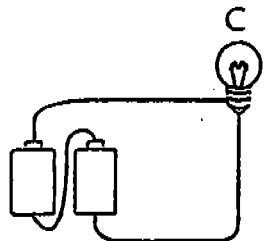
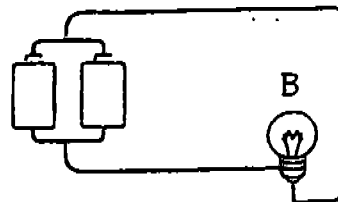
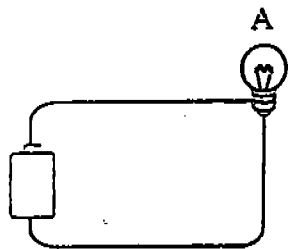
13 Which bulb(s) would remain lit when switch A is open?

- (1) W and Y only
- (2) X and Z only
- (3) W, X and Y only
- (4) W, Y and Z only

14 Which bulbs will remain lit when switch B is open?

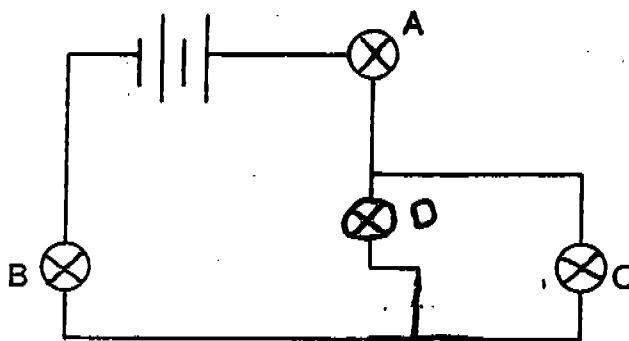
- (1) W, X and Y only
- (2) X and Z only
- (3) All the bulbs
- (4) None of the bulbs

17 Study the following carefully. Which bulbs have about the same brightness?



- (1) A and B only
- (2) B and C only
- (3) C and D only
- (4) A, B and D only

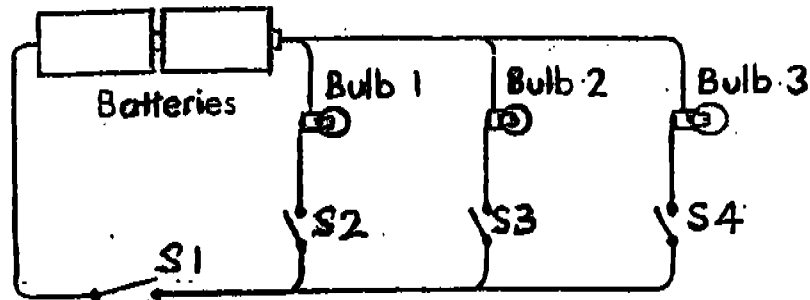
18 Study the circuit diagram below carefully.



Which bulb/s will still light up if Bulb D fuses?

- (1) A only
- (2) B only
- (3) A and C only
- (4) A, B and C only

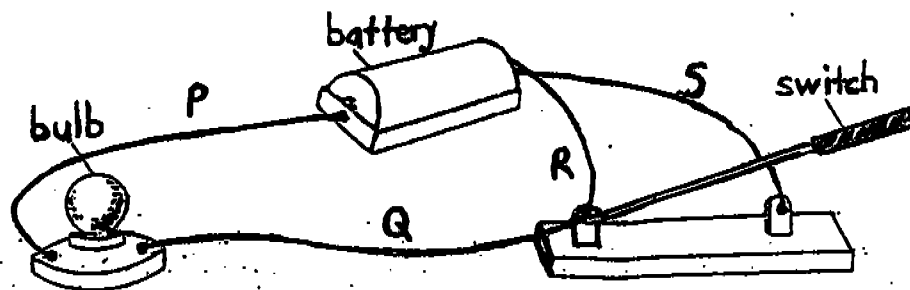
19 Study the 4 circuits diagram below.



Which of the following switch(es) control(s) Bulb 3?

- (1) S1 and S3 only
- (2) S1 and S4 only
- (3) S2 and S3 only
- (4) S2 and S4 only

20 While experimenting with the electric circuit shown below, Alice discovered that the bulb lighted up even when the switch was opened.

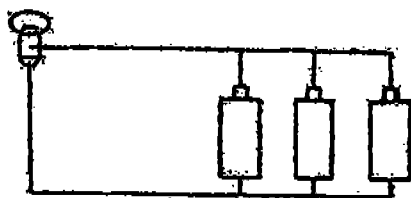


If she wants to use the switch to control the bulb which wire should Alice remove from this circuit?

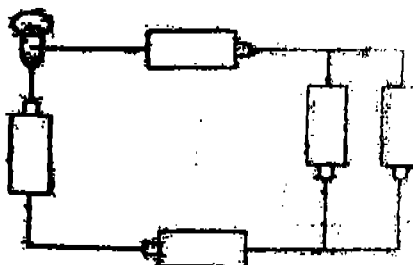
- (1) Q
- (2) R
- (3) S
- (4) P

21 Study the 4 circuits A, B, C and D shown below.

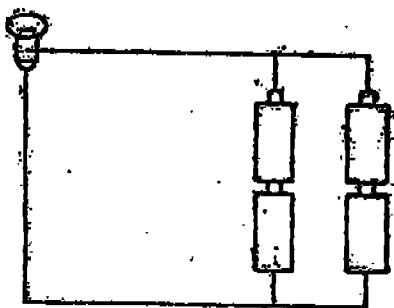
(A)



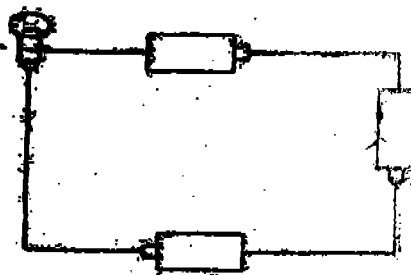
(B)



(C)



(D)



Arrange the bulbs in ascending order of brightness.

