

ANGLO-CHINESE SCHOOL
(PRIMARY)

MID-YEAR EXAMINATION 2004

SCIENCE

SAT

BOOKLET A

Name. _____ ()

Class: Primary 6

Date: 14th May 2004

Duration of paper: 1 h 45 min

THIS BOOKLET CONTAINS 14 PAGES.

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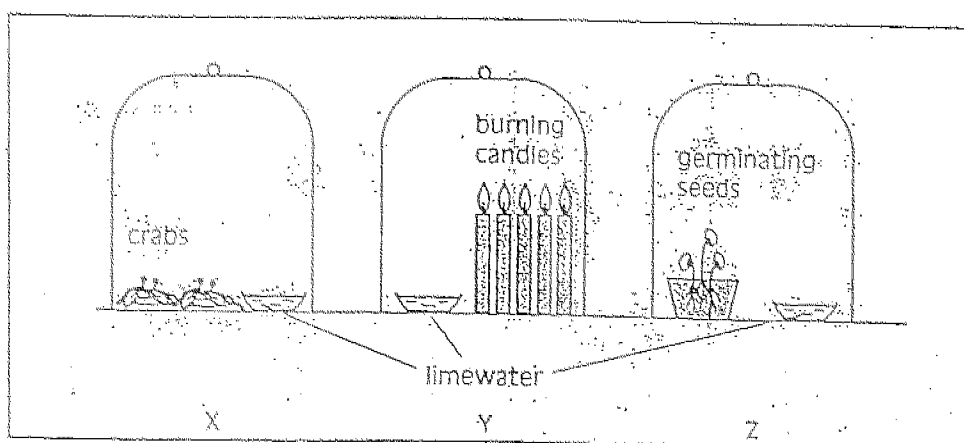
IO SO. 480 of 618.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

Part I (60 marks)

For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Daniel wanted to find out if carbon dioxide is present in the following experimental set-up. He placed the three set-ups, X, Y and Z in a sunny place.



In which of the following set-ups will the limewater most likely turn milky or chalky?

- (1) X and Y only
 (2) Y and Z only
 (3) X, Y and Z
 (4) None of the above
2. Study the classification table shown below carefully.

| Group A | Group B |
|---------|---------|
| Frog | Cow |
| Mynah | Dog |

The animals have been classified according to _____

- (1) their habitat
 (2) their body covering
 (3) the way they breathe
 (4) their method of reproduction

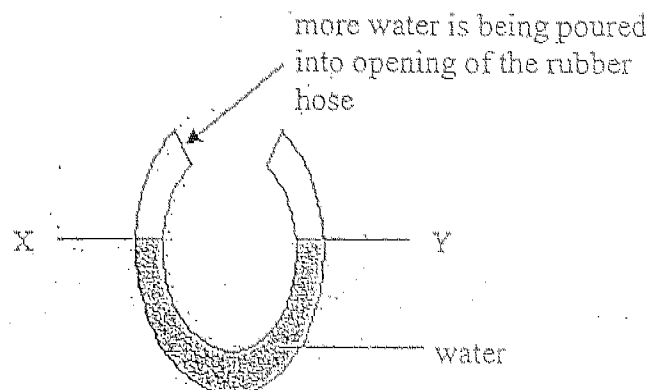
3. Nick decided to conduct some test to find out what materials the objects P and Q are most likely to be made of. The table below shows the results of his test.

| | P | Q |
|----------------------------|-----|-----|
| Waterproof | Yes | Yes |
| Good conductor of heat | Yes | No |
| Breaks easily when dropped | No | Yes |

Which of the following correctly shows what materials P and Q are most likely to be made of?

| | P | Q |
|-----|---------|---------|
| (1) | Steel | Glass |
| (2) | Plastic | Wood |
| (3) | Copper | Rubber |
| (4) | Glass | Ceramic |

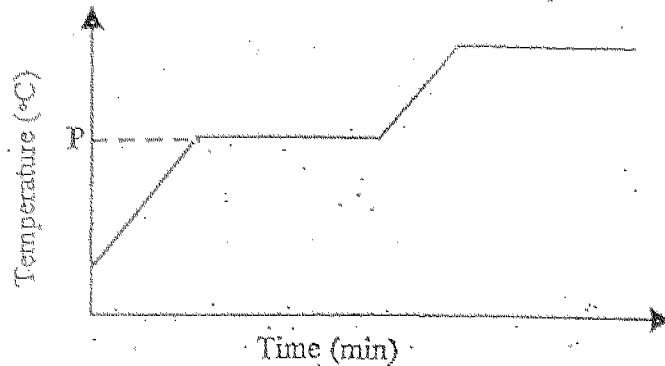
4. Karen wanted to find out what would happen to the water level in the rubber hose when more water is being poured into it as shown below?



What do you think Karen would observe?

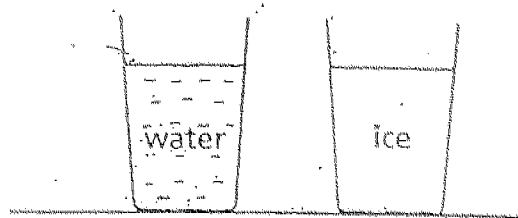
- (1) Only the water level at X will rise.
- (2) Only the water level at Y will rise.
- (3) The water levels at X and Y will rise equally.
- (4) The water level at X will rise and the water level at Y will fall.

5. A piece of wax was heated slowly at room temperature in an evaporating dish. Its temperature was recorded at regular intervals and plotted in the graph as shown.

