

**Primary Six
Science
Semestral Assessment One**

Questions 1 to 30 carry one mark each.

For each question, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and write it in the space provided.

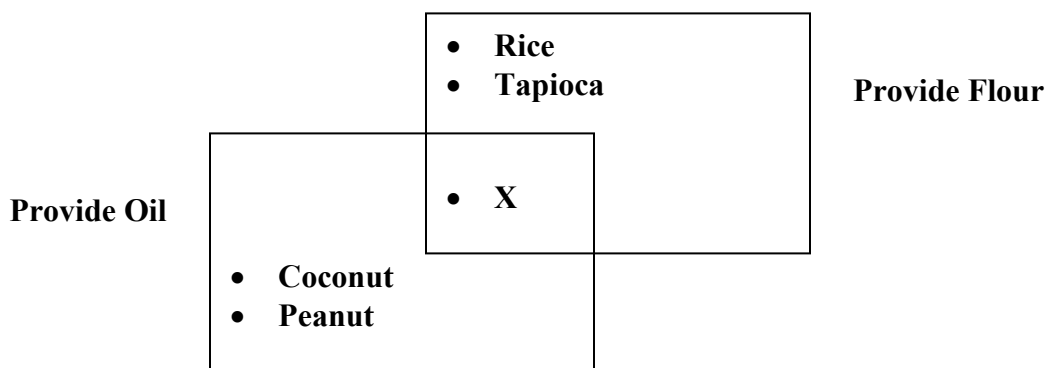
1. The table below shows the results of some food tested with iodine solution.

Food	Reaction with Iodine Solution	Time taken for Reaction
Potato	Turned dark blue	3s
Cheese	Remained light brown	-
Banana	Turned dark blue	4s
Bread	Turned dark blue	2s
Ikan bilis	Remained light brown	-

Which of the following statements confirm the results above?

- (1) Cheese has more protein than ikan bilis.
- (2) Food that comes from plants contains starch.
- (3) Bread has the most starch.
- (4) Cheese and ikan bilis takes a longer time to react with iodine.

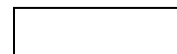
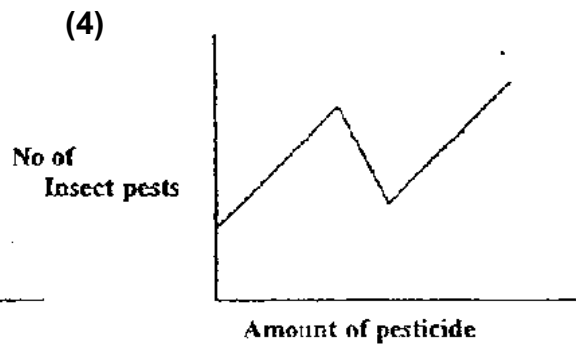
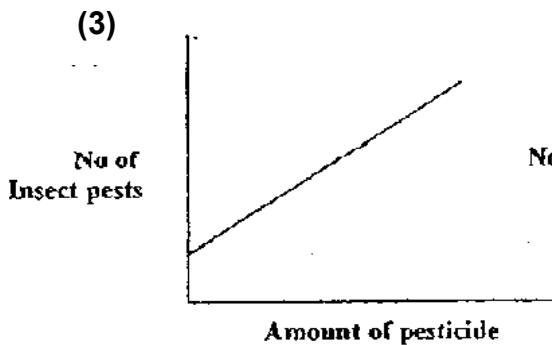
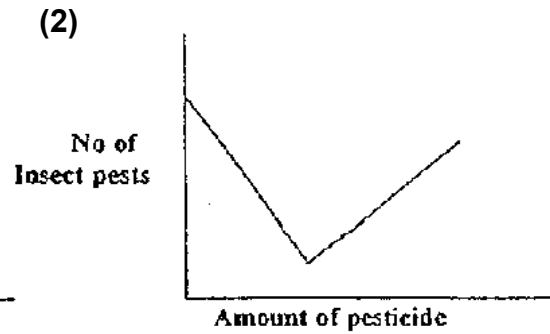
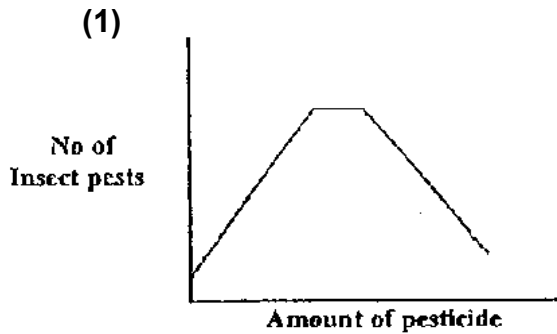
2. Study the diagram below.



Which of the following can be placed at X?

- (1) String bean
- (2) Maize
- (3) Sweet potato
- (4) Sesame

3. A gardener found that his plants were infested with a population of insect pests. He sprayed a pesticide on the plants. This pesticide was able to control the population of the insect pests. Gradually, he increased the amount of pesticide used as he found that the insect pests built up a resistance against the pesticide and the number of insect pests gradually increased.
- Which of the following graphs illustrates the above situation?