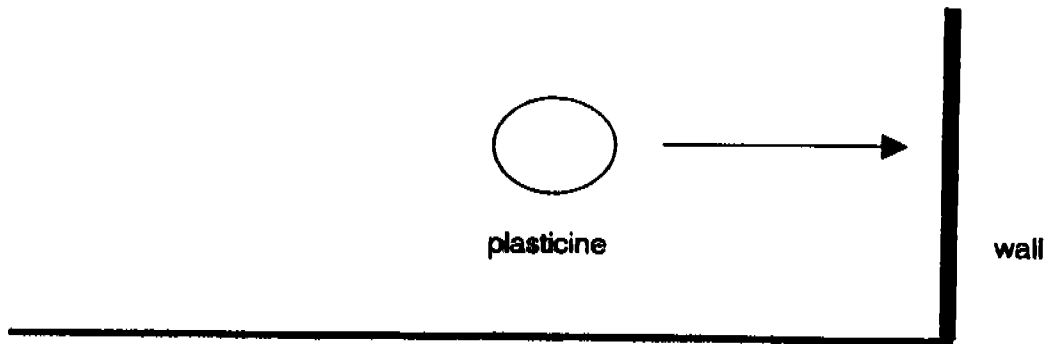
(1) A, B, C, D

(2) A, D, C, B

(3) A, C, D, B

(4) A, B, D, C

22. Samantha threw a lump of plasticine onto a wall.



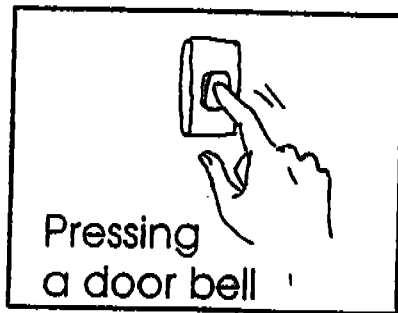
What happened when the plasticine hit the wall?

- A: It changed its shape.
- B: It changed its direction.
- C: It decreased in volume.
- D: It was stuck onto the wall for a while and then dropped to the ground.

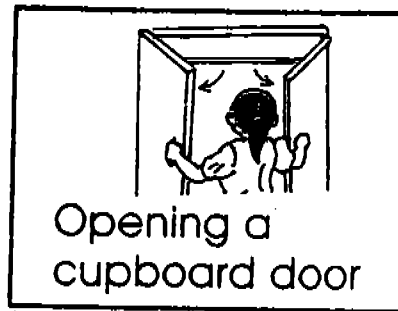
- (1) A and B only
- (2) A and D only
- (3) A, B and D only
- (4) A, C and D only

23. Which one of the following activities uses both pull and push forces?

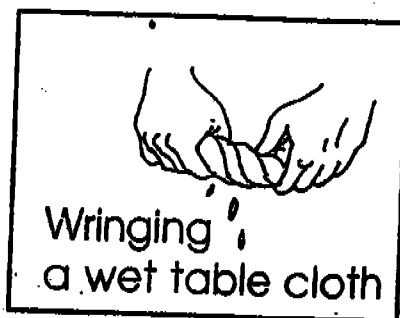
(1)



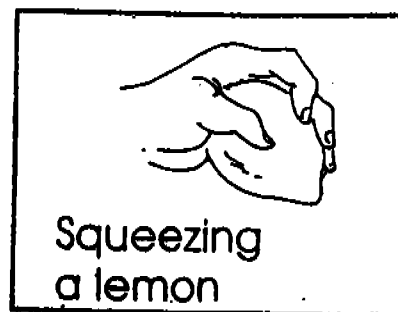
(2)



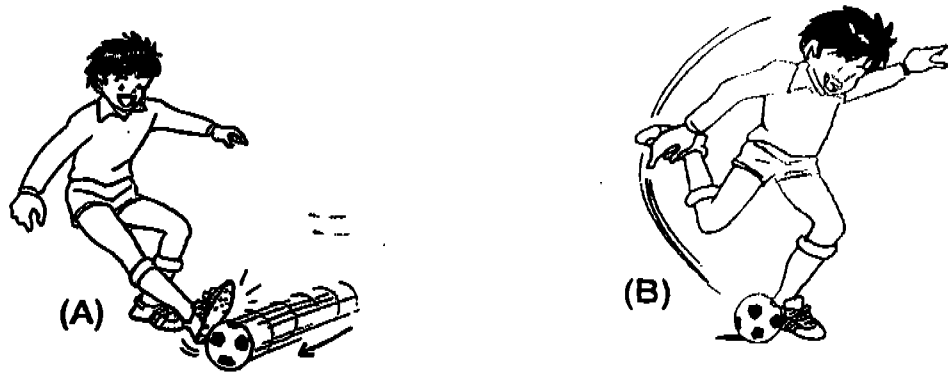
(3)



(4)



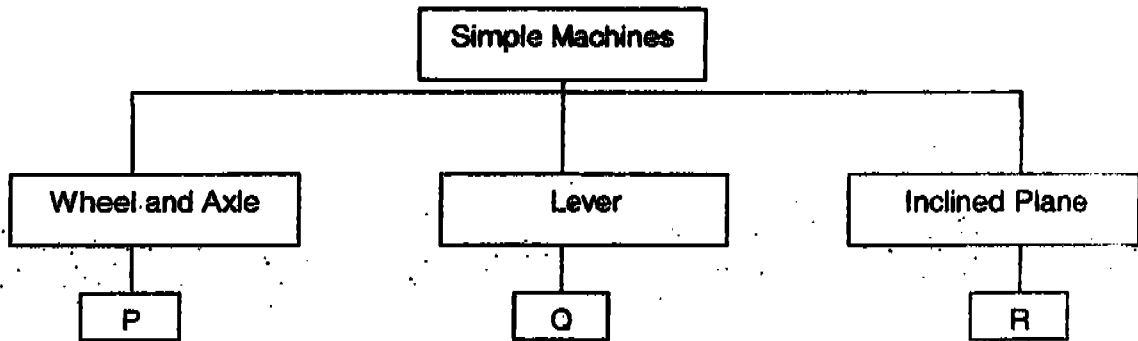
24. The diagram below shows what forces can do.



