CATHOLIC HIGH SCHOOL
PRIMARY FIVE
MID-YEAR EXAMINATION 2004

SCIENCE

Name: _____( )

Class : Primary 5 ____

Date : 13 May 2004

BOOKLET A

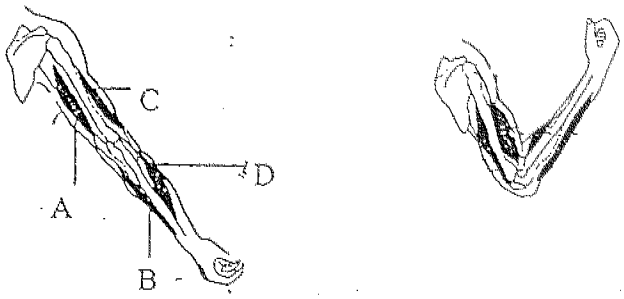
30 Questions
60 Marks

Total Time for Booklets A & B: 1 hour 30 minutes

Instructions to Candidates

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

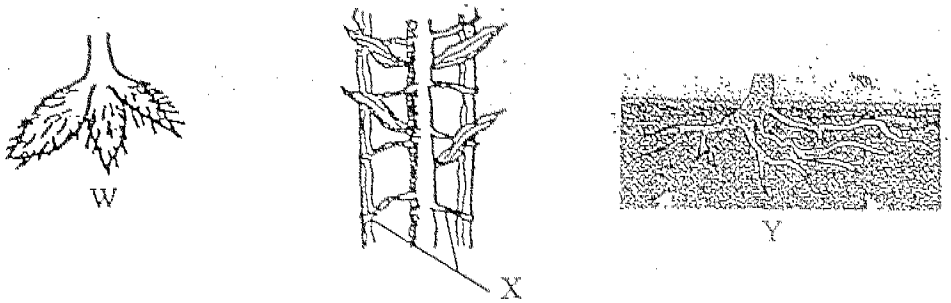
3. A, B, C and D are muscles found in John's arm.



Which one of the following sets of responses will happen when John bends his arm?

(1) A and B will contract, C and D will relax.
(2) A and B will relax, C and D will contract.
(3) A and C will contract, B and D will relax.
(4) A and C will relax, B and D will contract.

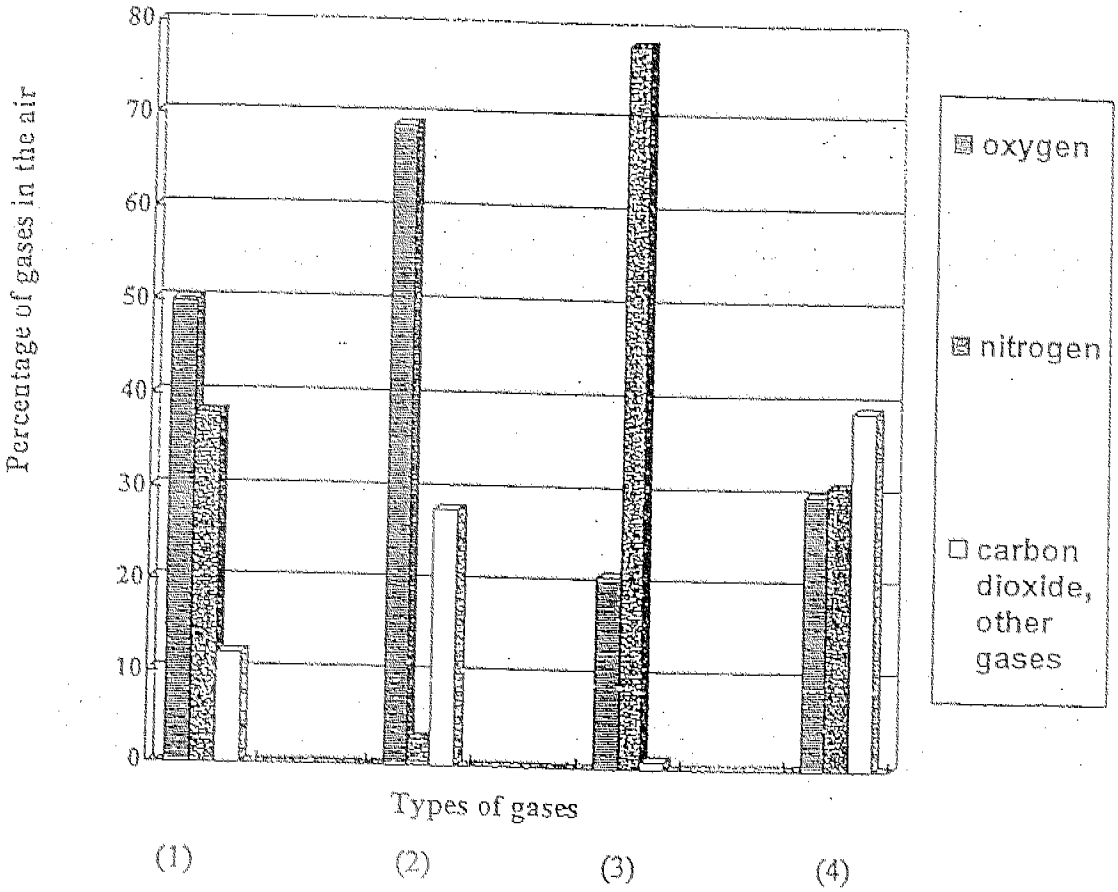
4. The diagrams below show the various kinds of roots W, X and Y.