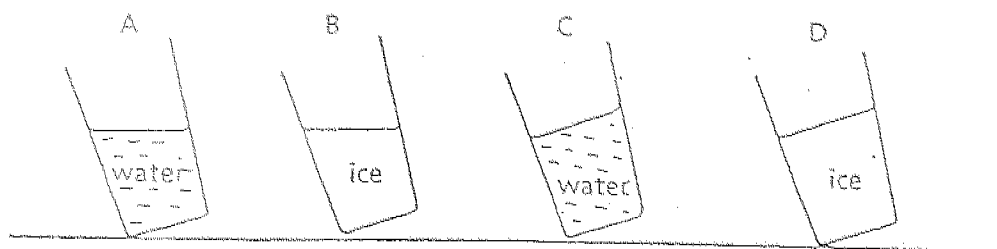


Which of the following statements correctly describes the temperature marked P?

- (1) P is the room temperature.
 - (2) P is the boiling point of the wax.
 - (3) P is the temperature taken for the wax to change from gaseous state to liquid state.
 - (4) P is the temperature taken for all the wax to change from solid state to liquid state.
6. The diagram below shows a glass of water and a glass of ice that have just been taken out of a freezer.

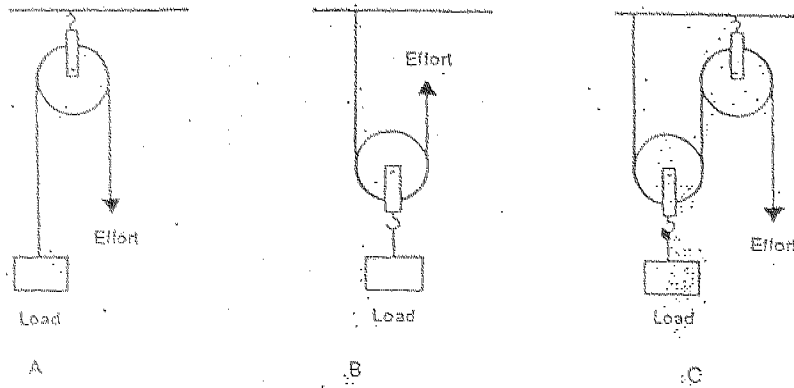


Which 2 of the diagrams below show what is observed when both glasses are tilted?



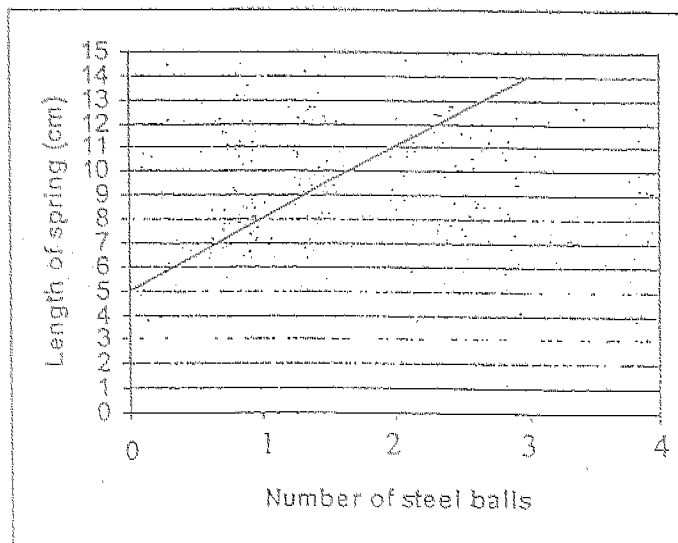
- (1) A and B only
- (2) A and D only
- (3) B and C only
- (4) C and D only

9. The diagram below shows 3 pulley arrangements. In each arrangement, an effort is applied to lift the same load. The effort is smaller than the load in _____.



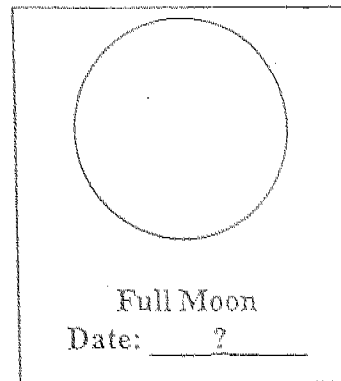
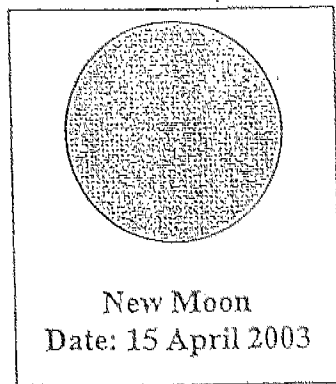
- (1) arrangement A only
 (2) arrangement C only
 (3) arrangements A and B only
 (4) arrangements B and C only

10. An extension spring is attached to a weighing pan. The graph shows the length of the spring when steel balls are added onto the weighing pan. Predict what the total extension of the spring will be when 5 steel balls are added onto the weighing pan. Assume that the increase in length of spring is constant.



- (1) 8 cm
 (2) 15 cm
 (3) 18 cm
 (4) 20 cm

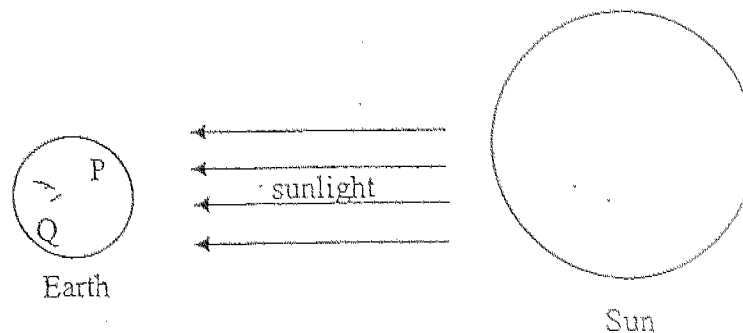
11. Study the diagrams below carefully.



A full moon would probably be next observed in the sky on _____ 2003.