Which one of the following describes the effects of forces in Diagrams A and B?

| | A | B |
|-----|-----------------------------------|--|
| (1) | Makes a moving object move faster | Changes the direction of a moving object |
| (2) | Makes a stationary object move | Makes a moving object move faster |
| (3) | Makes a moving object move faster | Slows down a moving object |
| (4) | Stops a moving object | Makes a stationary object move |

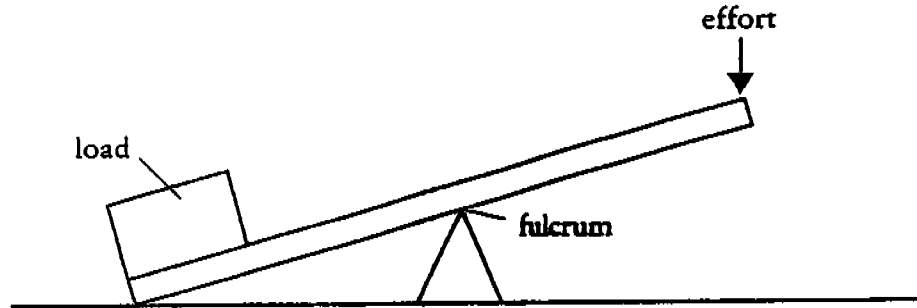
25. The classification chart below shows different types of simple machines.



Which one of the following simple machines are classified correctly under P, Q and R?

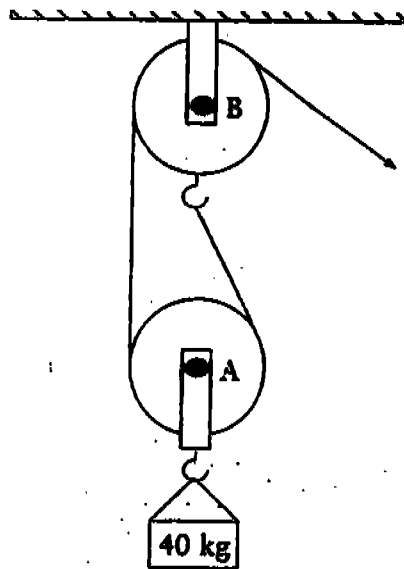
| | P | Q | R |
|-----|-------------|-------------|-----------|
| (1) | Bicycle | Fishing rod | Flag pole |
| (2) | Crowbar | Pencil | Sharpener |
| (3) | Screwdriver | Scissors | Stairs |
| (4) | Wheelbarrow | Stapler | Water tap |

26. The diagram below shows a simple lever.



Without increasing the effort, how can the load be lifted more easily?

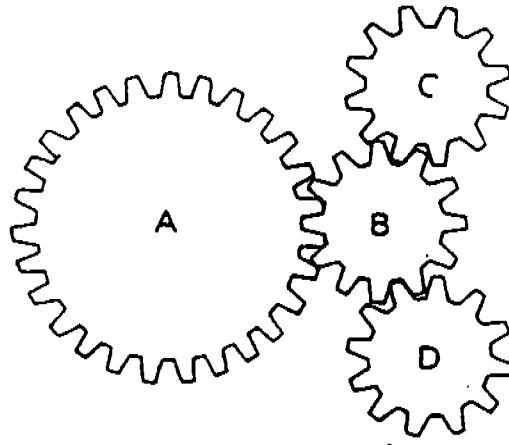
- (1) Move the load nearer the fulcrum.
 - (2) Move the load farther from the fulcrum.
 - (3) Move the fulcrum nearer the effort.
 - (4) Apply the effort in between the fulcrum and the load.
27. The diagram below shows a pulley system with a load of 40 kg.



Which one of the following statements is correct?

- (1) The effort needed to lift the load is greater than 40 kg and only pulley A moves together with the load.
- (2) The effort needed to lift the load is equal to 40 kg and both pulleys A and B move together with the load.
- (3) The effort needed to lift the load is less than 40 kg and only pulley A moves together with the load.
- (4) The effort needed to lift the load is less than 40 kg and both pulleys A and B move together with the load.

28. The diagram below shows a system of four gears, A, B, C and D.



When the gears are set in motion, which one will move in a direction different from the rest?

- (1) A
(3) C

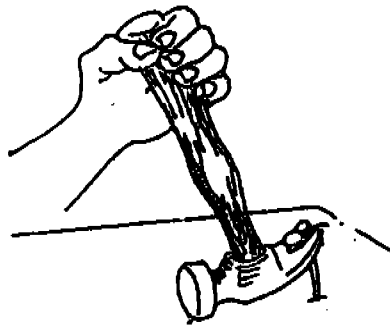
- (2) B
(4) D

29. The bottle-opener shown below works with the load in between the fulcrum and the effort.

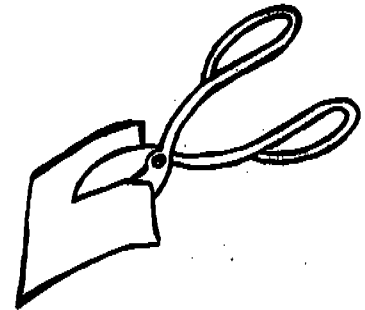


Which one of the following machines works in the same way as the bottle-opener?

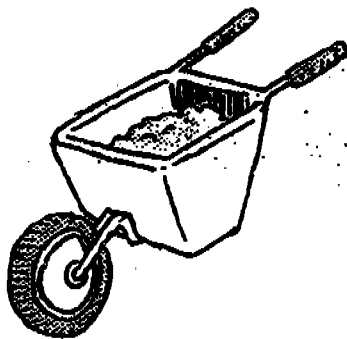
(1)



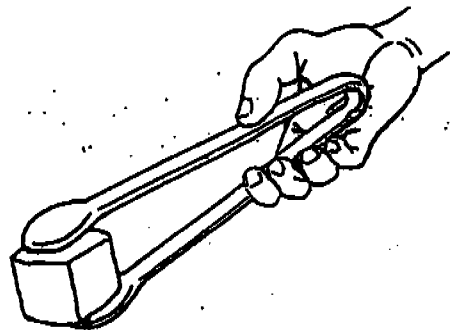
(2)



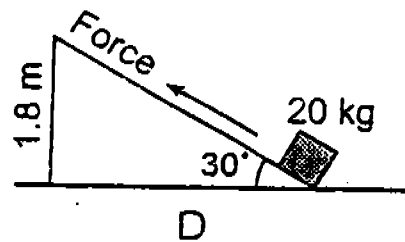
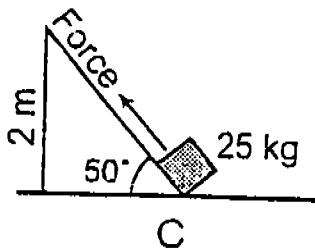
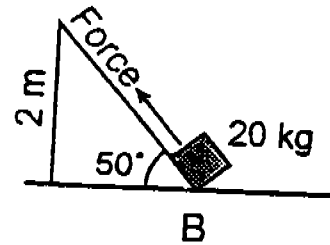
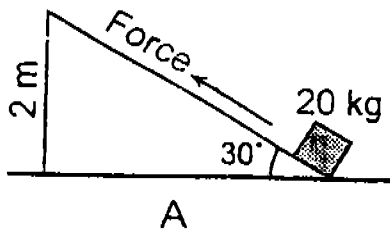
(3)



(4)



30. Kumar wants to find out if the angle between the ramp and the floor affects the amount of force needed to push a load up the ramp. Which two set-ups should he use for comparison?



