



- Q: 1** Anahita did the following experiment.
- She destarched a plant by keeping it in a dark cupboard for 48 hours. She selected two identical green leaves on the plant. She smeared petroleum jelly on both the top and the bottom sides of one leaf. She did not apply anything on the other leaf.
 - She allowed the leaves to remain in this condition on the plant for a few hours.
 - She then removed the leaves from the plant and gently wiped off the petroleum jelly on the first leaf and tested both the leaves for starch using the iodine test.

Which leaf would Anahita find starch in?

- ☐ 1 in both the leaves because the chlorophyll in both the leaves was still intact
- ☐ 2 only in the leaf not smeared with jelly, as only this leaf is able to get carbon dioxide
- ☐ 3 only in the leaf smeared with jelly because the heat of the sunlight did not reach it
- ☐ 4 (Cannot say based on the given information.)

- Q: 2** Vivek is trying to group three plants - a plant with green leaves, a plant with red leaves and an insectivorous plant, in different ways. Which of these can he put under the category 'Plants that perform photosynthesis'?

- ☐ 1 all the three plants
- ☐ 2 the green-leafed plant only
- ☐ 3 the green-leafed plant and the red-leafed plant only
- ☐ 4 the green-leafed plant and the insectivorous plant only

- Q: 3** Plants need and absorb nitrogenous compounds from the soil and most plants will not grow well in soils deficient in nitrogen. Insectivorous plants grow well even in soils poor in nitrogen. How do such plants get the nitrogen required for growth?

- ☐ 1 They absorb nitrogen from the air.
- ☐ 2 They make nitrogenous food during photosynthesis.
- ☐ 3 They get the required nitrogen by capturing and digesting insects.
- ☐ 4 They have special roots that make the nitrogen compounds required for growth.

- Q: 4** Two statements are given - one labelled Assertion (A) and the other labelled Reason (R). Read the statements carefully and choose the option that correctly describes statements A and R.

Assertion (A): Autotrophs mostly have green leaves.

Reason (R): Chlorophyll is able to absorb oxygen and water for photosynthesis.

- ☐ 1 Both A and R are true and R is the correct explanation for A.
- ☐ 2 Both A and R are true but R is not the correct explanation for A.
- ☐ 3 A is true but R is false.
- ☐ 4 A is false but R is true.

- Q: 5** Which of these does an amoeba use for capturing food?

- ☐ 1 nucleus
- ☐ 2 vacuoles
- ☐ 3 pseudopodia
- ☐ 4 cilia



Q: 6 The doctor told Rahul that his body is not making enough bile. Which of the following may not be functioning properly in his body?

- 1 liver 2 stomach 3 intestine 4 pancreas

Q: 7 The liver and pancreas pour their juices into the small intestine, where they help to break down food.

Which of the following statements about the food we eat is TRUE?

- 1 It passes only through our liver.
2 It passes only through our pancreas.
3 It passes through both our liver and pancreas.
4 It will not pass through either our liver or pancreas.

Q: 8 Some animals, like cows, have an organ which is a part of the stomach and helps in digestion.

Which of the following is this organ?

- 1 liver 2 kidney 3 rumen 4 diaphragm

Q: 9 Sea breeze occurs during the day time because _____.

- 1 land heats slower than the ocean
2 land heats up faster than the ocean
3 the land does not get heated up during the day
4 the oceans do not get heated up during the day

Q: 10 Which of the following would MOST likely be the range of a clinical thermometer?

- 1 0 °C - 35 °C 2 35 °C - 42 °C 3 20 °C - 60 °C 4 0 °C - 100 °C

Q: 11 The maximum temperature of Chennai on 17th June 2010 was 37 °C.

Which of the following BEST expresses the above temperature in °F?

- 1 2.7 2 99 3 276 4 310

Q: 12 Kurt takes a metal ruler and a wooden ruler from his pencil case. He announces that the metal one feels colder than the wooden one. What is the most likely reason?