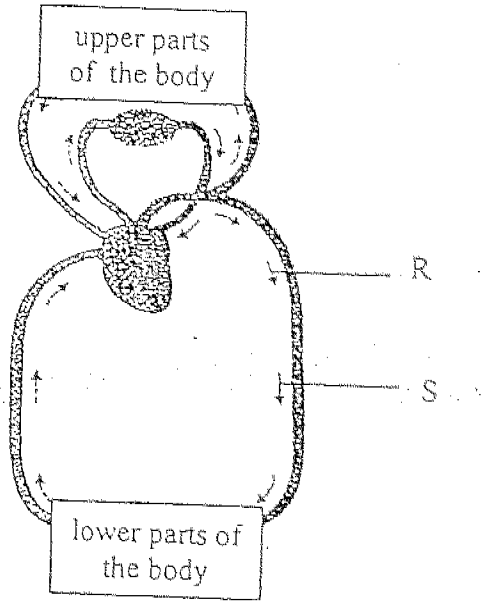
Which type(s) of roots help(s) the plant to obtain more air?

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

5. The bar charts below are not drawn to scale. Which one of the following group of bar charts shows the composition of oxygen, nitrogen, carbon dioxide and other gases found in the air of an air-conditioned room?



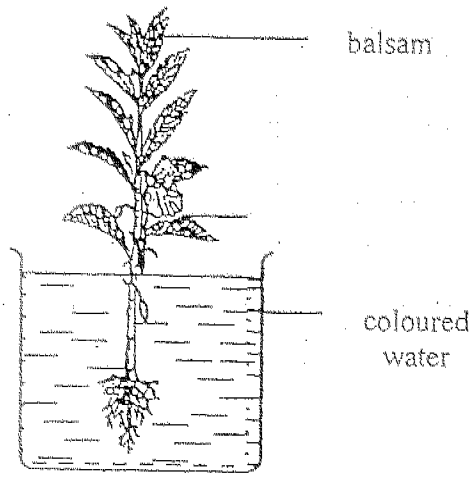
6. Look at the diagram of the circulatory system below.



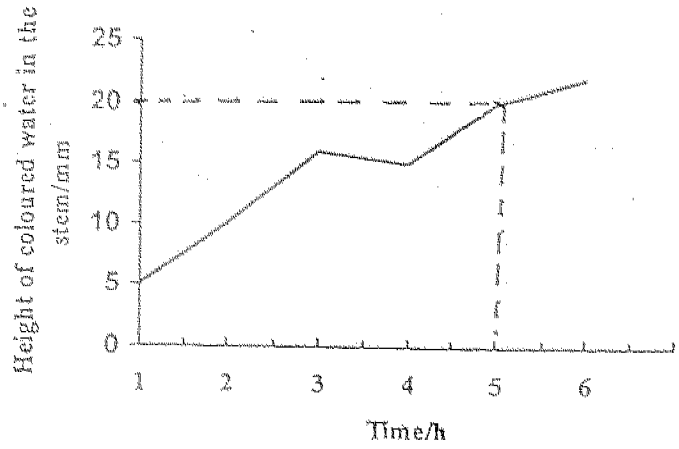
Which one of the following statements describes the blood flow between Arrows R and S as shown in the diagram?

(1) Blood rich in oxygen is pumped to the rest of the body.
(2) Blood rich in oxygen from all parts of the body returns to the heart.
(3) Blood rich in carbon dioxide but low in oxygen returns to the heart from the lungs.
(4) Blood rich in carbon dioxide but low in oxygen from the heart flows to the other parts of the body.

7. Dominic placed the set up shown below near a window.



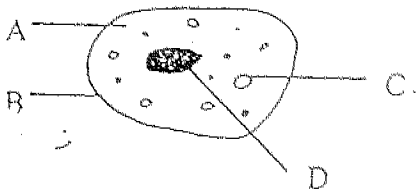
The graph below shows how much coloured water is absorbed by the roots and transported up the tiny tubes up the stem of the balsam plant.



What is the height of the water reached after 5 hours?

(1) 5 mm
(2) 10 mm
(3) 15 mm
(4) 20 mm

8. The diagram below shows an ordinary skin cell.



Which one of the following parts helps to control the activities of the skin cell?

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

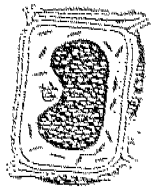
9. Which of the following statements are reasons for a cell in an adult man to divide?

A New cells are needed to replace the old ones.
B New cells are needed to replace the damaged ones.
C New cells are needed for the organisms to grow in size.
D New cells are needed for the organisms to form new organs.

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

10. Diagrams A and B show two different types of cells.

A

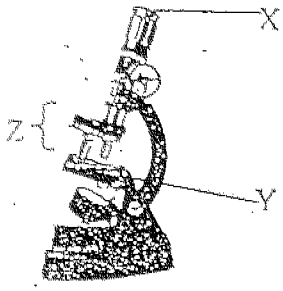


B

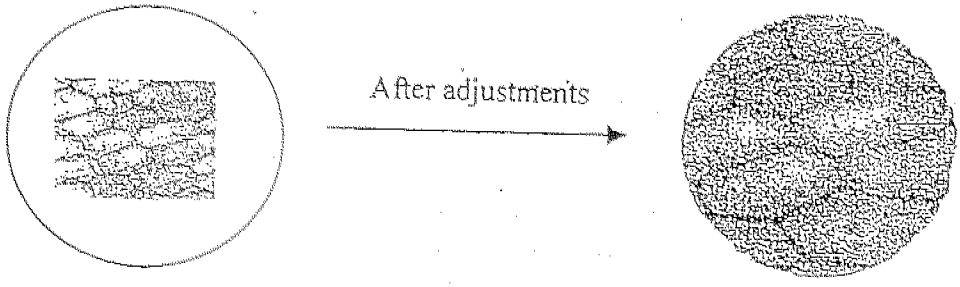
Which one of the following comparisons between A and B is true?

	Cell A	Cell B
(1)	It has a small chloroplast.	It has a large chloroplast.
(2)	It is covered with a lot of tiny hair.	It is covered with some tiny hair.
(3)	It has a semi-permeable membrane.	It does not have a semi-permeable membrane.
(4)	It does not have a cellulose cell wall.	It has a cellulose cell wall.