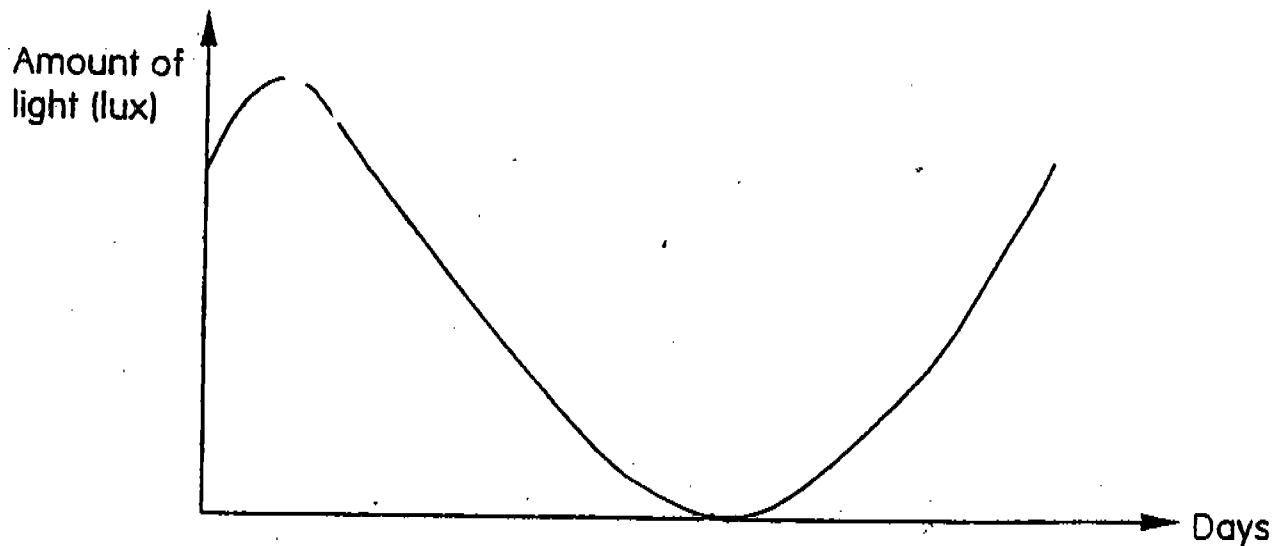
- | | |
|-------------|-------------|
| (1) A and B | (2) B and C |
| (3) A and C | (4) C and D |

END OF BOOKLET A

Part II: (40 marks)

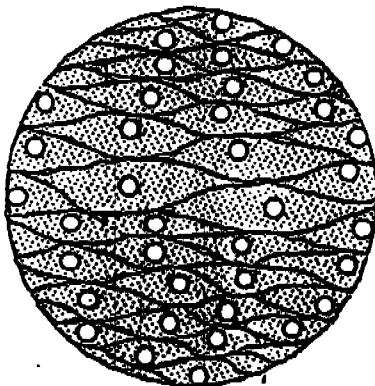
Read each question carefully and write your answer in the space provided.

31. The graph below shows the amount of light received from the Moon at night from one position in the sky, using a data-logger with a light sensor. Data-logger is an instrument which can be used to measure the amount or intensity of light. The measurements were taken over a period of one month.



- (a) Indicate a point on the graph above with an arrow and label it F to show when there was a full moon. (1m)
- (b) Indicate a point on the graph above with an arrow and label it N to show when there was a new moon. (1m)

32. Shamala has learnt from the internet that some cell types can be cultured (grown) in plastic containers. She saw a magnified diagram of some of these cells. This diagram is as shown below.



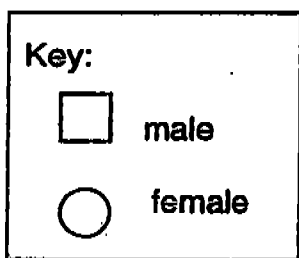
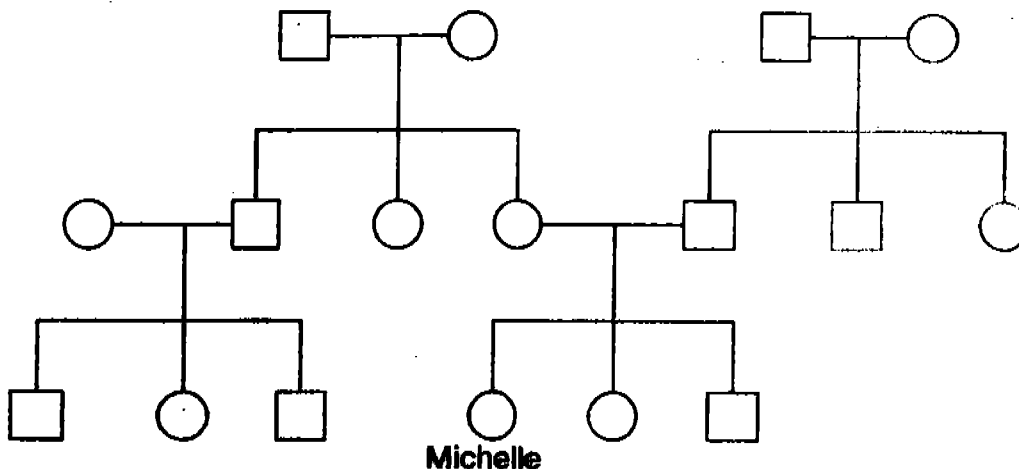
- (a) Name an instrument that is used to see these cells shown above.

_____ (1m)

- (b) Are these plant or animal cells? Give a reason to support your answer.