- (1) 22 April (2) 29 April
(3) 8 May (4) 15 May

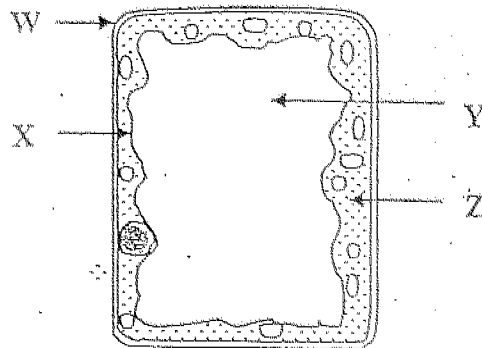
12. Which of the following statements are correct?



- A A person at P will experience sunrise earlier than a person at Q.
B A person at Q will experience sunrise earlier than a person at P.
C A person at P will see the Sun at the same position in the sky after 12 hours.
D A person at P will see the Sun at the same position in the sky after 24 hours.

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

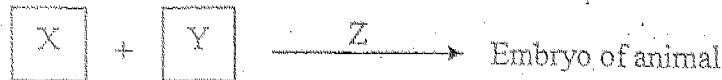
13. Look at the diagram below.



Which part of the plant cell acts gives it a regular shape?

- (1) W (2) X
 (3) Y (4) Z

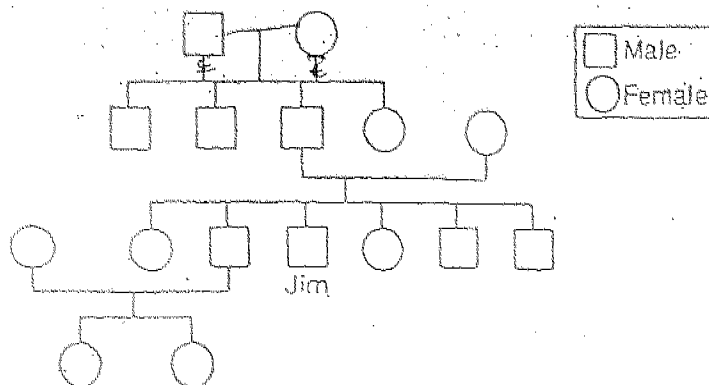
14. Look at the diagram below.



What do the letters X, Y and Z represent?

| | X | Y | Z |
|-----|--------------|--------------|----------------|
| (1) | pollen grain | ovule | pollination |
| (2) | ovule | sperm | reproduction |
| (3) | sperm | egg | fertilization |
| (4) | sperm | pollen grain | binary fission |

15. Study the family tree of shown below carefully.



How many siblings does Jim's father have?

(3) 3

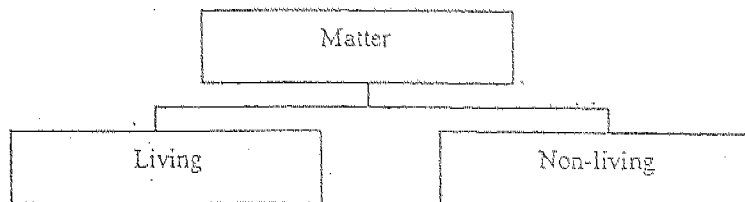
(4) 4

16. Penelope classified some objects into 4 different groups as shown below. However, she classified 2 of the objects wrongly. Identify the 2 objects.

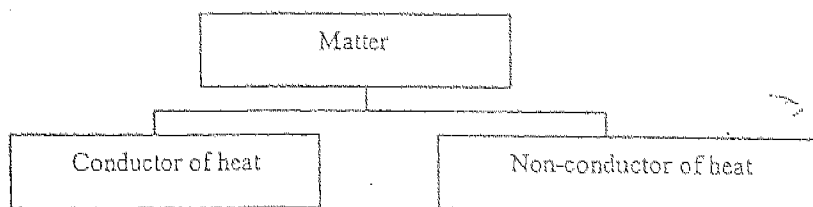
| Group A | Group B | Group C | Group D |
|-----------|--------------|----------------|----------------|
| Iron nail | Blanket | Drinking glass | Wire insulator |
| Magnet | Eraser | Window | School Tie |
| Padlock | Rubber boots | Mirror | Sweater |

- (1) Eraser and school tie
 (2) Magnet and window
 (3) Blanket and wire insulator
 (4) Iron nail and drinking glass
17. Which of the following classification schemes is incorrect?

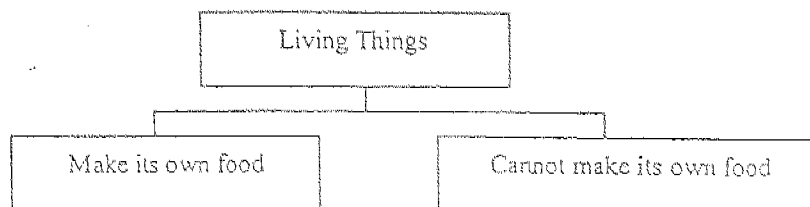
(1)



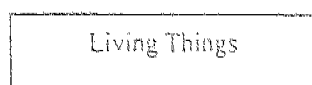
(2)