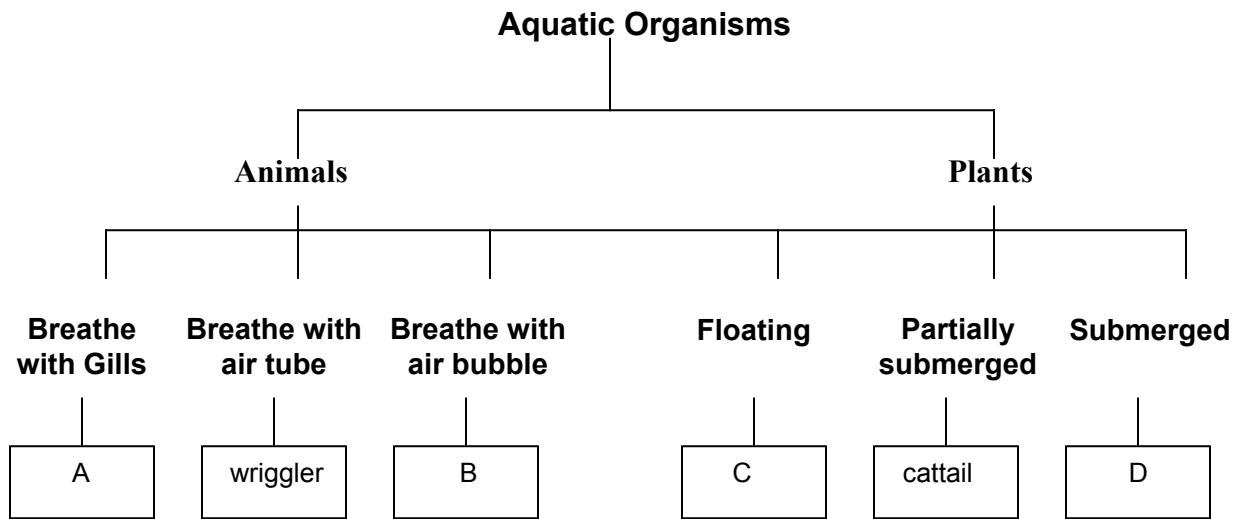


4. Which of the following adaptations does the frog use when it swims in water?

- A. Webbed feet
- B. Ability to breathe underwater
- C. Flippers
- D. Streamlined body shape

- (1) A and B
- (2) A, B and C
- (3) A, B and D
- (4) all of the above

5. Study the classification table below. What would be a suitable organism to put in Boxes A, B, C, and D?



A	B	C	D
1) Blood worm	Damselfly nymph	Elodea	Water moss fern
2) Snail	Water stick insect	Arrowhead	Mosquito fern
3) Mudskipper	Water spider	Duckweed	Hydrilla
4) Tadpole	Water boatman	Water lettuce	Water lily

6. Which of the following is a non-renewable resource?

- (1) Water
- (2) Wildlife
- (3) Air
- (4) Petroleum

7. Animals that live in very cold regions have adaptations to protect themselves from the cold.
Which one of the following adaptations is **not** one of the ways they can do so?

- (1) Store food in its stomach
- (2) Hibernation
- (3) Thick coat of fur
- (4) Migration

8. Pollution makes conditions unsuitable for organisms to live in a place.
The table below shows some solutions to solving pollution problems. Which one of them shows the wrong way to solve the pollution problem?

	<i>Problem</i>	<i>Solution</i>
(1)	To prevent water pollution	Advise the public to dump refuse into the sea and not into open drains.
(2)	To dispose waste food	Collect refuse in plastic bags, tie them up before dropping them into refuse bins.
(3)	To reduce vehicular exhaust fumes	Have engines and exhausts of vehicles checked regularly.
(4)	To reduce industrial pollutants	Have air filters in tall chimneys.

9. In the planning of housing estates and industrial parks, trees are grown to keep the air fresh. This is because trees are able to _____.

- A. absorb carbon dioxide into the roots and remove oxygen from the air
- B. absorb carbon dioxide in the presence of sunlight and give out oxygen
- C. filter harmful gases like carbon dioxide through the leaves
- D. give out water vapour from the leaves which absorbs carbon dioxide

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

10. Too much air pollutants cause acid rain. What are some of the results caused by acid rain?

- A. Destruction of plant and animal life
- B. Flooding caused by the rise in water level as a result of the melting of ice-caps from the mountain
- C. Destruction of metallic and marble structures and monuments
- D. Pollution of waterways

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

11. Man cuts down vast areas of forests and jungles to provide space for buildings and homes and to provide wood for furniture and paper. Which of the following are possible consequences of deforestation?

- A. Rise in sea-levels
- B. Landslides
- C. Extinction of some animals and plants