_____ (1 m)

33. Study Michelle's family tree shown below and answer the questions.



(a) How many generations are there shown in the family tree?

_____ (1m)

(b) How many uncles does Michelle have?

_____ (1m)

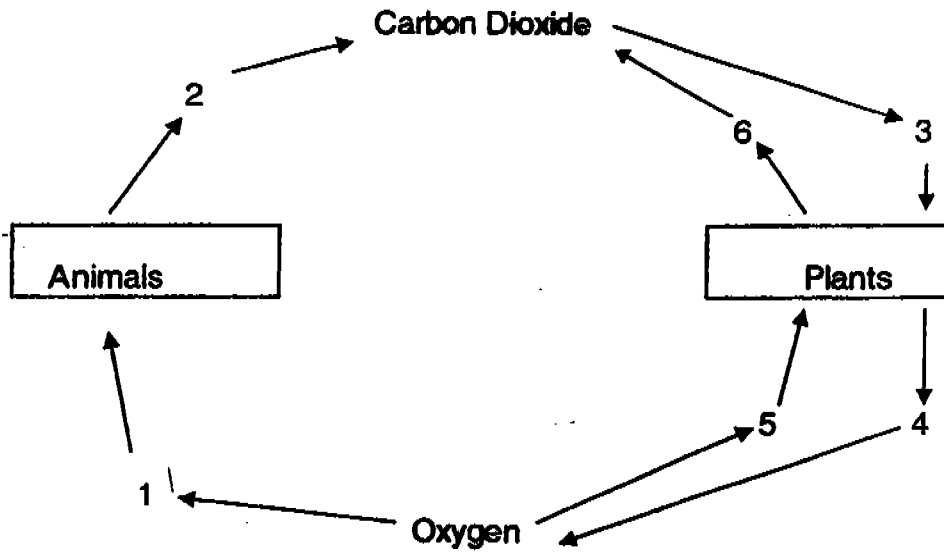
(c) How many ~~cousins~~ does Michelle have?

_____ (1m)

(d) How many ~~families~~ are there which have two daughters and one son?

_____ (1m)

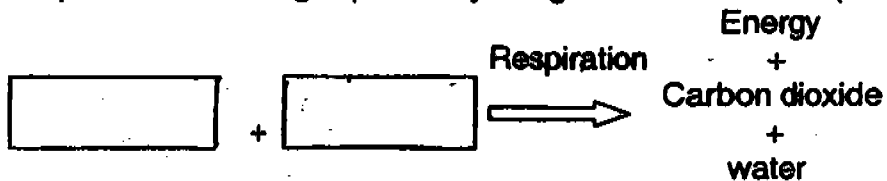
34. The six arrows in the diagram below show exchanges of gases between living things and their surroundings.



(a) Which two arrows show the process of photosynthesis? (1 m)

Arrows _____ and _____ show the process of photosynthesis.

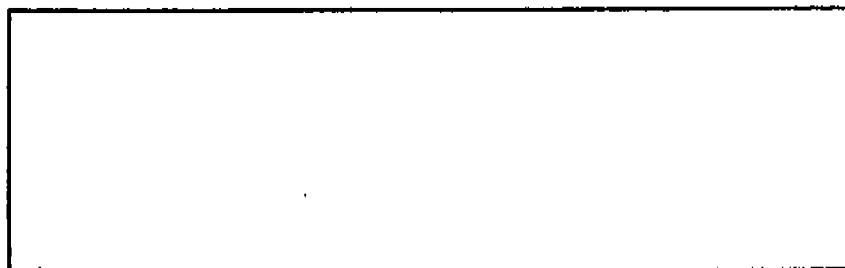
(b) Complete the following equation by filling in the two blanks. (1 m)



35. Four groups of organisms are classified as shown below:

| Group | Relationships |
|-------|------------------------|
| A | Feeds on group D only |
| B | Feeds on group A and D |
| C | Feeds on Group A and B |
| D | Has chlorophyll |

(a) Draw a diagram to show the energy transfer of the above groups of organisms in the box below.



(1m)

(b) i) Which group(s) depend(s) indirectly on group D for the source of energy?

(½m)

ii) Which group (A, B, C or D) would you place a goat in?

(½m)

36. Priya wants to find out whether plants with red^L coloured leaves could make food. She plucked a red-coloured leaf from the potted plant in her garden and carried an experiment to find out.

The steps given below are not in order :

| Step | What Priya did |
|------|---|
| P | Soak the leaf in a boiling tube of warm alcohol |
| Q | Put a few drops of iodine on the leaf. |
| R | Wash the leaves in a beaker of water |
| S | Put the leaf in boiling water for 20 seconds |

- (a) Write P, Q, R, and S in the to show the correct order to carry out the experiment. (1m)

Steps : ⇒ ⇒ ⇒

- (b) What would she observe to enable her to conclude whether the leaves of this plant could or could not make food?

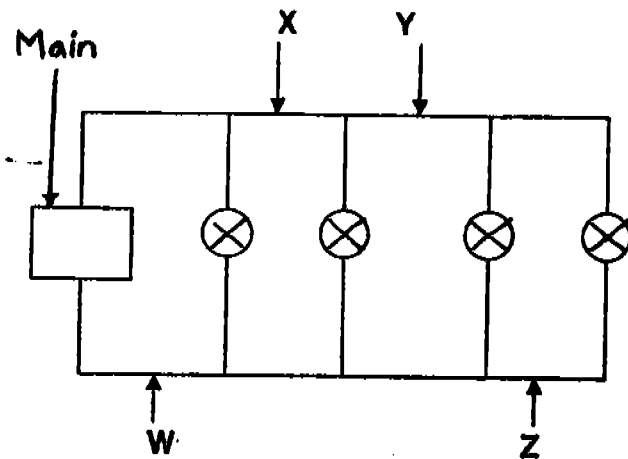
(1m)

- (c) What possible conclusion can she draw from the experiment above?

(1m)

37.

In a house there are four lights which are connected in a circuit as shown in the diagram below.



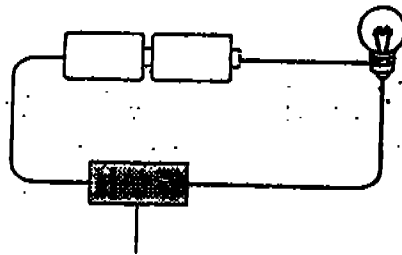
(a) At which point, W, X, Y or Z would you put a switch that would turn all the lights off?