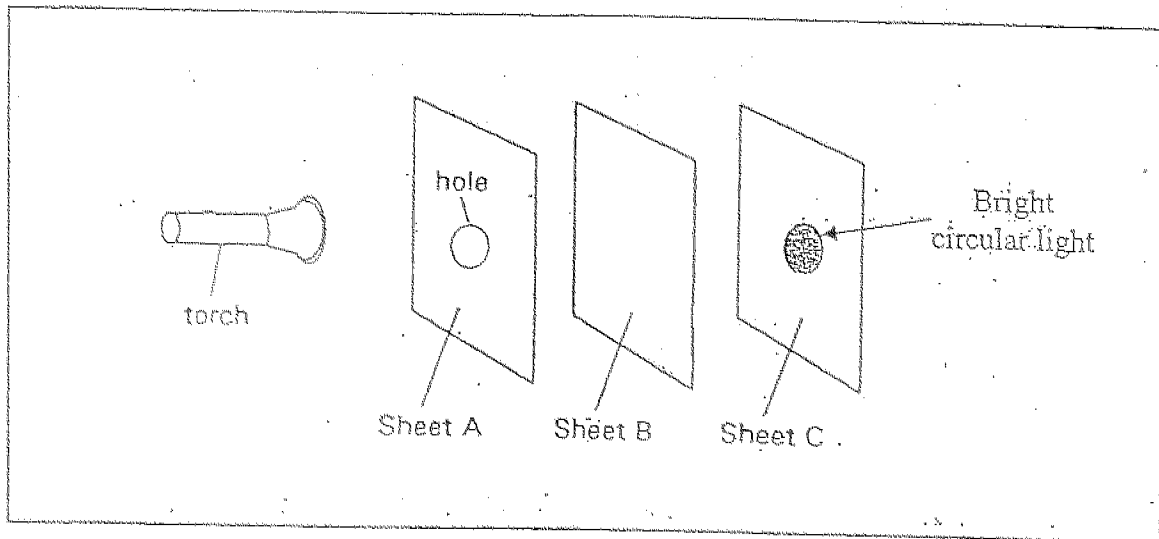
(3)



(4)



18. The investigation shown below is carried out in a dark room.



Sheet A, B and C are arranged in a straight line. When the torch is switched on, a bright circular light can be seen on Sheet C only. Which of the following statement(s) correctly describe(s) the properties of the materials used to make the three sheets?

- A) Sheet A allows light to pass through.
- B) Sheet B allows light to pass through.
- C) Sheet C does not allow light to pass through.

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

19. Dr Steven discovered three new organisms, X, Y and Z. He noted that Organism X and Z depend on Organism Y for food. Organism Y does not depend on any other organism for food. Organism X is the only organism that can move on its own. Which of the following is the best way to classify the three organisms?

- | | X | Y | Z |
|-----|---------|--------|---------|
| (1) | Plants | Fungus | Animals |
| (2) | Animals | Plants | Fungus |
| (3) | Fungus | Plants | Animals |
| (4) | Animals | Fungus | Plants |

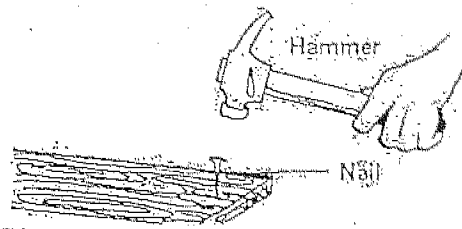
20. David, Karl and Richmond were asked to study three different organisms, P, Q and R. These are what they have found.

David : Organism Q is the only organism that can make food on its own.
 Karl : Organism P has a head and a body. Organism Q has chlorophyll, something which is absent in Organism P and R.
 Richmond : Organism P is the only organism that can look for its own shelter.

Which of the following shows the correct differentiation characteristics the three boys are making use of?

| | <u>Nutrition</u> | <u>Form</u> | <u>Movement</u> |
|-----|------------------|-------------|-----------------|
| (1) | Karl | Richmond | David |
| (2) | David | Karl | Richmond |
| (3) | Richmond | David | Karl |
| (4) | Karl | David | Richmond |

21. Study the diagram below.



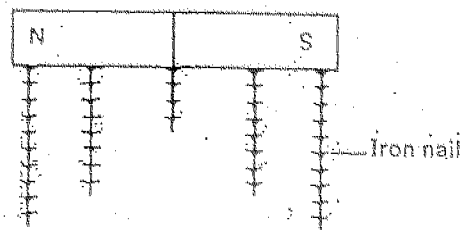
Which energy conversion below best describes the hammer knocking the nail into the wooden plank?

- (1) kinetic (hammer) \rightarrow kinetic (nail) + heat energy + sound energy
 (2) kinetic (nail) \rightarrow kinetic (hammer) + heat energy + sound energy
 (3) kinetic (hammer) \rightarrow kinetic (nail) \rightarrow heat energy \rightarrow sound energy
 (4) kinetic (nail) \rightarrow kinetic (hammer) \rightarrow heat energy \rightarrow sound energy
22. The presence of great amount of frictional force is useful for _____

- A) bowling
 B) sliding down a slide
 C) the sole of the school shoe
 D) bicycle brake gripping the wheel

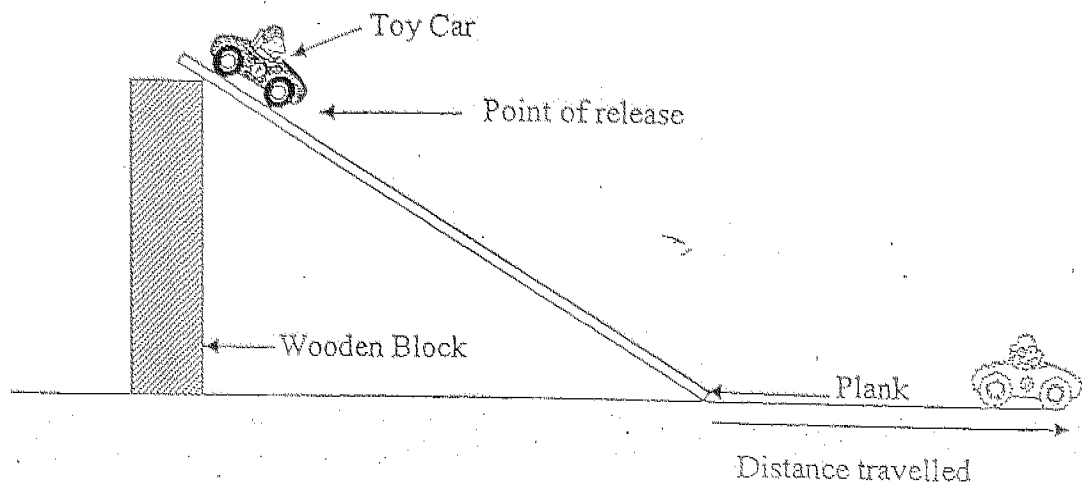
- (1) A and B only
 (2) C and D only
 (3) A and C only

23. John carried out an investigation using a bar magnet and some iron nails. The following is what he observed.



Based on the above investigation, which of the following statements is the best conclusion for the investigation above?