11. The diagram below shows a light microscope with 3 parts labelled X, Y and Z.



The adjustments needed to be made to the microscope in order to see more details of the plant cells are shown in the diagram below.



Which one of the following shows the correct adjustments made to the microscope?

	Part X	Part Y	Part Z
(1)	This should not be removed.	It should be moved using the fine adjustment.	The highest magnification lens should be in place.
(2)	This should be removed.	It should be moved using the coarse adjustment.	The medium magnification lens should be in place.
(3)	This should be removed.	It should be moved using the fine adjustment.	The low magnification lens should be in place.
(4)	This should not be removed.	It should be moved using the coarse adjustment.	The medium magnification lens should be in place.

12. In crocodiles, fertilisation takes place _____.

(1) outside the body
(2) in the male's body
(3) in the female's body
(4) in the nucleus of the sperm

13. Living things reproduce to ensure _____.

(1) the continuity of their kind
(2) that there is food for its predators
(3) that there are more males than females
(4) that their young will take care of themselves

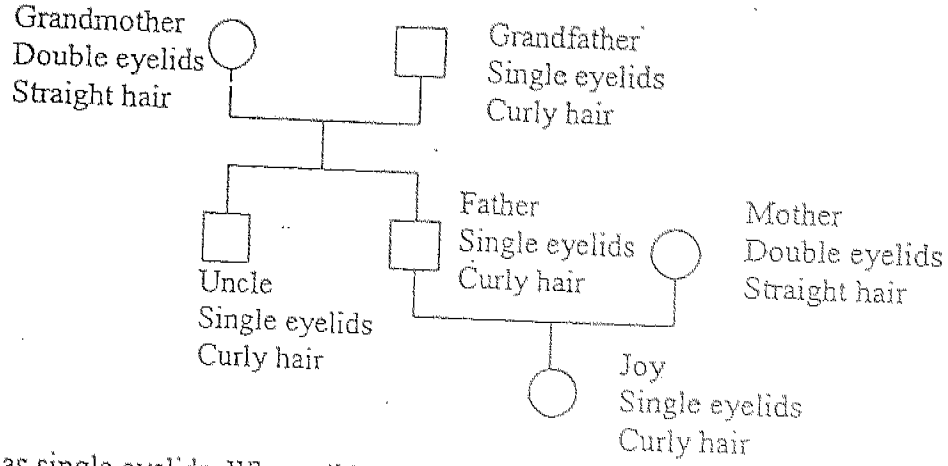
14. The table below shows the survival rate of three types of animals A, B and C.

Animal	Number of offspring/s produced	Number of offspring/s that grow into adults
A	2	1
B	15	7
C	10578	134

Which of the following correctly represents animals A, B and C?

	Animal A	Animal B	Animal C
(1)	Whale	Frog	Mosquito
(2)	Tiger	Mice	Mackerel
(3)	Elephant	Salmon	Cat
(4)	Man	Turtle	Chicken

15. Study the diagram below which shows Joy's family tree.



Joy has single eyelids. Whom did she inherit this characteristic from?

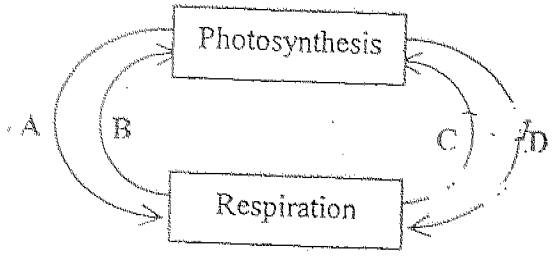
(1) Her uncle
(2) Her father
(3) Her mother
(4) Her grandmother

16. The Sun is important to all living things because _____.

A it provides energy
B it causes day and night
C. it directly controls the amount of oxygen in the air

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

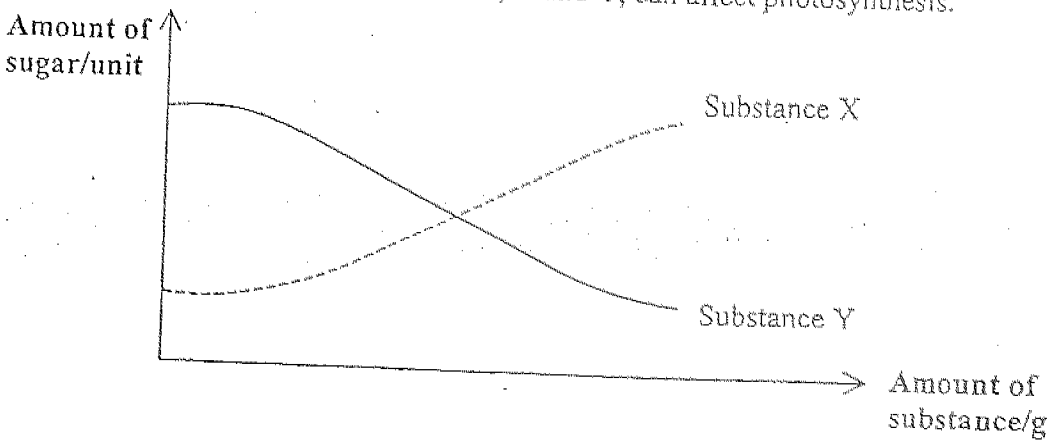
17. The diagram below shows the two processes, photosynthesis and respiration. The letters A, B, C and D are products from both processes and raw materials needed for them to take place.



Which one of the following sets of answers match the letters A, B, C and D?