_____ (1m)

(b) At which point, W, X, Y or Z would you put a switch that would turn one light off and leave three lights on?

_____ (1m)

38) Ailing wants to find out whether some materials are conductors or insulators of electricity. She sets up the electric circuit as shown below.



Material to be tested

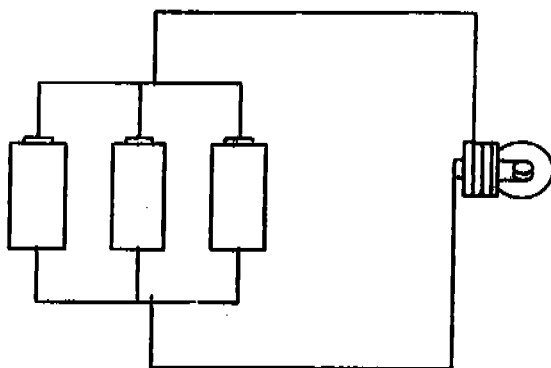
State two variables that she must keep the same in order to have a fair test, assuming that the number, length and thickness of the wires remain the same.

Variable 1: _____

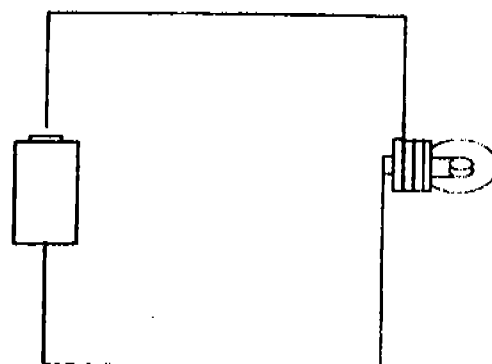
Variable 2: _____

(2m)

39. Two bulbs of the same size were connected to the circuits as shown in the diagrams below. The batteries and wires used were also of the same type.



Circuit A



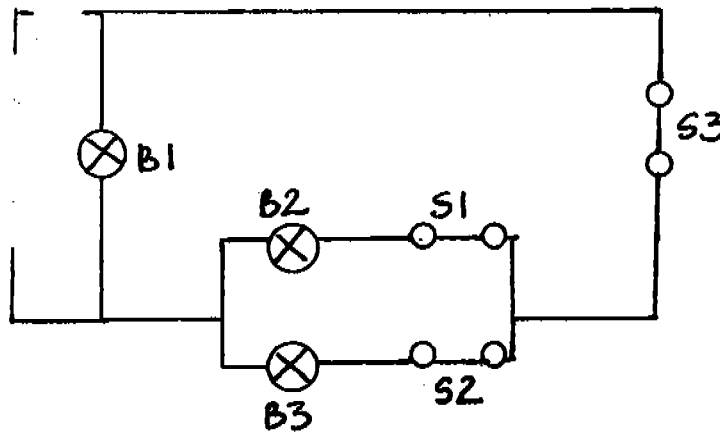
Circuit B

When the circuits were connected, both bulbs lighted up with the same brightness.

(a) Explain why the bulb in circuit A was not brighter than the bulb in circuit B since 3 batteries were used in circuit A and only 1 battery was used in circuit B. (2 m)

(b) Write down one way in which the bulb in circuit A can be made brighter than the bulb in circuit B. (1 m)

40. Three bulbs are connected in a circuit as shown in the diagram below. The bulbs are labeled B1, B2 and B3.



- (a) Refer to the circuit diagram above, complete the table below with a (\checkmark) if the bulb lights up and a (\times) if the bulb does not light up. All the boxes must be completely filled up.

(2m)

(i)

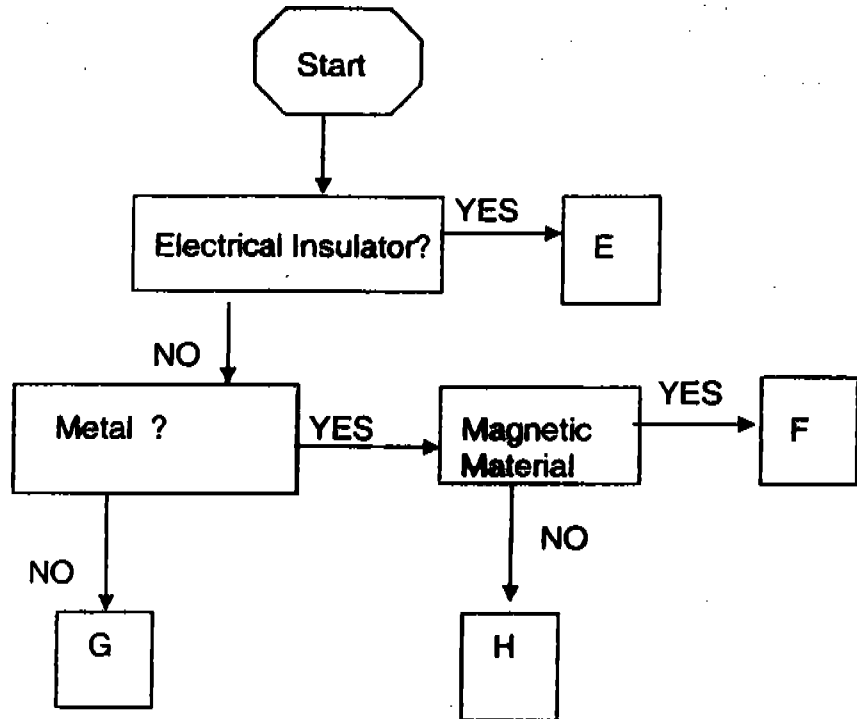
| S1 | S2 | S3 | B1 | B2 | B3 |
|--------|------|--------|----|----|----|
| closed | open | closed | | | |

(ii)

| S1 | S2 | S3 | B1 | B2 | B3 |
|------|------|--------|----|----|----|
| open | open | closed | | | |

- (b) Jane wants to place a switch to cut off the flow of electricity to all three bulbs when needed. Mark clearly with an (\times) in the circuit diagram above where you would place this switch. (1m)

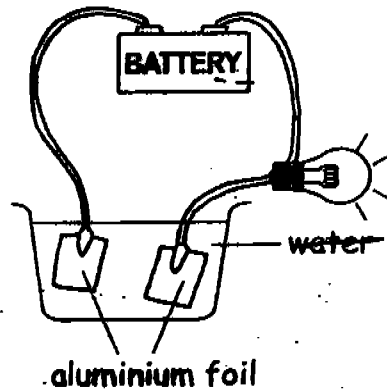
41. Study the flow chart below.