- 1 Wood is a naturally warmer substance than metal.
2 The metal ruler is a harder solid than the wooden ruler.
3 The wooden ruler contains more heat than the metal ruler.
4 Metal conducts heat away from his hand more rapidly than wood.

Q: 13 When water is heated in a metal pan on a burner, both the water and the pan become hot.

Which of the two get heated mainly by the mode of convection?

- 1 only the metal pan 2 only the water in the pan
3 both the metal pan and the water 4 neither the metal pan nor the water



Q: 14 Which of the following objects can radiate heat?

- a lighted candle
- a cup of hot tea
- an ice cube

- 1** only a lighted candle
- 2** only a hot cup of tea
- 3** only a lighted candle and a hot cup of tea
- 4** all - a lighted candle, a hot cup of tea and an ice cube

Q: 15 Which of the following always happens during a neutralization reaction?

- P. the basicity of the mixture increases
- Q. the acidity of the mixture increases
- R. a salt is formed

- 1** only R
- 2** only Q and R
- 3** only P and R
- 4** all - P, Q and R

Q: 16 Here is a part of a conversation between three students:

Parul: blue litmus is required to test if a substance is acidic

Gautam: red litmus is required to test if a substance is acidic

Laila: both blue and red litmus are required to test if a substance is acidic

Whose statement is correct?

- 1** only Parul
- 2** only Gautam
- 3** only Laila
- 4** all - Parul, Gautam and Laila

Q: 17 A bottle of sodium hydroxide has fallen and broken on the floor, spilling all its contents. Which of the following should be used to quickly minimise the damage?

- 1** Acetic acid
- 2** Sodium chloride
- 3** Copper sulphate
- 4** Sodium bicarbonate

Q: 18 Which of the following changes is a physical change?

- 1** melting of ice
- 2** rusting of iron
- 3** cooking of food
- 4** burning of wood

Q: 19 When a paper is burnt it is considered a chemical change because _____.

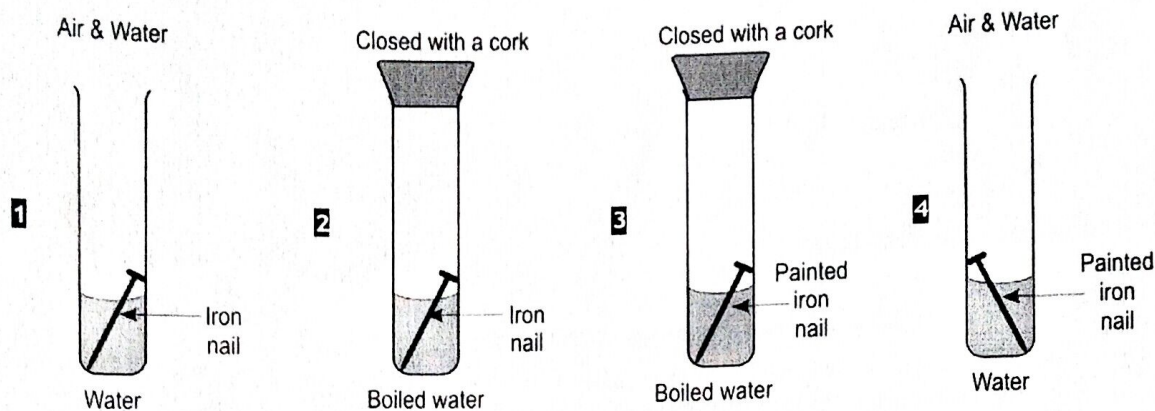
P. the appearance changes

Q. there is no change in mass

R. the chemical composition changes

- 1** only P
- 2** only Q
- 3** only R
- 4** only P and Q

Q: 20 In which of the test tubes shown below is rusting likely to take place fastest?