	A	B	C	D
(1)	Sugar	Carbon dioxide	Oxygen	Water
(2)	Sugar	Carbon dioxide	Water	Oxygen
(3)	Oxygen	Water	Sugar	Carbon dioxide
(4)	Carbon dioxide	Oxygen	Water	Sugar

18. Two substances, X and Y, were added to two similar plants at different intervals. They were allowed to photosynthesize normally and observations were made. The rest of the conditions for photosynthesis were kept the same to ensure a fair test. The amount of sugar produced is measured using a special equipment. The graph below shows how the two substances, X and Y, can affect photosynthesis.



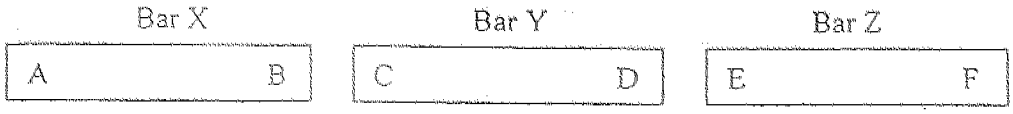
Which one of the following statements best describes the outcome of the experiment?

(1) The more substance X is added; the better the plant can photosynthesize.
(2) The more substance Y is added; the better the plant can photosynthesize.
(3) Substances X and Y are probably oxygen and carbon dioxide respectively.
(4) When the amounts of both substances used are doubled, the amount of sugar produced is doubled.

19. A magnet **cannot** be used to separate a mixture of _____.

(1) sand and nails
(2) feathers and needles
(3) safety pins and iron filings
(4) toothpicks and thumbtacks

20. The diagrams below show 3 rods made of different materials.



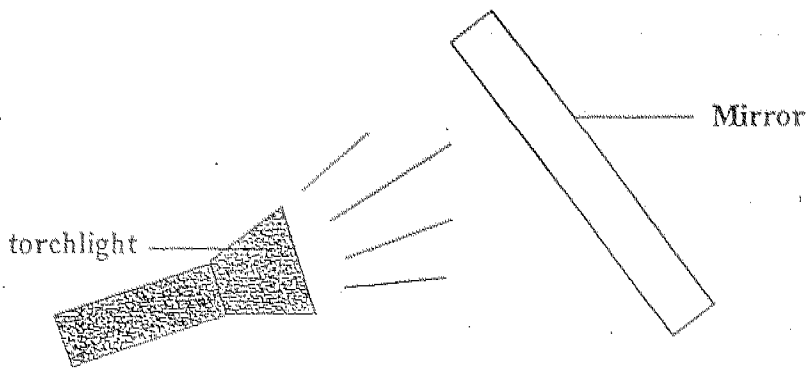
The North-pole of a bar magnet is brought near each end of the 3 rods. The results are shown in the table below.

	Attract	Repel	No movement
N-pole and A	√		
N-pole and B		√	
N-pole and C			√
N-pole and D			√
N-pole and E	√		
N-pole and F	√		

Based on the above results, what conclusion can be made about the materials?

(1) Bar X and Y are magnets.
(2) Bar Y can be made of iron.
(3) Bar Z can be made of steel.
(4) Bar X can be a wooden rod.

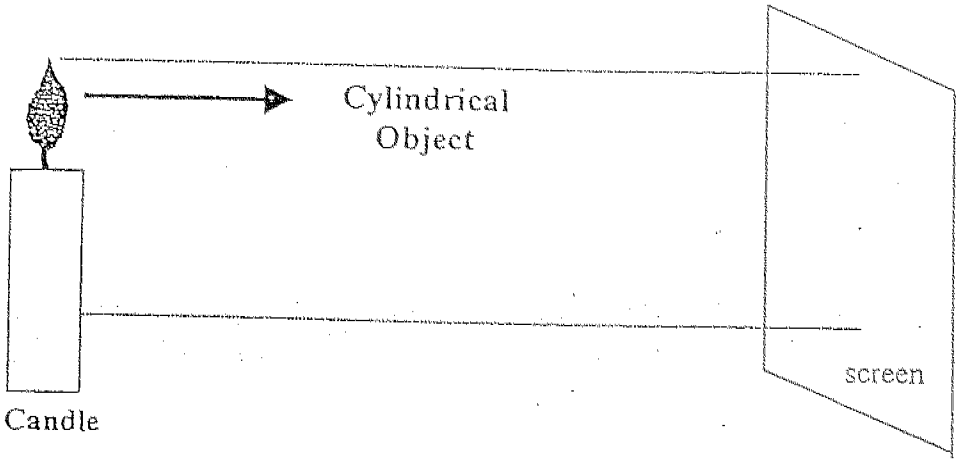
21. Russell shone a torchlight on a mirror as shown below.



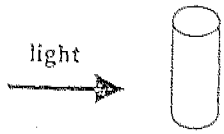
He saw a bright spot on the floor because _____.

(1) light is absorbed by the mirror
(2) the mirror reflected the light onto the floor
(3) light traveled directly from the torch to the floor
(4) the mirror is a light source that created the spot of light

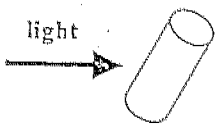
22. Roy placed a cylindrical object between a candle and a screen as shown below.



He saw a rectangular shadow on the screen. Which one of the following shows how the cylinder was placed between the candle and the screen?

(1) 

(2) 

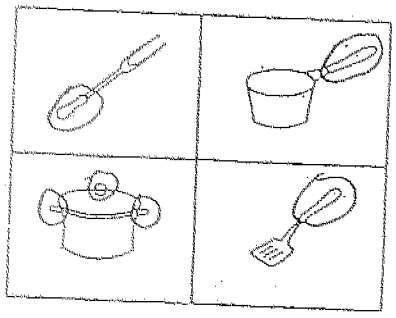
(3) 

(4) 

23. A spoon left in a glass of ice water feels cold to the fingers because heat travels from _____.

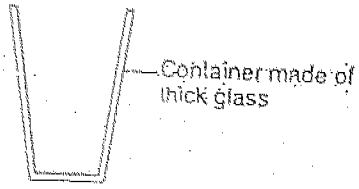
(1) the water to the spoon
(2) the spoon to the fingers
(3) the fingers to the water through the spoon
(4) the water to the fingers through the spoon

24. Study the pictures below. What do the handles of the cooking utensils have in common?



(1) They are made of metal.
(2) They are insulators of heat.
(3) They are good conductors of heat.
(4) They are made of poor conductors of electricity.