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

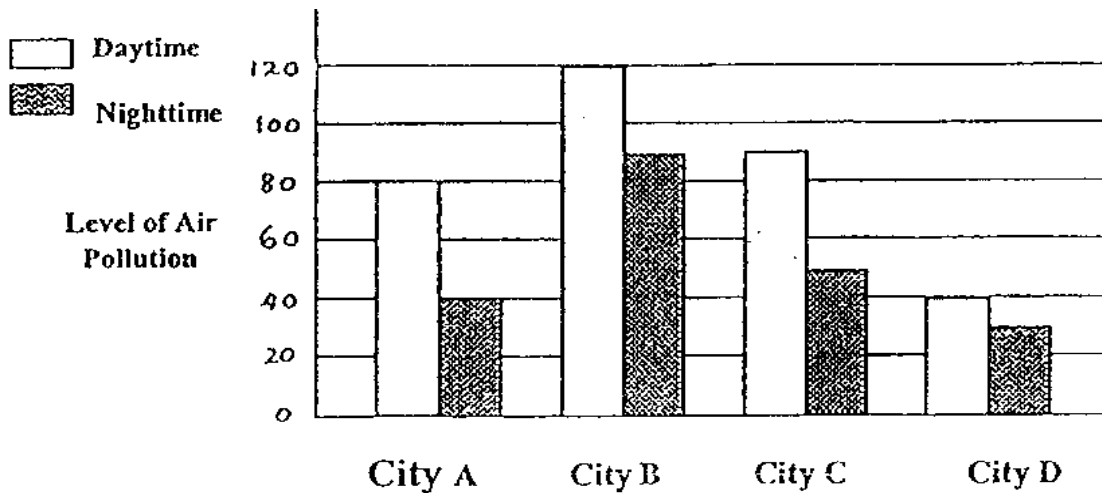
12. The following items are classified into two groups

Biodegradable Substance	Non-Biodegradable Substance
Seashells	Aluminium
Fish	Plastic bags
Noodles	Styrofoam boxes
Vegetables	Steel rod

Which of the following statements is correct?

- (1) All non-biodegradable resources can be recycled.
- (2) All non-biodegradable resources come from artificial materials.
- (3) Biodegradable resources come from animals only.
- (4) Most biodegradable resources come from living things.

13. The graph below shows the level of air pollution measured by the pollutant standards index (PSI) of 4 cities A, B, C and D

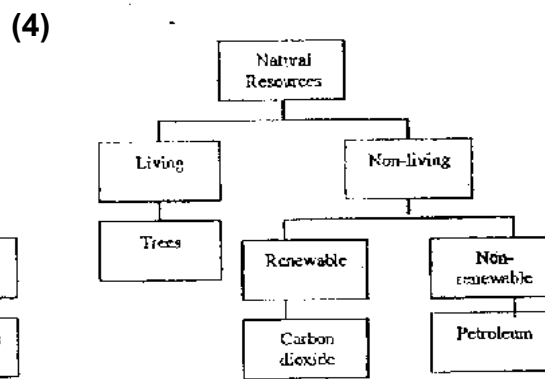
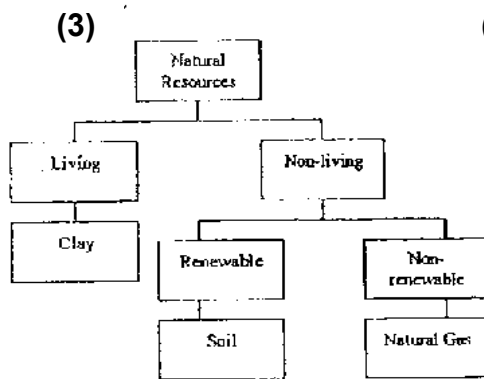
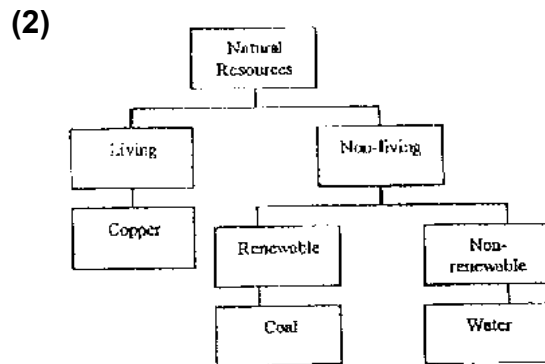
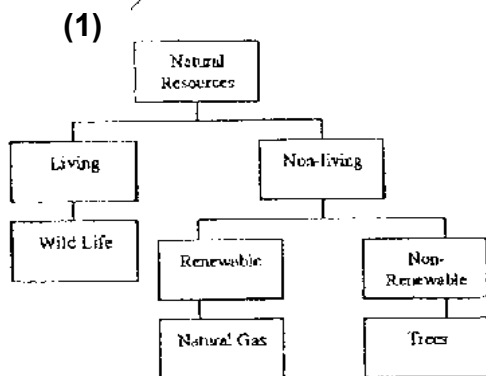


Which of the following statements about pollution in the 4 cities is/are **true**?

- A. Pollution is higher in the day than in the night.
- B. Pollution is higher at night in certain cities than in some during the day.
- C. The PSI of the 4 cities is probably caused by haze.
- D. City B has the worst air quality.

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

14. Which of the following correctly shows the classification of Earth's natural resources?



15. The **Land Transport Authority** has introduced several schemes to reduce traffic congestion, air pollution and noise pollution. What are the schemes that are being presently enforced in our transport system?

- A. Central Business District Zones
- B. Mass Rapid Transit System
- C. Compulsory Vehicular Inspection
- D. Corrective Work Order
- E. Electronic Road Pricing

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

16. Meng made 3 statements about the sun.
Which statements are **true**?

A: Animals get their energy from the sun directly.

B: The sun's energy passes to animals through green plants.

C: Green plants get their energy from the sun directly.

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

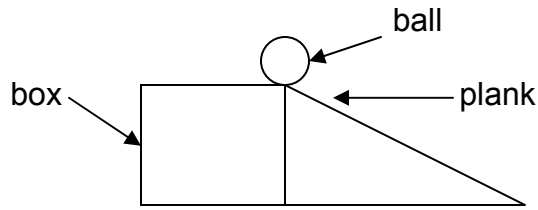
17. Which one of the following animals can convert potential energy stored in its body into light energy?