- (1) The bar magnet is the strongest type of magnet.
 (2) The bar magnet can attract all magnetic materials.
 (3) The bar magnet has the strongest forces at its poles.
 (4) Magnetic force can pass through all magnetic materials.
24. Maggie conducted an experiment to find out which type of surface the toy car is travelling on has the most frictional force. She set up the investigation shown below.



Which variables should remain constant in order to make the investigation a fair one?

- A) The toy car
 B) Material of the plank
 C) Height of wooden block
 D) Angle of elevation of the plank

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

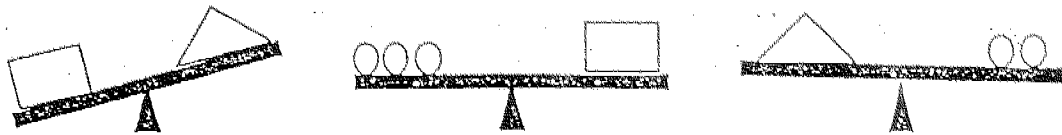
25. Read the extract of the newspaper article below.

“... According to eye-witnesses, the lorry driver was speeding. The lorry hit the back of the moving motorcycle. As a result, the motorcycle was thrown forward.....”













The effect on the motorcycle showed that a force can _____

- (1) stop a moving object
- (2) slow down a moving object
- (3) make a stationary object move
- (4) make a moving object speed up

26. Ali tried to measure 3 types of shape with different mass placed on a lever, with the fulcrum always at the center. After each try, he noted the observation as shown below.



If he wants to arrange the shapes according to their mass in ascending order, which of the following arrangements is correct?

- (1)   
- (2)   
- (3)   
- (4)   

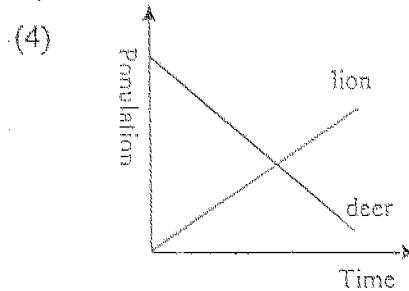
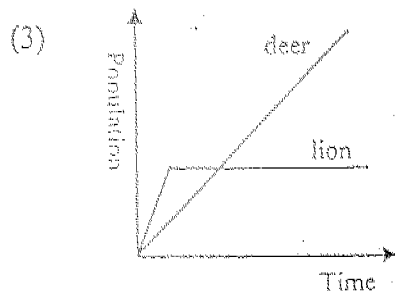
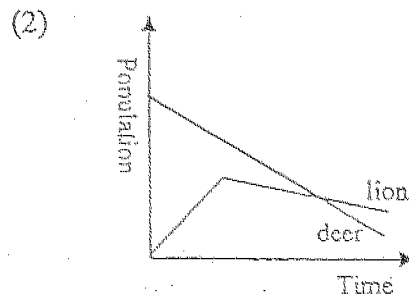
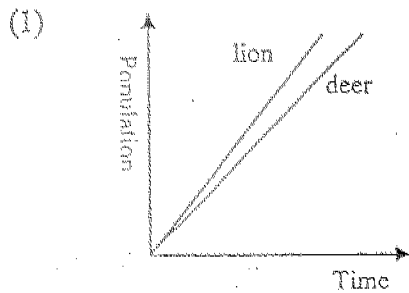
27. Mary uses a datalogger to measure and record the temperature of 3 similar ponds over a month. She also makes record of the number of fishes living in the 3 ponds. Using all the recorded information, she then draws a conclusion for her investigation. Her aim for the investigation is to find out if the _____

- (1) type of water affects the number of fishes living in the pond
- (2) temperature of water affects the types of fishes living in the pond
- (3) types of fishes living in different ponds will change over a month
- (4) temperature of water affects the number of fishes living in the pond

28. G, H and J are all organisms living in a community. Organism G feeds on Organism H only and Organism H feeds on Organism J only. If Organism J is removed from the community, which organism(s) will be affected?

- (1) Organism G only
- (2) Organism H only
- (3) Both Organism G and H
- (4) None of the organism

29. Which graph below shows the relationship between the population of the lion and the population of the deer.



30. In order to survive in a forest fire, animals _____

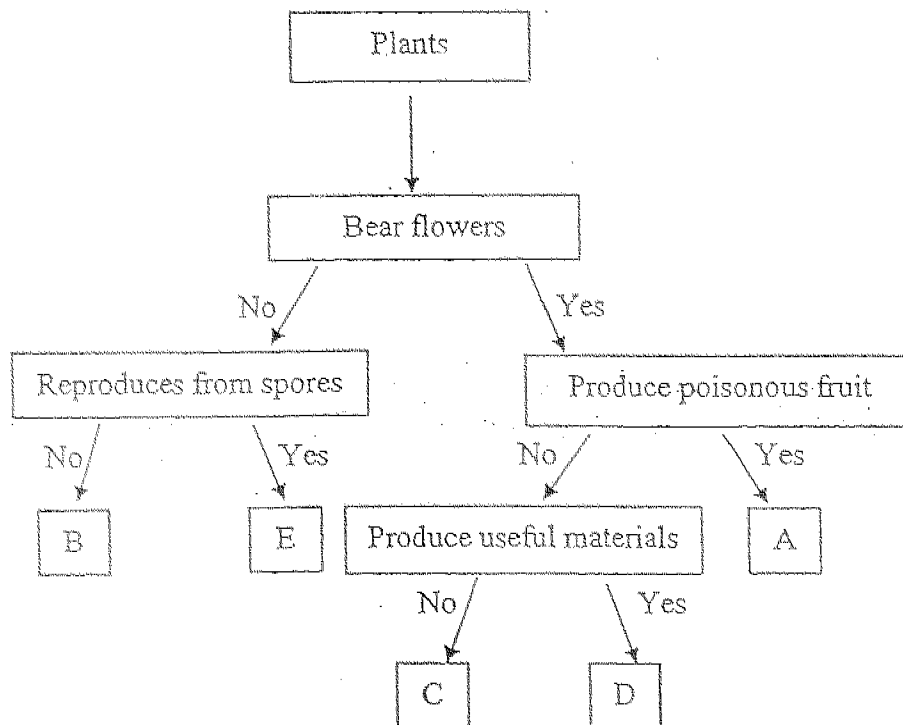
- A) hide underground
- B) hide in tree hollow
- C) fly away from the fire