Q: 21 Two statements are given - one labelled Assertion (A) and the other labelled Reason (R). Read the statements carefully and choose the option that correctly describes statements A and R.

Assertion (A): Shredding/ Tearing of paper is an irreversible change.

Reason (R): Many chemical changes are irreversible.

- 1** Both A and R are true and R is not the correct explanation for A.
- 2** Both A and R are true and R is the correct explanation for A.
- 3** A is true, R is false.
- 4** A is false, R is true.

Q: 22 When we inhale, we take air into our lungs. What do we breathe out when we exhale?
We breathe out -

- 1** only pure oxygen.
- 2** only pure carbon dioxide.
- 3** a mixture of gases that has more oxygen than inhaled gases.
- 4** a mixture of gases that has more carbon dioxide than inhaled gases.

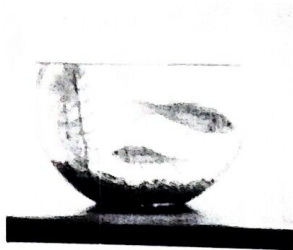
Q: 23 Respiration is the process by which living organisms obtain energy.

Which gas do PLANTS use for the process of respiration and when do they respire?

- 1** Oxygen is used and respiration takes place during daytime only.
- 2** Oxygen is used and respiration takes place both during the day and night.
- 3** Plants do not use any gas for respiration since they do not respire at all.
- 4** Carbon dioxide is used and respiration takes place during daytime only.



Q: 24 Mickey has two pet goldfish in a fish bowl as shown here.



How are they likely to obtain oxygen in the fish bowl?

- 1** by eating the leaves of the water plant
- 2** by breathing air trapped between the pebbles at the bottom
- 3** by using their gills to obtain the oxygen dissolved in the water
- 4** (Like most of the fish, these fish do not need oxygen to live.)

Q: 25 Which of the following stores urine before it is excreted from the body?

- 1** kidneys
- 2** urethra
- 3** ureter
- 4** urinary bladder

Q: 26 Which of these blood cells transport oxygen?

- P. red blood cells
- Q. white blood cells
- R. platelets

- 1** only P
- 2** only Q
- 3** both P and Q
- 4** all - P, Q and R

Q: 27 Which of the following form(s) vascular tissue?

P. xylem

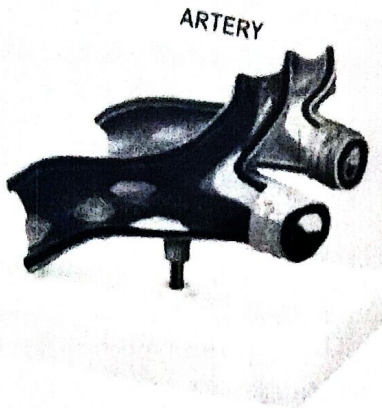
Q. phloem

R. stomata

- 1** only P
- 2** only Q
- 3** only P and Q
- 4** only P and R



Q: 28 Given below is the picture of human artery.



Which of the following BEST describes the function of the artery?

- 1 The arteries carry blood into the heart from various parts of the body.
- 2 The arteries are present in the lungs and they absorb oxygen.
- 3 The arteries carry cells that produce hemoglobin.
- 4 The arteries carry blood out of the heart.

Q: 29 Self-pollination is the process where the pollen from the anther of a flower is transferred to the stigma of _____.

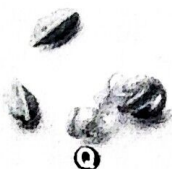
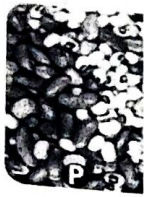
- 1 only the same flower
- 2 only a flower on another plant
- 3 only the same flower or another flower on the same plant
- 4 only a flower on another plant or another flower on the same plant

Q: 30 Ahmed and his friends were discussing which agents played a role in seed dispersal. Here is what they said.

Who is correct?