- (1) owl
- (2) firefly
- (3) moth
- (4) electric eel

18. What forms of energy are involved during photosynthesis?

- (1) light energy and heat energy
- (2) potential energy and heat energy
- (3) potential energy and light energy
- (4) heat, light and potential energy

19.

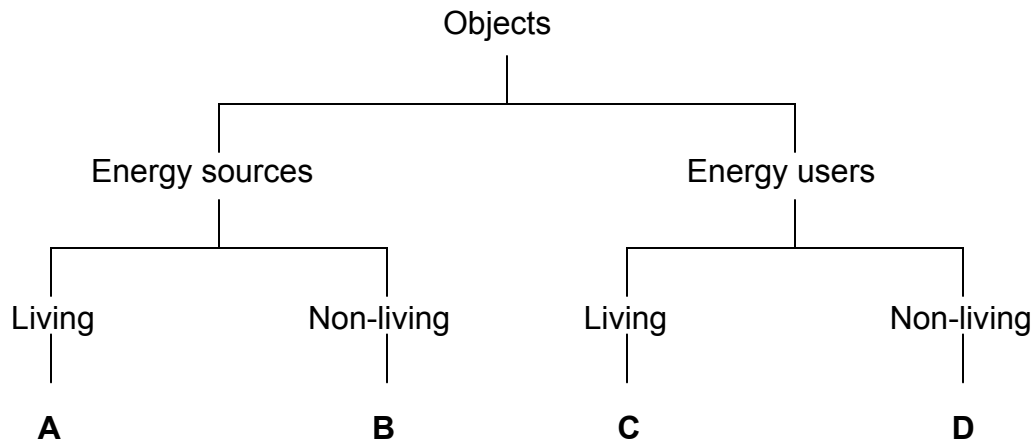


The ball in the above set-up will possess kinetic energy when it is released. Which of these activities will increase the amount of kinetic energy it has?

- A: Use a taller box.
- B: Use a shorter plank.
- C: Pump more air into the ball.

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

20.



Study the classification table above carefully.

Which one of the following shows the correct classification?

	A	B	C	D
(1)	sun	oven	plant	battery
(2)	water	charcoal	petrol	computer
(3)	plant	battery	elephant	oven
(4)	petrol	wind	cooking gas	magnet

21. A swimmer on a high-diving board dived into the swimming pool. Which one of the following shows the energy changes involved?

- (1) potential energy → sound energy → kinetic energy
- (2) kinetic energy → sound energy → potential energy
- (3) kinetic energy → potential energy → sound energy
- (4) potential energy → kinetic energy → sound energy

22. When energy interacts with matter, the matter may _____.

- (A) expand or contract
- (B) change its shape
- (C) change its state
- (D) change its position

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

23. Which one of the activities listed below does **not** require a change of energy?

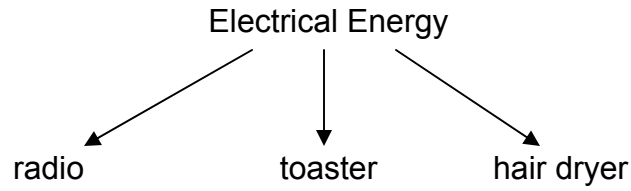
- (1) a mother ironing clothes
- (2) a leaf floating on the water
- (3) a musician playing a violin
- (4) a boy switching on a computer

24. Which of the following changes are caused by the absorption of heat energy?

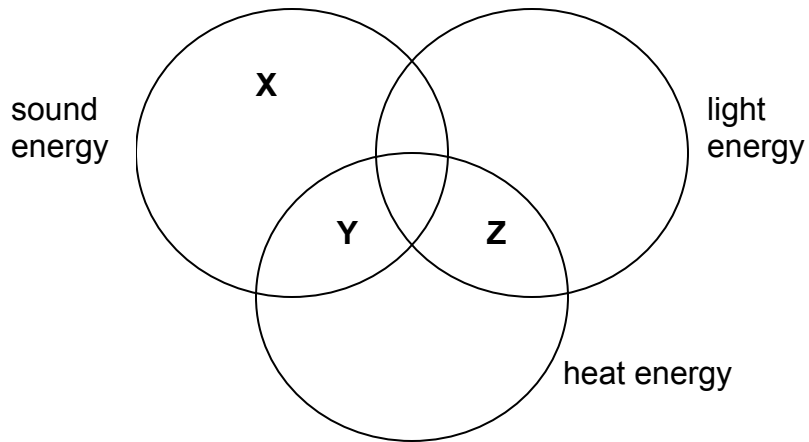
- A: water changing to water vapour
- B: ice changing to water
- C: water vapour changing to dew on leaves
- D: clouds changing to rain

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

25.



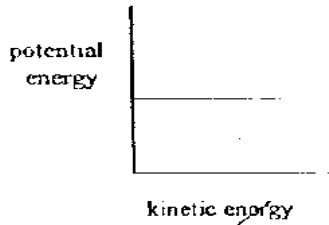
The 3 appliances above use electrical energy to do work. The electrical energy is changed into other forms of energy in the process, as shown in the diagram below. X, Y and Z represent the 3 appliances.