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

PART II (40 marks)

Write your answers for Questions 31 to 46 in this booklet.

31. The diagram below shows the characteristics of some plants.



Study the diagram given above carefully and write down the letters (A, B, C, D or E) that represents the plant shown in the table below. [3m]

| Plant | Represented by letter |
|------------------|-----------------------|
| Bird's nest fern | |
| Cotton | |
| Lantana | |

32. Classify the organisms given in the box according to the headings shown in the table. [3m]

| | | |
|----------|------------|---------|
| shark | dolphin | penguin |
| platypus | kingfisher | giraffe |

| Birds | Fish | Mammals |
|-------|------|---------|
| | | |
| | | |

33. The table below shows the melting point and boiling point of 4 different substances, A, B, C and D. Study the table shown below carefully and answer the following questions. [3m]

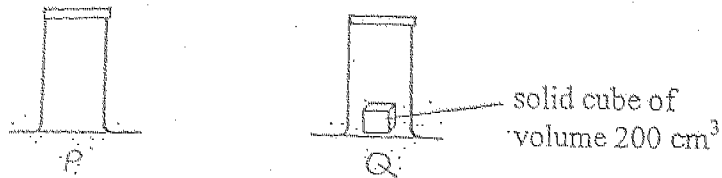
| Substance | Melting Point ($^{\circ}\text{C}$) | Boiling Point ($^{\circ}\text{C}$) |
|-----------|--------------------------------------|--------------------------------------|
| A | 20 | 790 |
| B | -7 | 35 |
| C | 134 | 184 |
| D | -101 | -35 |

- (a) Which substance(s) exist(s) as a gas at room temperature (28°C)?

- (b) Which substance(s) exist(s) as a solid at room temperature (28°C)?

- (c) Which substance(s) exist(s) as a liquid at room temperature (28°C)?

34. Two empty air-tight containers have an equal capacity of 1000 cm^3 each. A solid cube of volume 200 cm^3 was then placed inside container Q. 200 cm^3 of air was first pumped into each of the two gas containers shown below.



More air was then pumped into each container as recorded in the table below.

| Volume of air pumped into the jar | P | Q |
|-----------------------------------|--------------------|--------------------|
| | 600 cm^3 | 900 cm^3 |

(a) What is the final volume of air in each container? [1m]

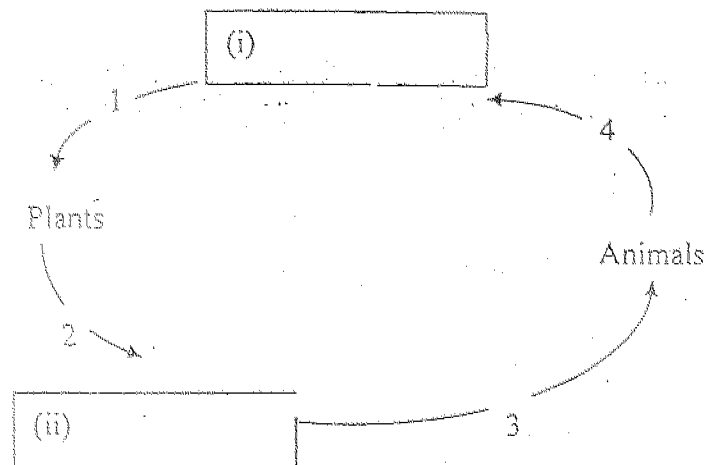
(i) Container P has _____ cm^3 of air

(ii) Container Q has _____ cm^3 of air

(b) Give a reason to explain your answer in (a)(ii). [2m]

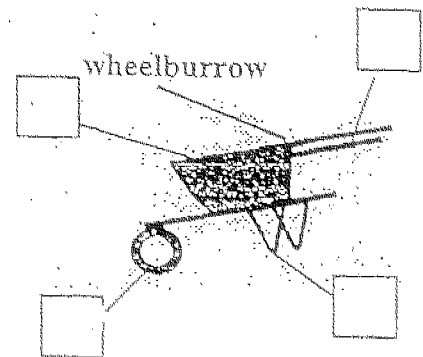
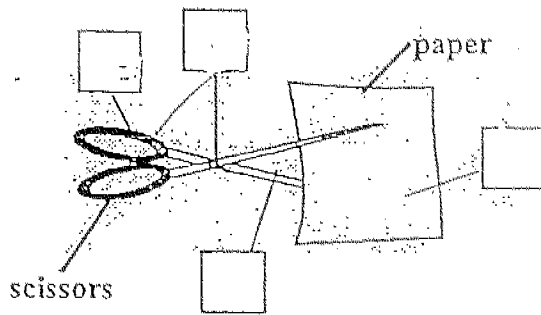
35. The diagram below shows the exchange of gases between living organisms.