25. The picture shows a glass made of thick glass.



When hot water was poured into it, it cracked because _____.

(1) the water contracted in the glass
(2) of the expansion of the air in the glass
(3) of the unequal expansion of the glass
(4) of the sudden contraction of the glass

26. When the Earth travels round the Sun once, the Earth would have turned _____ time(s) about its axis.

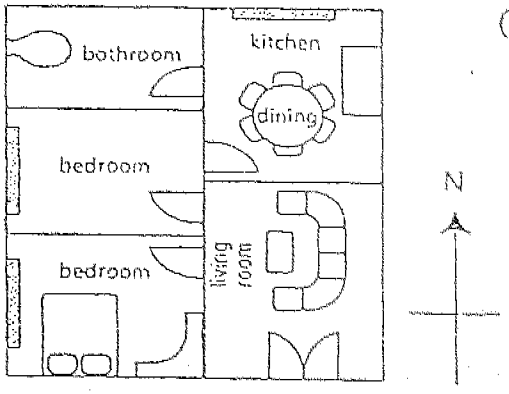
(1) 1
(2) 28
(3) 30
(4) 365

27. We experience day and night on Earth because of the movement of the _____.

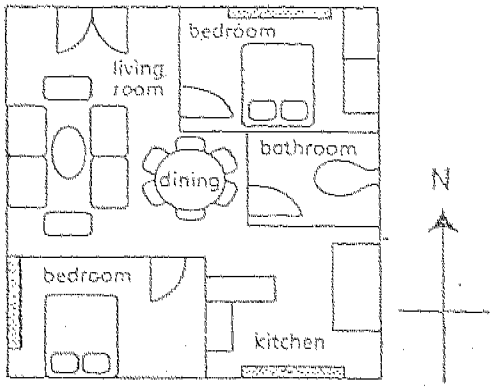
(1) the Earth round the Sun
(2) the Moon round the Earth
(3) the Earth about its own axis
(4) the Moon about its own axis

28. Mrs Lee wanted a house that has the morning sun in the kitchen so that her clothes will dry faster during the day. Study the floor plans below carefully. Which one of the following houses do you think she will buy?

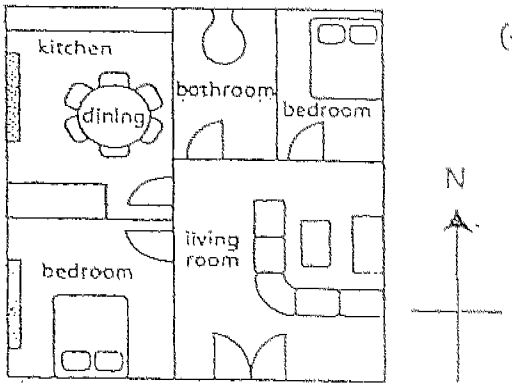
(1)



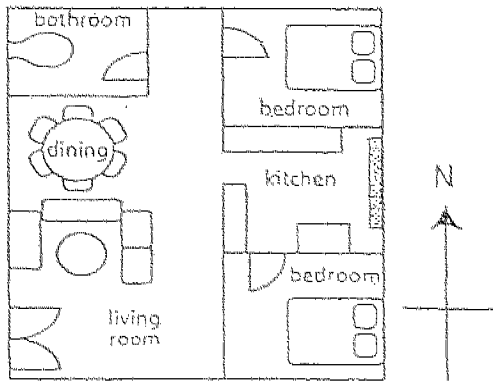
(2)



(3)

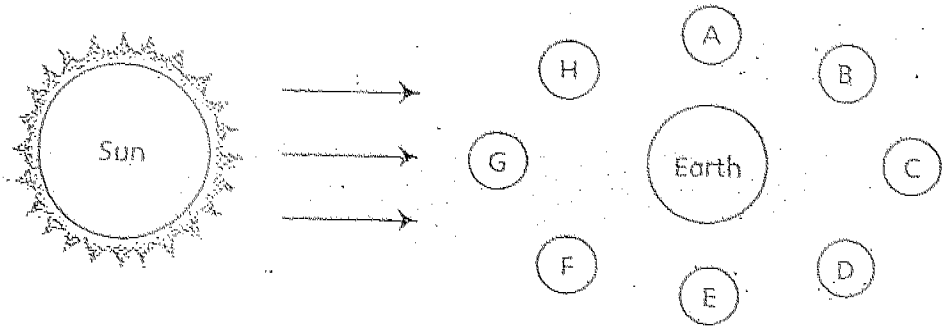


(4)



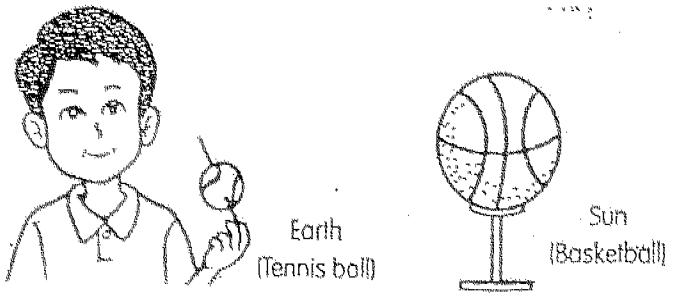
Legend: window

29. A - G are the positions of the Moon at different times of the lunar cycle. In which positions in the diagram will the Moon appear to be a gibbous moon?



(1) Positions G and C
(2) Positions B and D
(3) Positions A and E
(4) Positions H and F

30. Keith uses a tennis ball to represent the Earth and a basketball to represent the Sun. He rotates the tennis ball and walked around the basketball. What else can Keith do to demonstrate day and night more effectively?