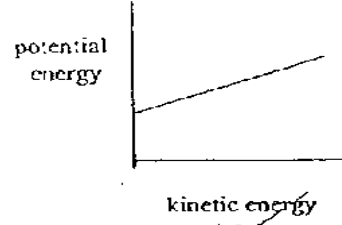
Match X, Y and Z to the correct appliances.

	X	Y	Z
(1)	hair dryer	Toaster	radio
(2)	radio	hair dryer	toaster
(3)	toaster	Radio	hair dryer
(4)	radio	toaster	hair dryer

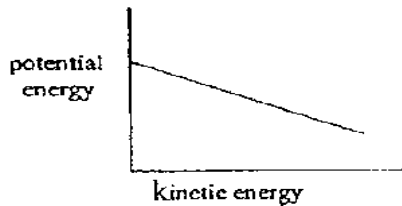
26. A rock rolls down the hill slope. Which one of these graphs below shows the correct change in the potential energy and kinetic energy of the rock as it rolls to the foot of the hill?



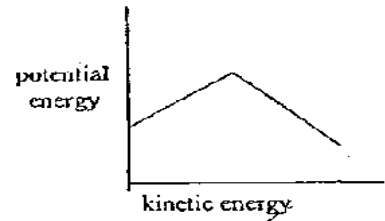
(1)



(2)

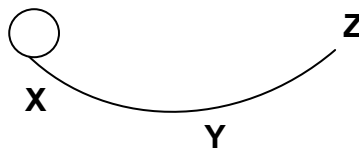


(3)



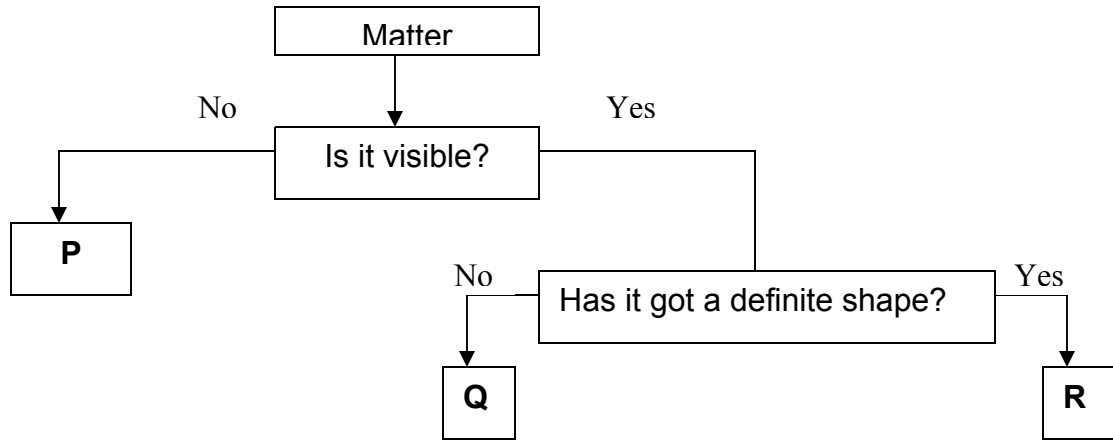
(4)

27. A ball is placed on a smooth curved surface at X and then allowed to roll down the curve. What will happen to the ball?



- (1) It rolls down and spins at Y.
- (2) It rolls down the curve and stops at Y.
- (3) It rolls down to Y and then to Z and remains at Z.
- (4) It rolls up and down along the curve and stops moving eventually.

28.



Study the above classification of matter carefully. What are P, Q, R most likely to be?

	P	Q	R
(1)	hydrogen	milk	coin
(2)	water	oxygen	ice cream
(3)	jelly	oil	steam
(4)	carbon dioxide	honey	kerosene

29. Which of the following matches correctly the joints in our skeletal system?

	Parts of the skeletal system	Types of joints
A	elbow	hinge
B	knee	ball and socket
C	shoulder – arm	hinge
D	pelvic – thigh	ball and socket

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

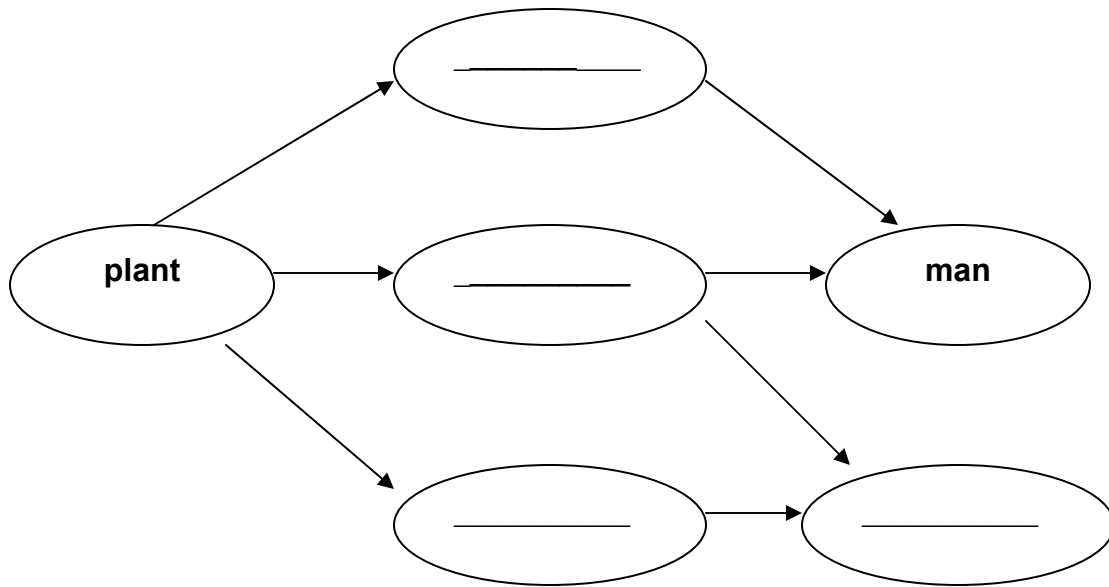
30. The table below shows the function of plant parts.
Which one of the following plant parts and its function is incorrect?