(a) Fill in the names of the two main gases in the boxes provided. [1m]

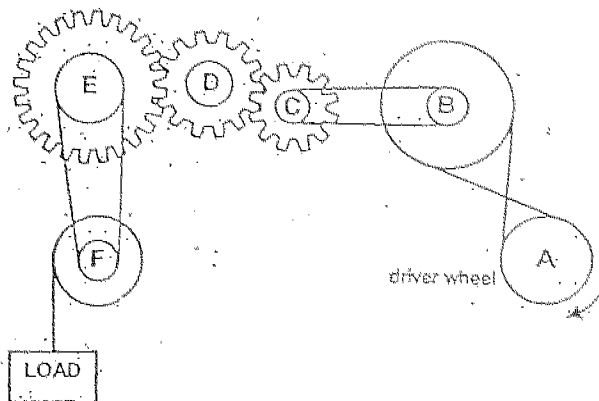


(b)(i) Arrows 1 and 2 represent the process of _____ [1m]

36. Study the simple machines shown below carefully. Fill in the letters, 'F', 'E' and 'L' in the appropriate boxes provided to show the correct positions of the Fulcrum 'F', Effort 'E' and Load 'L'. [2m]



37. The diagram below shows a system of gears and wheels.

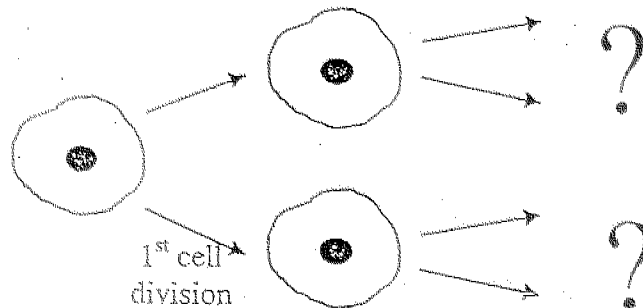


- (a) If the driver wheel "A" is turned in the direction as shown in the diagram above, draw arrows in the diagram to show the direction of rotation for

(i) Wheel B and (ii) Load. [2m]

- (b) Gear C has 12 teeth, Gear D has 14 teeth and Gear E has 24 teeth. How many turn(s) would Gear E make when Gear C make 4 turns? [1m]

38. The diagram below shows a single cell undergoing reproduction. After its 1st cell division, 2 daughter cells are produced.



- (a) How many cells will be produced if a cell undergoes 5 cell divisions? [1m]

- b
(a) State a difference between this method of cell reproduction from sexual reproduction. [1m]

39. Gopal wanted to make a curtain for his study room. He wanted the room to be bright enough without the need to switch on the light when the curtain is covering the window. At the same time, he did not want people outside to be able to look into his room through the curtain. He tested out 4 types of materials by shining a torch at one side and observing from the other side. The table below shows his observation.

| Material | A | B | C | D |
|----------|-------------------|----------------------|----------------------|-------------------|
| Light | Bright | Not so bright | No light | Very dim |
| Torch | Can see the torch | Cannot see the torch | Cannot see the torch | Can see the torch |

- (a) Which material should Gopal use? Give an explanation for your choice. [1]

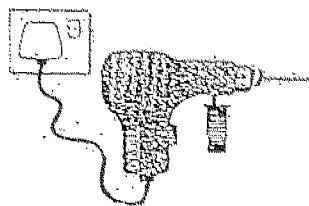
- (b) After some time, Gopal changed his mind. He now wants the curtain to serve only one purpose which is to stop people from looking into the room. Which material(s) can he choose to make the curtain? Explain your answer.

40. You are given the task to design a new toy for babies to play with. You are given four materials namely glass, plastic, rubber and ceramic.

(a) From the given materials, choose one material that you would use to make the new toy? Give a reason for your choice. [1]

(b) From the given materials, choose one material that you would NOT use to make the new toy? Give a reason for your answer. [1]

41. The electric drill below is used to drill holes in the wall.

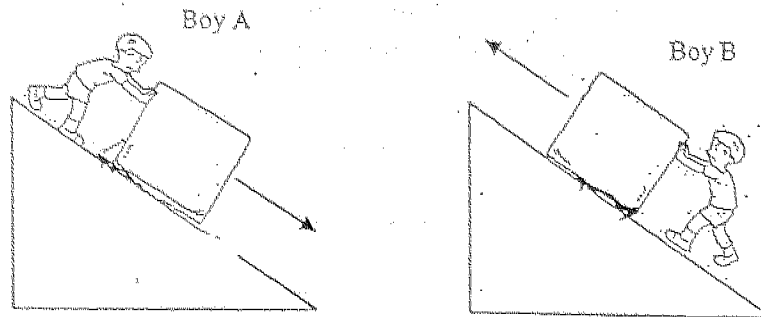


(a) Fill in the blanks to show the correct energy conversion. [2]

Electrical Energy \rightarrow i) _____ + ii) _____ + iii) _____
Energy Energy Energy

(b) Which form of energy converted above is/are not required at all to get the job done? [1]

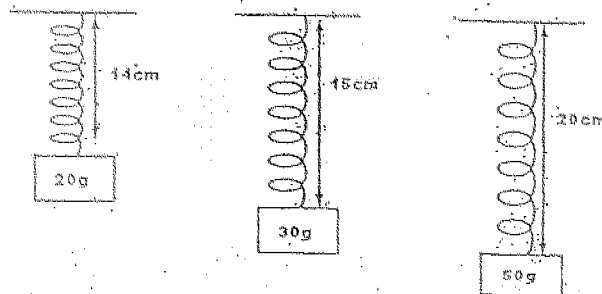
42. The picture below shows two boys pushing a box in the direction as indicated.