(a) Referring to the chart above, state one other way in which objects H and F are similar, beside being electrical conductors?

_____ (1m)

(b) Wei Li set up a circuit and he put the pieces of aluminium foil into the basin as shown below.



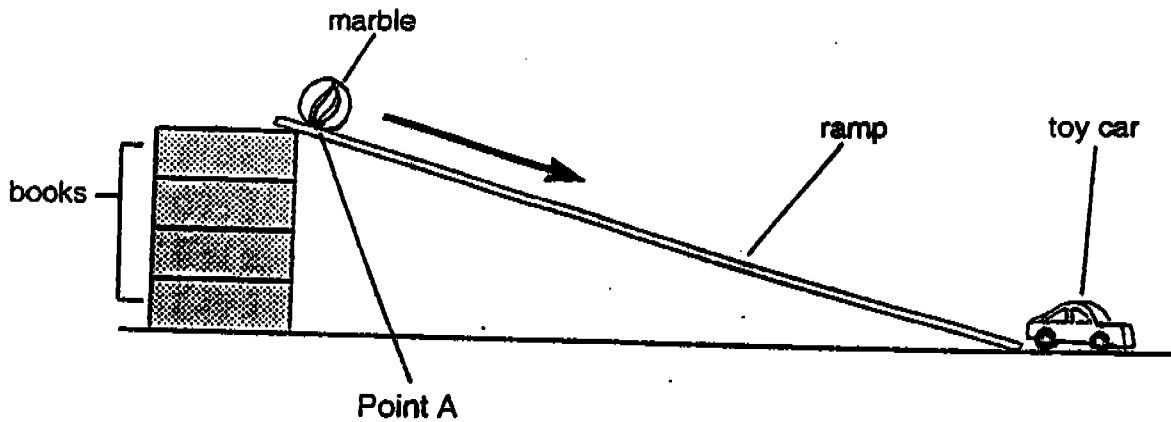
What will happen to the bulb?

_____ (1m)

(c) In which of the group (E, F, G or H) of the above flow chart would you place the lime juice?

_____ (1m)

42. Haikal placed a ramp on four thick books. He placed a marble at Point A on the ramp as shown below. The marble rolled down the ramp. When it reached the bottom, the marble hit and pushed a toy car. He repeated the experiment using the same marble and car.

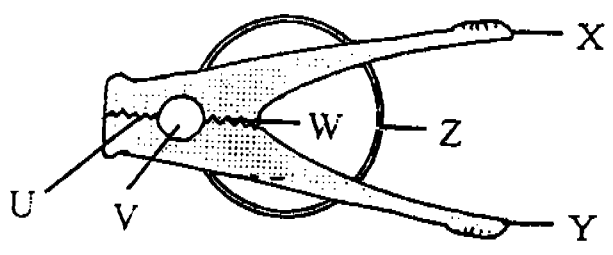


State two ways how Haikal can make the toy car travel farther without changing the starting position of the marble and the car.

(i) _____ (1m)

(ii) _____ (1m)

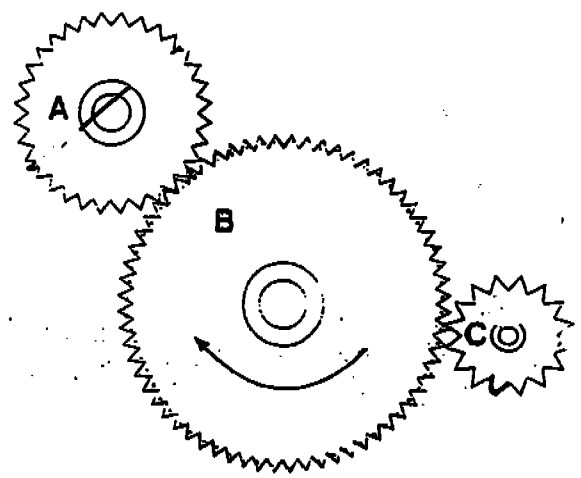
43. The diagram below shows a clothes peg which works on the principle of a lever.



Identify the following parts:

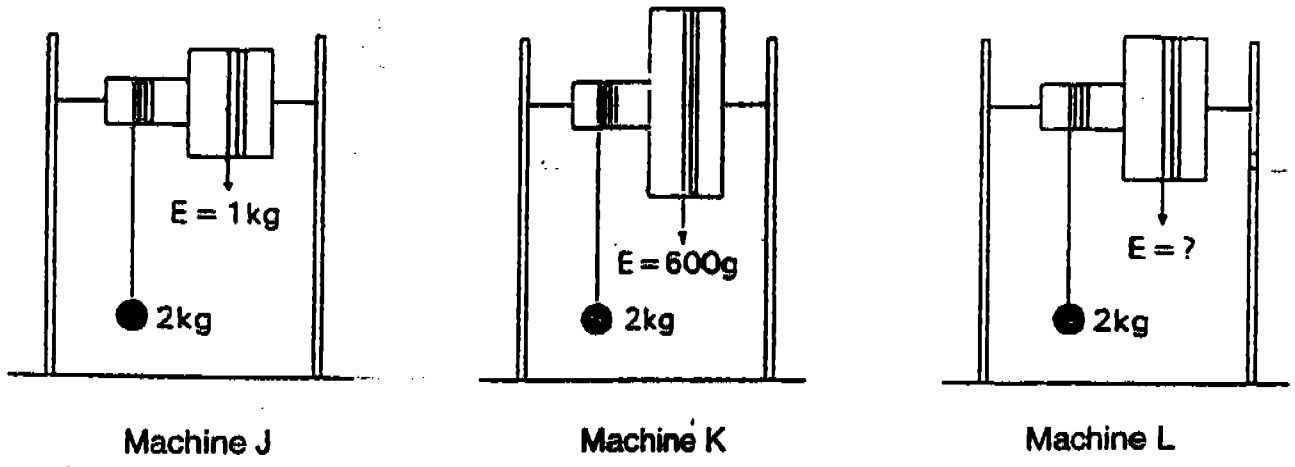
- (a) Fulcrum: _____ (1m)
- (b) Effort: _____ (1m)

44. Look at the diagram below.



- (a) Indicate with arrows the direction turned by Gears A and C. Draw the arrows inside the respective gears shown in the above diagram. (1m)
- (b) Gear A has 32 teeth and Gear C has 16 teeth. How many times would the smaller gear have turned if the bigger gear has turned 3 complete rounds?
 _____ (1m)

45. The diagrams below show three simple machines, J, K and L. Each is a wheel and axle. The effort E in each case is just enough to lift the 2 kg load.