	Plant part	Function
(1)	leaf	carries out the exchange of gases with the surrounding
(2)	stem	Holds the plant firmly in the ground
(3)	fruit	Protects the seeds
(4)	root hair	Takes in water and mineral salts from the soil

For question 31 to 46, write your answers in the space provided

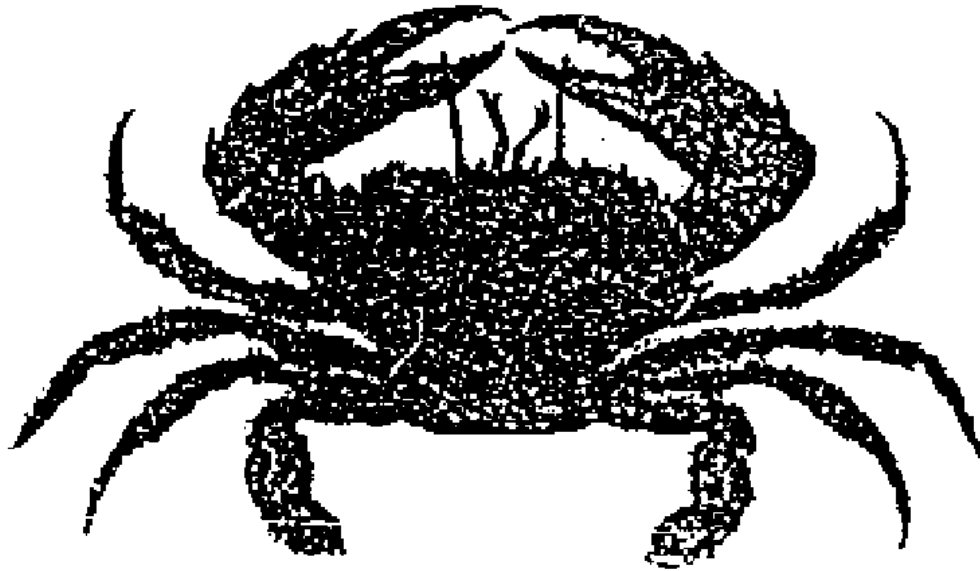
31. Construct a food web with the animals below:

Cow	zebra	chicken	lion
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(2m)

32. The following picture shows a crab that can survive both on land and in water.



Write down 2 adaptations that enable it to survive both in water and on land.

- a) In its breathing _____ (1m)
- b) In its movement _____ (1m)

33. Pineapple fibre is used to make bags and cloth in The Philippines.

a. Name the part of the plant from which the fibre is obtained.

b. Name one other plant which produces fibre useful to man.

34. An eagle has a pair of wings to fly. It also has powerful muscles, feathers, hollow bones and a streamlined body shape to enable it to fly long distances.



How do these adaptations help it to fly? Fill in their functions in the table below.

Adaptations	Functions
a) Powerful muscles	
b) Hollow Bones	
c) Streamlined body shape	
d) Feathers	

35. How are the following natural resources renewed?

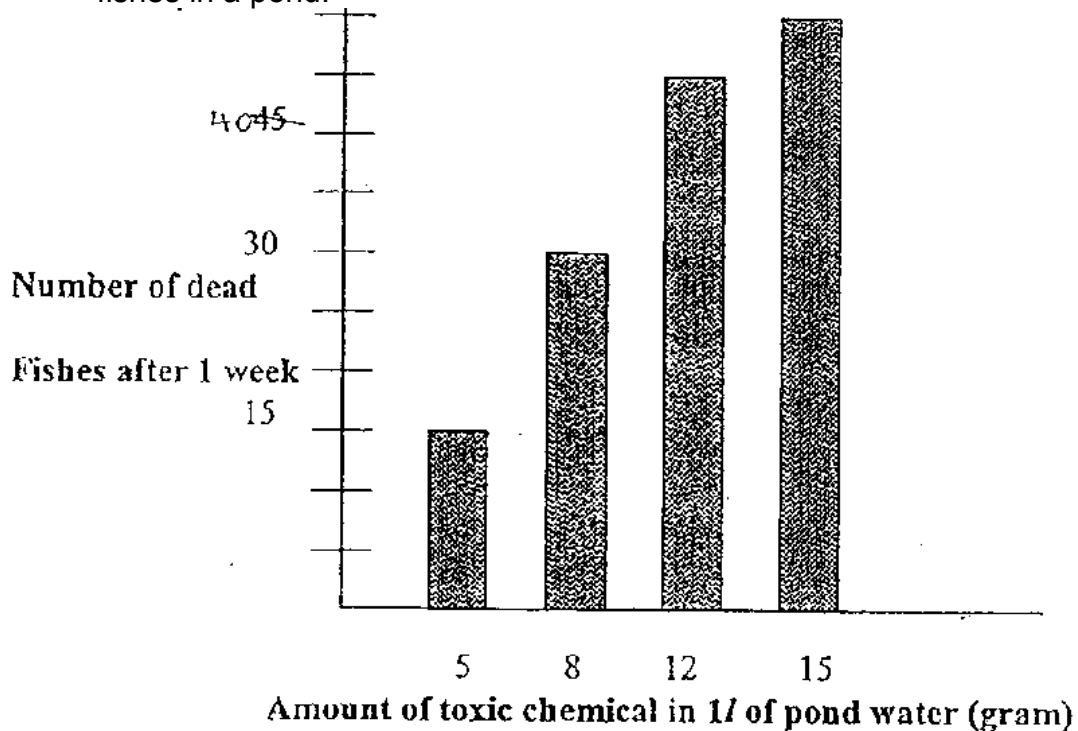
36.