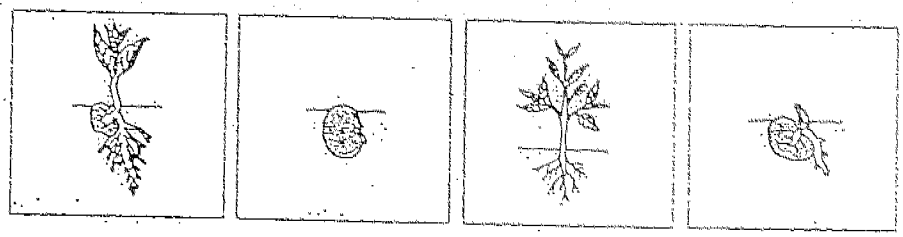


(1) Spin the tennis ball faster.
(2) Move the basketball around the tennis ball.
(3) Paint half the tennis ball in black colour to represent night.
(4) Change the basketball to a lighted bulb to represent the Sun.

Section B: Open-Ended Questions (40 marks)

Read the following questions carefully and write your answers in the space provided. The maximum marks that can be awarded are shown at the end of each question or part-question.

31. The diagrams (not drawn to scale) below show the different stages of growth of a bean seed which are not in order.

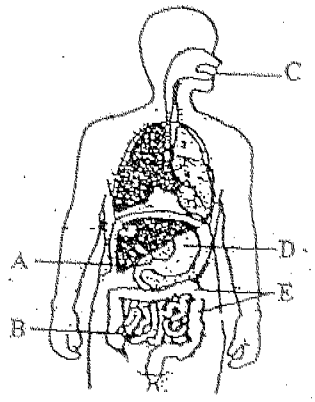


A B C D

State whether the following statements are True, False or Not possible to tell. Put a tick (✓) in the appropriate box. [2m]

	Statement	True	False	Not possible to tell
(i)	Stage B comes just before Stage C.			
(ii)	At Stage B, the seed gets its food from its seed leaves.			
(iii)	It is a red bean plant.			
(iv)	At stage C, the bean plant makes its own food.			

32. The diagram below shows parts of the digestive system labelled A-E. Study it to answer the questions that follow.



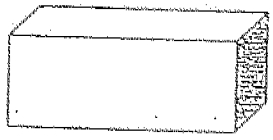
Fill in the blanks with letters from the diagram.

a) Organs where digestion can take place: _____ [1m]

b) Organ where absorption of digested food can take place: _____ [1m]

33. Edwin filled two glass tanks of different sizes with tap water as shown below.

Set-up W
Glass tank filled with tap water



Set-up Z
Glass tank filled with tap water

Next, he put a guppy in Set-up W and a similar one in Set-up Z. Edwin knows that there is oxygen dissolved in the tap water. After 2 days, he noticed that the guppy in set-up W kept swimming near the surface of the water while the other in Set- up Z swam freely in the water.

a) What is the aim of the experiment based on the data given above? [1m]

_____

b) Name 2 variables that should be kept the same. [1m]

_____

_____

34. Fill in the blanks with the correct word. [2m]

Every cell has a cell _____ which controls the movement of materials in and out of the cell. The _____ is a jelly-like substance that almost fills the cell and contains many cell parts. The nucleus of a cell contains all the ___ _____ that is passed from one generation to the next. During a normal cell division, the 'parent' cell is _____ to the 'daughter' cells.

35. Statements A, B, C and D describe what happen during cell division.

A The cell splits into two identical cells.
B The nucleus makes a copy of itself.
C The nucleus splits into two nuclei.
D: The cell matures.

a) Arrange the steps A, B and C in the correct sequence beginning with D. [1m]

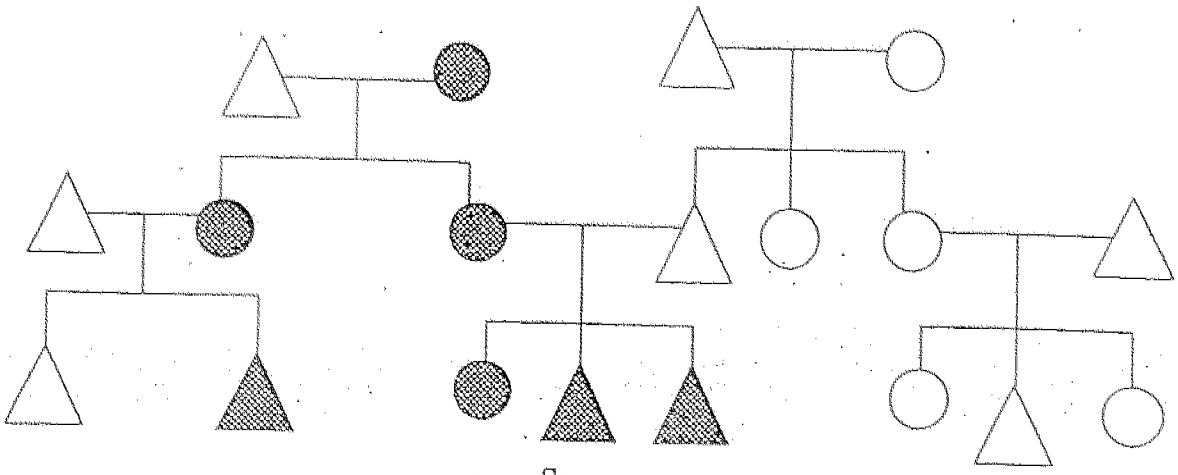
D, _____

b) How many 'daughter' cells would be produced from the single 'parent' cell after three generations of cell divisions? [1m]

_____

4

36. Study Samy's family tree below.



Samy

○ : female with detached earlobes

△ : male with detached earlobes

● : female with attached earlobes

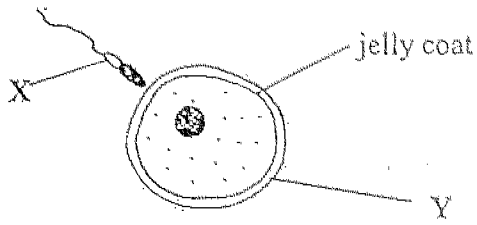
▲ : male with attached earlobes

a) Based on the family tree, describe Samy. [1m]

b) How many cousins does Samy have? [1m]

c) Between Samy's maternal grandfather and grandmother, whose genes are stronger? Why? [1m]

37. The diagram below shows the process of fertilisation in humans. During this process, X has to push its way to penetrate through the jelly coat of Y before being joined together.



a) Identify X and Y.