- 1 Ahmed: Only water plays a role in seed dispersal.
- 2 Malaika: Only birds plays a role in seed dispersal.
- 3 Waheeda: Only wind and water play a role in seed dispersal.
- 4 Jackie: All - wind, water and birds play a role in seed dispersal.

Q: 31 Some seeds have special features that enable them to be dispersed by clinging to animals fur. Which of the seeds shown below has these features?



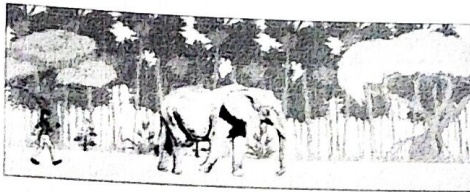
1 only P

2 only Q

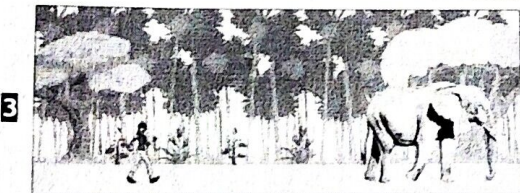
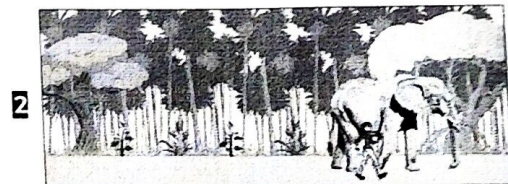
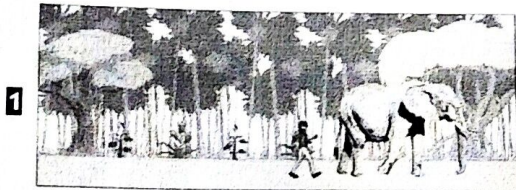
3 only R

4 all - P, Q and R

Q: 32 Shown here is a photograph taken by a person in a jungle. The elephant and the girl are walking from the left to the right.



If the girl walks slower than the elephant, how would the photograph appear if taken after a few seconds?



Q: 33 The average speed of a vehicle is 25 m/s. Which of the following can we say about the speed of the vehicle based on this?

P. It can never be more than 25 m/s.

Q. It can never be less than 25 m/s.

R. There would be times when it is less than 25 m/s.

S. There would be times when it is more than 25 m/s.

1 only P and Q

2 only R and S

3 only P and R

4 only Q and S



Q: 34 Suhas designed a luggage conveyor belt for Bangalore International Airport like the one shown in the image below.



He designed it such that a bag covers 81 m in one rotation of the belt. He wanted the bag to complete one rotation in 60 seconds. Approximately at what speed should the belt move?

1 0.7 m/s

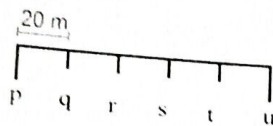
2 1.4 m/s

3 14 m/s

4 81 m/s

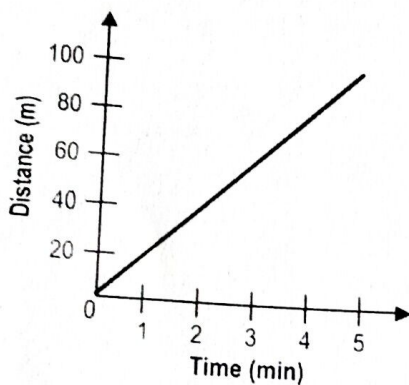


- Q: 35 Rekha and Ravi start walking together from the same point p for 20 m and reach point q together in one minute. They again walk for 20 m and reach point r at the same time. They repeat this till they have walked 100 m to reach point u together. Every time they complete 20 m, they note that it takes one minute.