a. Water:

b. Oxygen:

c. Wildlife:

37. The graph below shows the effects of the amount of a toxic chemical on the fishes in a pond.

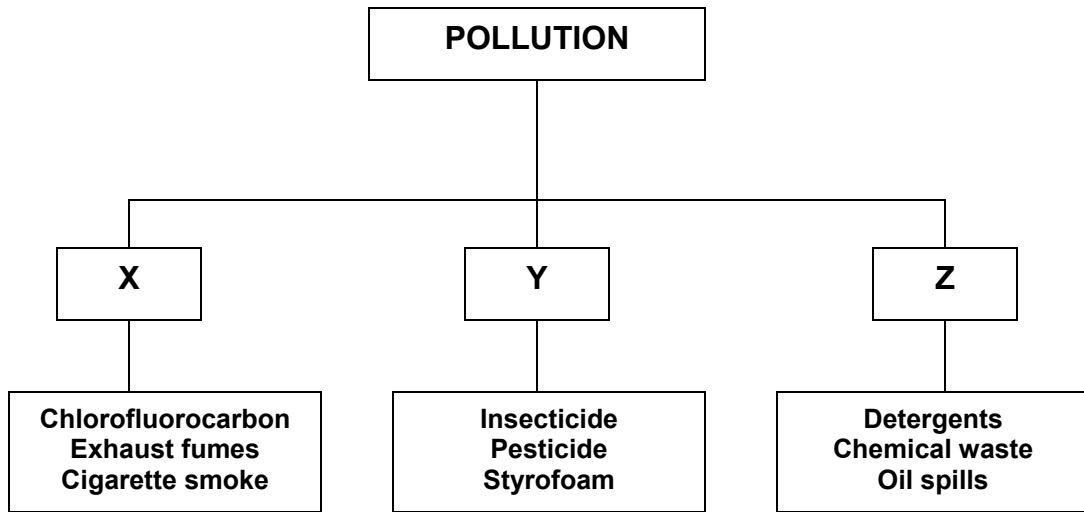


a. What do you notice about the number of dead fishes when the amount of toxic chemical in 1litre of pond water increases? (1m)

b. About how many grams of the toxic chemical is present in 1litre of pond water if the number of fishes which died in a week is 20? (1m)

c. If 1litre of pond water contains 10g of toxic chemical, about how many fishes will die in 1 week? (1m)

38. The following table classifies pollutants which cause harm to the environment.



What type of pollution do X, Y and Z represent? (3m)

a. X:

b. Y

c. Z

39. Heat that is trapped around the Earth keeps it warm and causes ice on mountains and icebergs to melt. (1m)

a. What is this effect called?

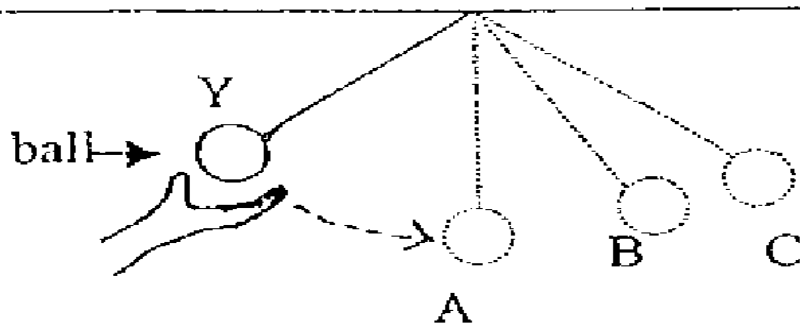
b. What would the melting of snow and ice from the mountains lead to?

40. Bathroom and kitchen waste from the sink is known as _____ . (1m)

This waste is then sent to the _____ . (1m)

There this waste is separated into solid and liquid. The solid is turned into sludge (a fertilizer) and the liquid is made safe and finally discharged into the sea.

40.