X: _____ [½m]

Y: _____ [½m]

b) Where are X and Y produced in the human reproductive system?

X: _____ [½m]

Y: _____ [½m]

c) What will the fertilised egg develop into? [1m]

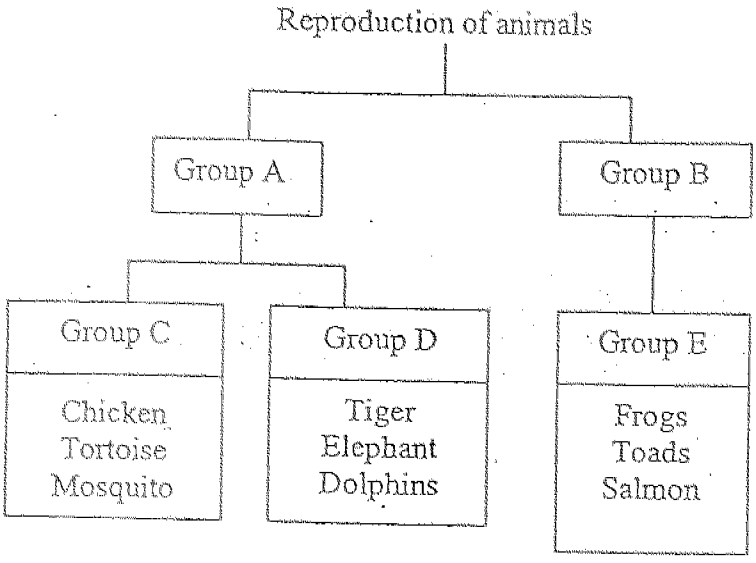
_____

d) How long is the normal gestation of a human baby? [1m]

_____

4

38. The diagram below shows the reproduction of some animals.



a) Give suitable headings for Group A and Group B.

Group A: _____ fertilisation [½m]

Group B: _____ fertilisation [½m]

b) How are the animals in Group C, D and E classified? Give suitable headings for each group.

Group C: _____ [½m]

Group D: _____ [½m]

Group E: _____ [½m]

c) In which one of the groups C, D or E would you place the mealworm? [½m]

_____

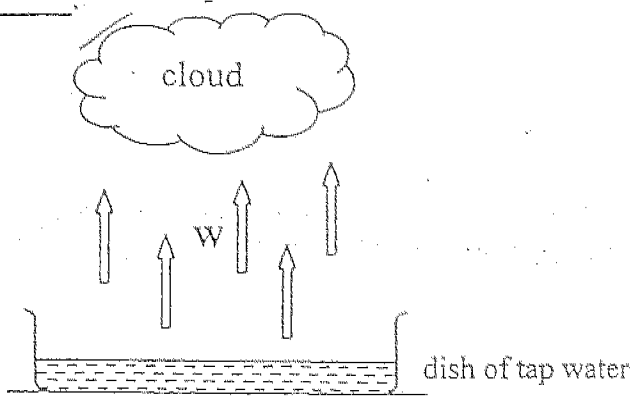
d) Explain clearly the difference between the fertilisation of the animals in Group A and B? [1m]

_____

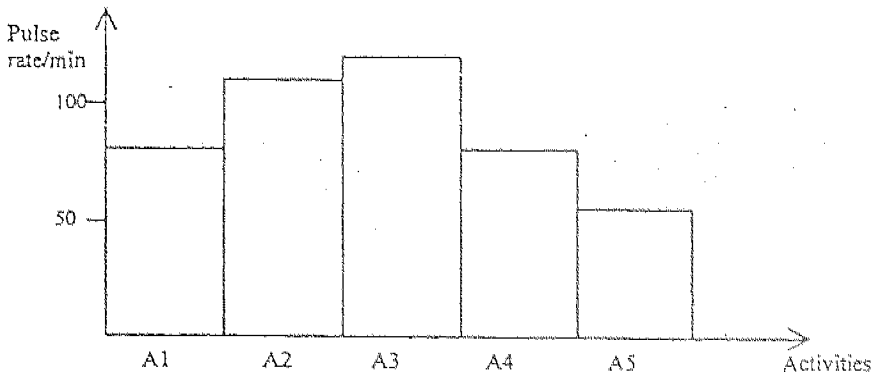
_____

_____

39. The following diagram is shows part of the water cycle. The water at the position marked W is in the _____ state. It is known as _____. [2m]



40. The graph below shows the pulse rate of Wei Hong which was taken when he was doing different activities, A1 to A5. His normal pulse rate is 78 beats/min.



Using the information from the graph, state whether the following statements are True, False or Not possible to tell. Put a tick (✓) in the appropriate box for each statement. [2m]

	Statement	True	False	Not possible to tell
a)	Wei Hong was probably sleeping at A5.			
b)	Wei Hong was listening to the radio at A1 and A4.			
c)	Wei Hong's body needs more oxygen during A3 than normal.			
d)	Wei Hong gives off less carbon dioxide during A2 than normal.			