- (a) Which boy has to apply a greater effort to move the box in the direction shown? Give an explanation for your answer. [1]

- (b) On the diagram of Boy A, draw arrows to indicate how 2 other forces are acting on the box. [1]

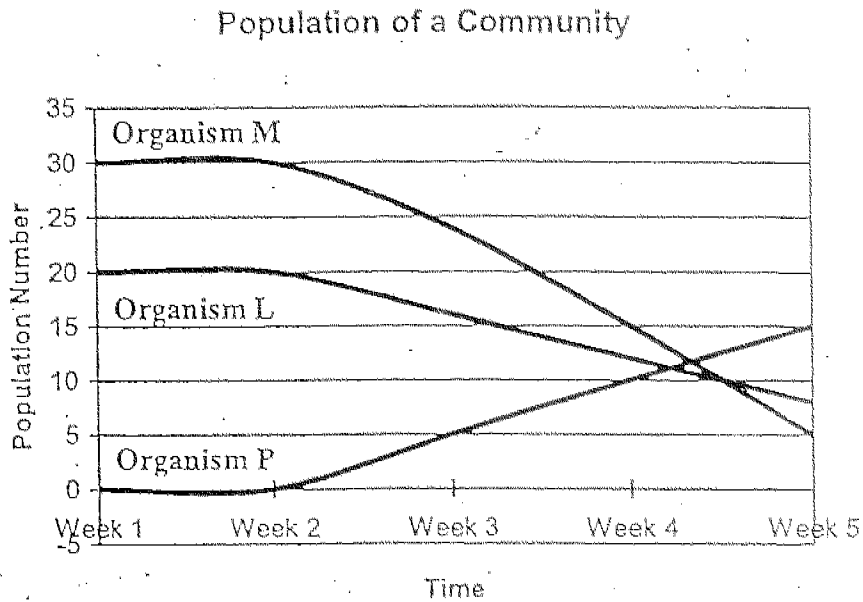
43. The diagrams below show the lengths of the same spring under different loads.



Use the information from the diagrams to complete the table below. [2]

| Load (g) | Length of spring (cm) |
|----------|-----------------------|
| 0 | |
| | 18 |
| 70 | |
| | 26 |

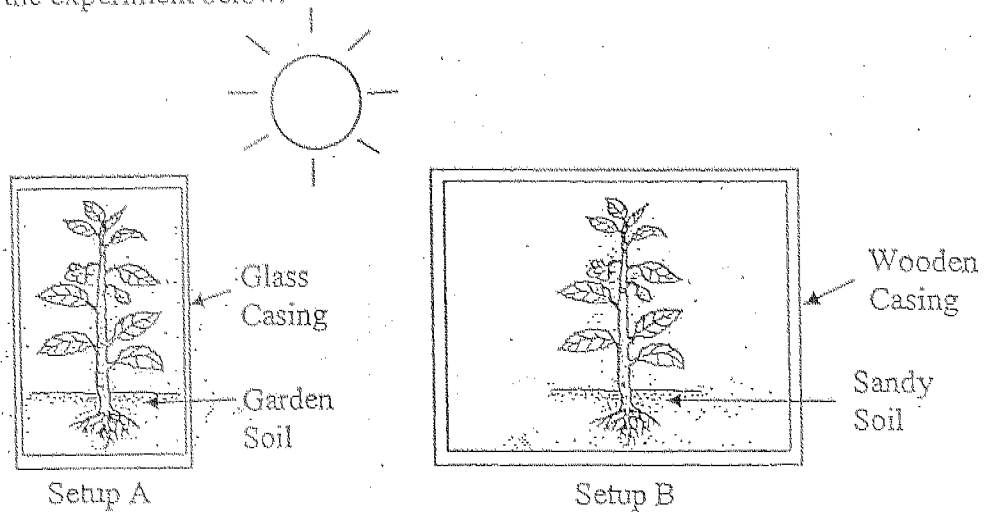
44. The table below shows the relationship of three organisms L, M and P in a community.



- a) What is the relationship between the population of Organism P and the population of Organism L? [1]

- b) If the population of Organism P suffers a drastic drop, what is the most likely outcome for the population of Organism M? [1]

45. Jovi wanted to find out if the presence of light will affect the growth of plant. He set up the experiment below.



Judy told Jovi that the above experiment is not a fair one. Explain why Judy said that and state what Jovi must do to make the experiment a fair one. [3]

46. The table below shows the population of 4 different animals in a forest over a few years.

| | 1990-1992 | 1993-1995 | 1996-1998 | 1999-2001 | 2002-2004 |
|-----------|-----------|-----------|-----------|-----------|-----------|
| Deer | 300 | 350 | 150 | 200 | 250 |
| Tiger | 100 | 80 | 65 | 55 | 60 |
| Crocodile | 30 | 35 | 45 | 50 | 60 |
| Python | 60 | 70 | 80 | 85 | 90 |

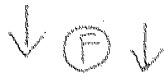
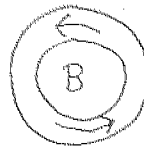
- a) From the table, describe the trend of the tiger population from the year 1990 to the year 2004. [1]

- b) State a possible reason for the steep drop in the deer population between the years 1996-1998. [1]

37) a) i)



ii)



b) Gear E would make 2 turns

38) a) 32 cells will be produced.

b) In cell division, the nucleus of the cell makes a copy of itself and then split into two cells. In sexual reproduction, the sperm must enter the egg in order to

39) a) B. It allows some light to pass through but it will not allow people to look in from the outside.

b) B and C. It is completely opaque so it does not allow anything to see through.

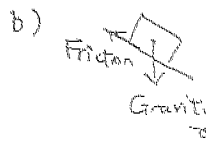
40) a) Plastic. It is waterproof, flexible and does not break easily when dropped.

b) Glass. It breaks easily when dropped.

41) a) i) kinetic ii) heat iii) sound

b) The heat and sound energy.

42) a) Boy B. He has to use a greater effort to overcome friction and gravity while pushing.



43) 10 cm

40 g

24 cm

80 g

44) a) As the number of organism P increases, the number of organism L decreases.

b) Its population will increase.

45) The size of the casing and type of soil used are not the same. Jovi must use casings of the same size and the same type of soil for both set-ups.

46) a) It decreases from 1990 to 2001 and increases from 2002 to 2004/.

b) There might be a disease which attack only the deer