A steel ball was held at position Y and then released.
The dotted balls showed the position of the ball during its swing.

a. Before the ball is released, what form of energy did it possess? (1m)

b. At which position did the ball possess the greatest kinetic energy? (1m)

c. Why do you say so? (1m)

d. Explain what is likely to happen when the ball is allowed to swing for some time without any interference? (1m)

41. Tim's father bought him a wind-up toy robot. When the spring inside the robot was given a few turns of the key, the robot started to walk.

a. What energy does the wound-up spring possess? (1m)

b. After walking for a short distance, the robot stopped. What is the reason for this? (1m)

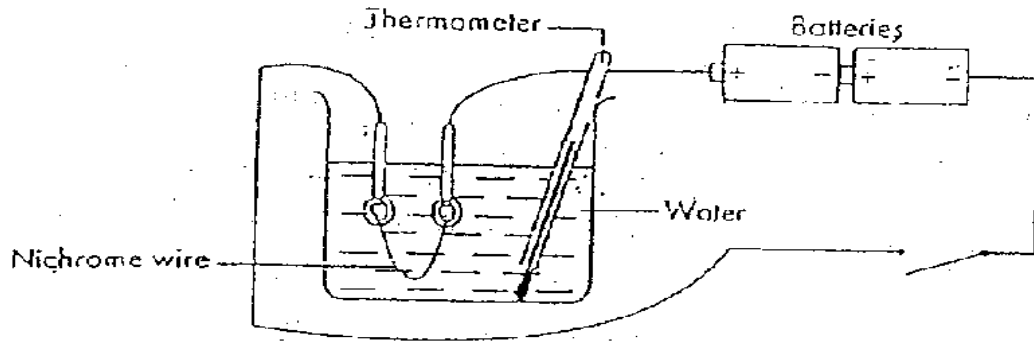
42. Peter did an experiment to find out if the distance traveled by a toy car depended on how much it was wound up. The table below shows the result.

Number of times wound up	Distance traveled (cm)
1	47
2	90
3	135
4	215

a. Based on the results given, what do you think would be the distance traveled by the toy car if it is wound up 4 times? (1m)

b. The results show that the toy car travelled a greater distance when the number of times it was wound up increases. Why is this so? (1m)

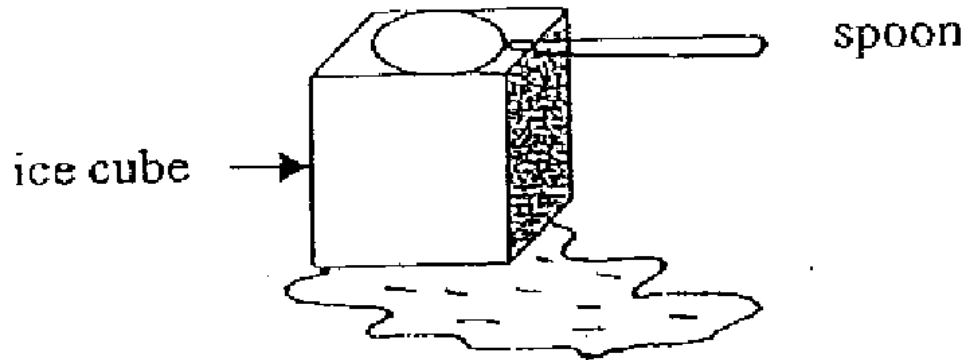
43. An experiment was conducted to investigate the effect of a closed circuit on the temperature of water.



- a. What will happen to the temperature of water in the beaker when the switch is closed for some time? (1m)

- b. Explain your answer in (a). (1m)

44. The diagram below shows an ice cube with a spoon on it.



a. Why does the spoon feel cold after five minutes? (1m)

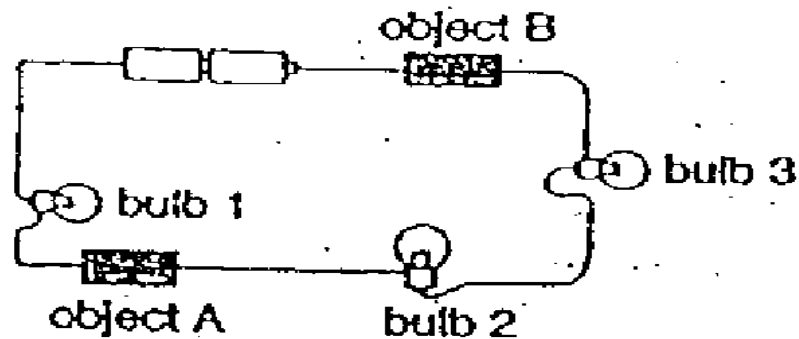
b. What causes the water puddle to be formed around the ice cube? (1m)

45. Write down the energy changes involved when

a. A television set is switched on (1 m)

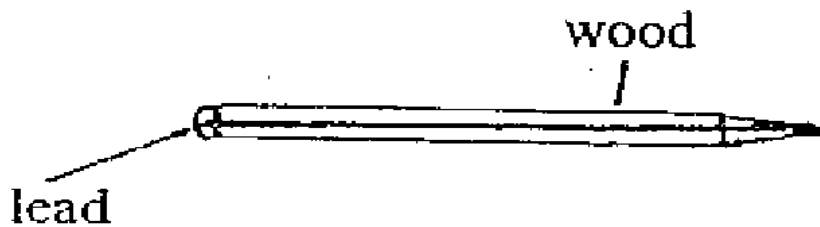
b. Stuffed toy is thrown up and lands on the upper shelf of a cupboard. (1 m)

46.



The 3 bulbs shown above all light up

a. What does this tell you about object A and object B? (1m)



Cross-section of a pencil

b. Two groups of children were testing the above similar circuit with a pencil in place of object B.

One group was able to show that all the bulbs lighted up. Why? (1m)

c. Another group found that none of the three bulbs lighted up. Why? (1m)