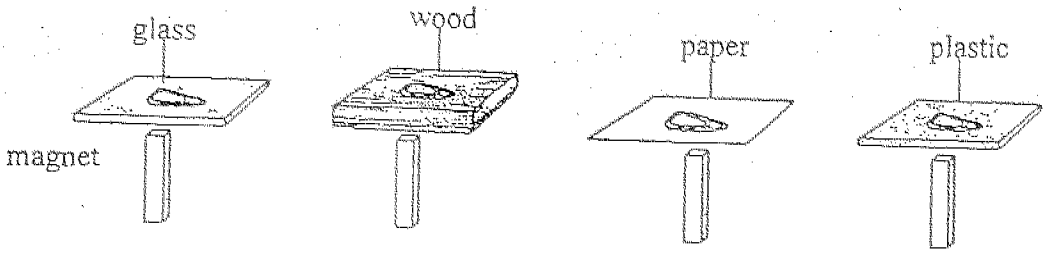
4

41. Classify the following objects in the table below. [3m]

wooden spoon	copper wire	steel knife
gold ring	iron hook	aluminium earring

Magnetic objects	Non-magnetic objects

42. Rahimah wanted to test if the attraction of a magnet can pass through different materials with smooth surfaces. She placed a paper clip on each material and used a magnet under each material to move the paper clip.



a) Rahimah's friend, Thomas, said that the above test was not a fair one. What could be the reason for him to say so? [1m]

b) Name another variable that must be kept the same for the test to be a fair one. [1m]

43. A professional basketball player wants to have a pair of shoes that would allow him to jump and bounce around without causing knee injury due to the hard jolts he suffers every time he lands from a jump.

a) What material must be used for the soles of that pair of shoes? [1m]

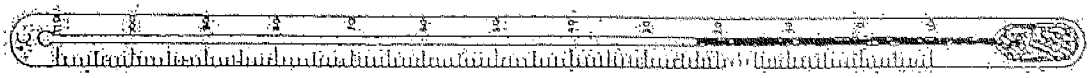
_____

b) Give two reasons for your choice of material? [2m]

_____

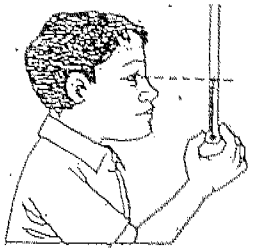
_____

44. Below is a diagram of a thermometer that can be used to measure the temperature of a room accurately.



a) Shade in the reading of 23^{0}C on the thermometer to show the temperature of the room correctly. [1m]

Muthu was also using a thermometer to tell the temperature of the same room.



b) He noticed that his reading was higher. Explain what might have caused the difference and why? [2m]

_____

_____

45. Fill in the blanks with a suitable word/ phrase.

Satellites of Earth are objects that _____ ____ around Earth. The moon is a _____ satellite of the Earth while man-made satellites are known as artificial satellites. There are different types of man-made satellites that are launched into space. The _____ satellites are used to relay radio signals and show live broadcasts of events while the _____ satellites are used to investigate atmospheric changes on Earth. [2m]

46. Many scientists have been looking at the possibility of living on another planet. Suppose a new planet, Nawara, was discovered in the solar system. Investigate the possibility of living on this new planet.

	Earth	Nawara
Atmospheric conditions	21% oxygen 0.03% carbon dioxide 78% nitrogen Presence of an ozone layer	8% oxygen 80% carbon dioxide 12% nitrogen No ozone layer
Distance from the Sun	148 640 000 km	167 900 560km
Rotation on its axis	1 day	37 days
Water on the planet	70%	15%

a) What are two factors that are present on Nawara that make living possible on the planet? [1m]

_____

b) What is one important reason why it will be difficult for humans to live on Nawara? [1m]

_____

_____

CATHOLIC HIGH SCHOOL
PRIMARY FIVE
MID YEAR EXAMINATION 2004
SCIENCE

SA1

01. 2	11. 1	21. 2
02. 4	12. 3	22. 1
03. 2	13. 1	23. (3)
04. (1)	14. (2)	24. (2)
05. 3	15. 2	25. 3
06. 1	16. 1	26. 4
07. 4	17. 2	27. 3
08. 4	18. 1	28. 4
09. 3	19. 3	29. 2
10. 4	20. 3	30. 4

31) i) False

ii) True

iii) Not possible to tell

iv) True

32) a) C, D, B

b) B

33) To find out how the amount of oxygen dissolved in the water affect the guppy.

b) The material of the tank, size and type of fish, type of water, number of guppies, temperature of water, location where they are kept.

34) membrance

cytoplasm

information

similar

35) a) B C A

b) There will be 8 'daughter ' cells.

36) a) Samy is a male with attached earlobes.

b) He has five cousins.

c) Samy's maternal grandmother genes are stronger. It was able to pass the traits of her own to her children than Samy's maternal grandmother.

37) a) X : Sperm cell Y : Egg cell

b) X : Testes Y : Ovaries

c) It will develop into a baby.

d) It takes about 38 - 40 weeks.

38) a) Internal
External

b) Lay eggs
Give birth to young alived
Lay eggs

c) I would put it in Group C.

d) In group A, the fertilized egg remains in the inside of the female body after fertilization while group B, the male deposits its sperm on the eggs to fertilize them externally.

39) gaseous

water vapour

40) a) True

b) Not possible to tell

c) True

d) False

41) iron hook
steel knife
gold ring
wooden spoon
copper wire
aluminium earring

42) a) The material are not of the same thickness.

b) The size of the paper clip must be the same.

43) a) Rubber must be used for the soles of that pair of shoes.

b) Elastic and flexible.

44) a)

b) He is not holding the thermometer correctly. He is holding it at the bulb of the thermometer. He is probably measuring his own body temperature.

45) revolves

natural

communication

weather

46) a) There is oxygen for living things to breathe and there is water on the planet. Plants can make use of carbon dioxide to make food.

b) There is no ozone layer to protect the living things from the Sun's rays.