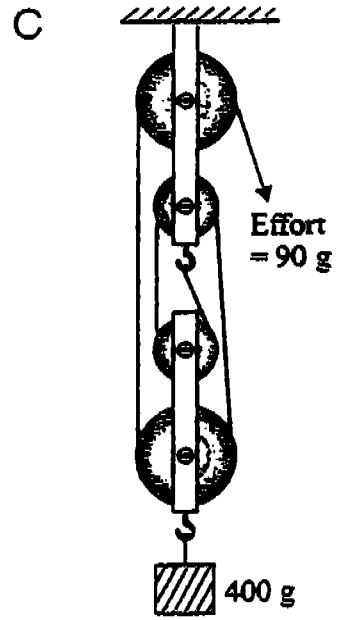
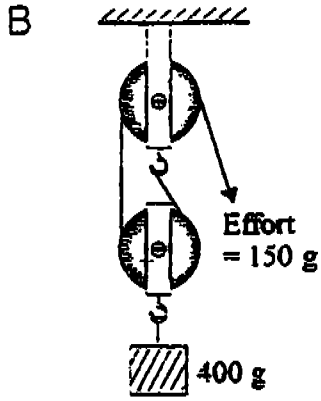
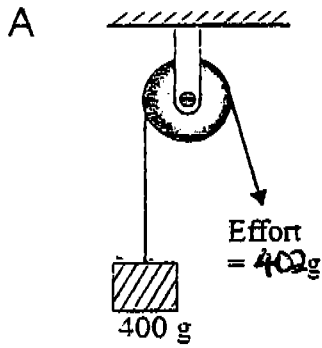


(a) What is the effort needed in Machine L to lift the 2 kg load?

(1m)

(b) Give a reason for your answer in (a).

46(a). Joanna conducted an experiment, as shown below, to find out if the number of pulleys will affect the effort required to raise a load of 400 g.



(i) From the set-ups above, what pattern do you notice about the number of pulleys and the effort needed to raise the load?

(1m)

(ii) If the load in set-up C is increased to 800 g, what would be the amount of effort needed to lift the load?

(1m)

(b) State two advantages of using pulleys (fixed and movable) at a construction site.

(i) _____

(1m)

(ii) _____

(1m)

END OF PAPER

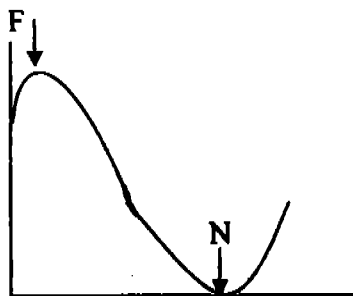
Rosyth Primary School
Primary 5 Science SA2 (2005)

Exam Sheet

Answer Sheets

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 |
| 3 | 2 | 3 | 2 | 1 | 2 | 2 | 3 | 2 | 3 |
| Q11 | Q12 | Q13 | Q14 | Q15 | Q16 | Q17 | Q18 | Q19 | Q20 |
| 4 | 3 | 3 | 2 | 2 | 2 | 4 | 4 | 2 | 2 |
| Q21 | Q22 | Q23 | Q24 | Q25 | Q26 | Q27 | Q28 | Q29 | Q30 |
| 3 | 2 | 3 | 4 | 3 | 1 | 3 | 2 | 3 | 1 |

31.



32a.

Microscope

32b.

Animal cells. They have no cell walls to give them a regular shape.

33a.

3 generations

33b.

2 uncles

33c.

3 cousins

33d.

2 families

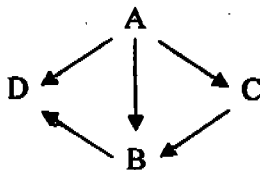
34a.

3 4

34b.

Oxygen Glucose

35a.



35b.

(i)

Group C

(ii)

Group A

36a. S P R Q

36b. The iodine would turn dark blue if the leaves could make food but if the iodine turns reddish brown, the leaves cannot make food.

37a. W

37b. Z

38. Variable 1 - The voltage of the batteries
Variable 2 - The way the batteries are arranged.

39a. The batteries in Circuit A were connected in parallel so there is only one battery used by the bulb in Circuit A. The battery in Circuit B is connected in series and there is only one battery used in the circuit. As the bulbs in each circuit use the same batteries, the brightness of both bulbs are the same.

39b. By arranging the batteries in Circuit A in series.

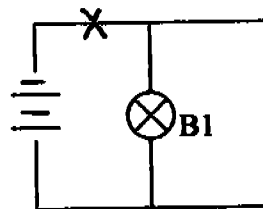
40a. (i)

| | | |
|---|---|---|
| ✓ | ✓ | x |
|---|---|---|

40a. (ii)

| | | |
|---|---|---|
| ✓ | x | x |
|---|---|---|

40a. (iii).



41a. Both are metals.

41b. It will light up.

41c. C

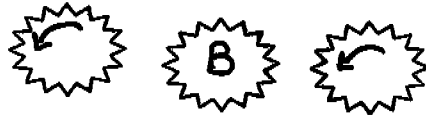
42. (i) By making the height of the ramp higher by placing the ramp on five thick books instead of our thick books.

(ii) By using a shorter ramp.

43a. W

43b. X and Y

44a.



44b.

6 rounds.

45a.

800g

45b.

Only one variable is changed, which is the size of the wheel. As the wheel in machine J is the smaller and the wheel in machine K is the biggest, so the effort used in machine L must be in around the middle of the effort used in machine J and machine K. As the effort needed to lift the load depends on the size of the wheel and axle.

46a.

The more the number of pulleys, the lesser the effort needed to raise the load.

46

(ii)

180g

46b.

(i)

Lesser effort is needed to move the load.

(ii)

More convenient as it changes the direction of force.