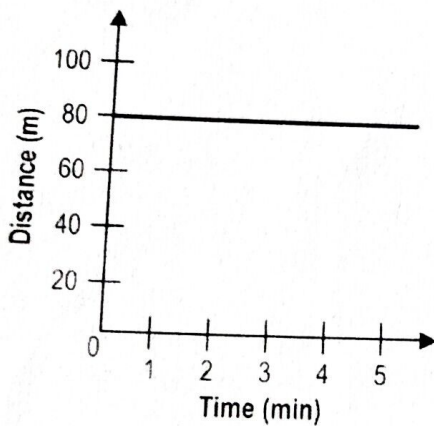


Then using the distance and time readings, they prepare individual distance-time graphs.

Rekha's graph:



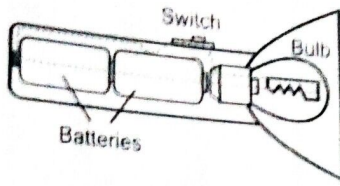
Ravi's graph:



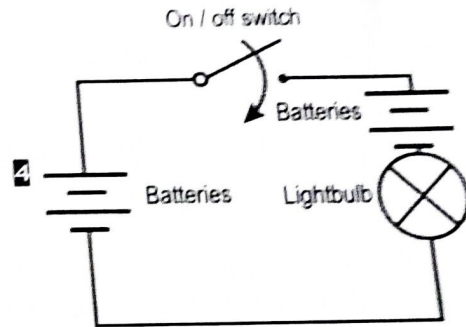
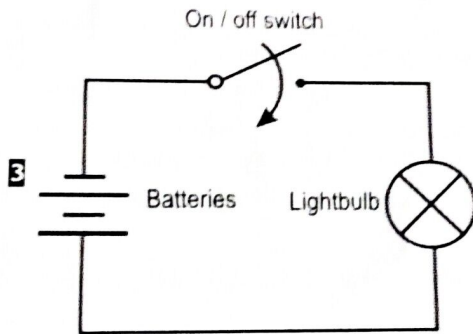
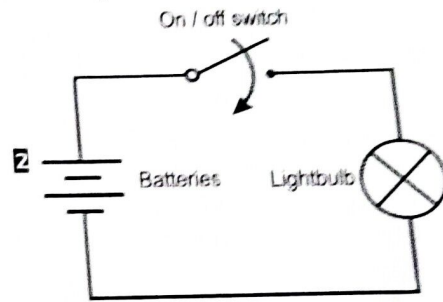
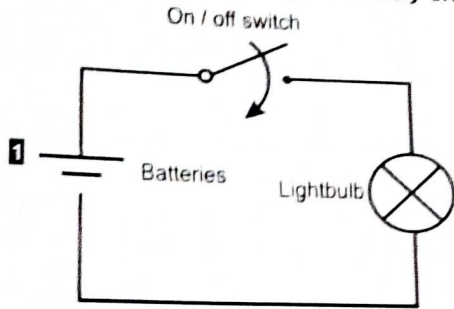
What can you say about the correctness of the graphs?

- 1 Only Ravi's graph is correct.
- 2 Only Rekha's graph is correct.
- 3 Both Ravi's and Rekha's graphs are correct.
- 4 Both Ravi's and Rekha's graphs are wrong.

Q: 36 Shown here is the cross-section of an electric torch.



Which of the following correctly shows its circuit diagram?

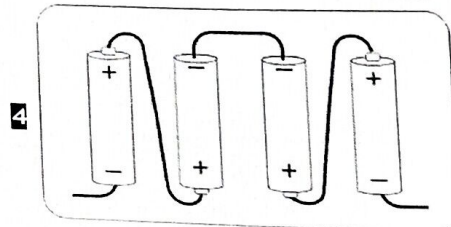
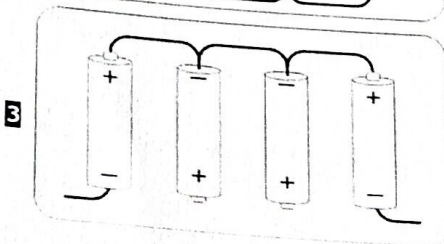
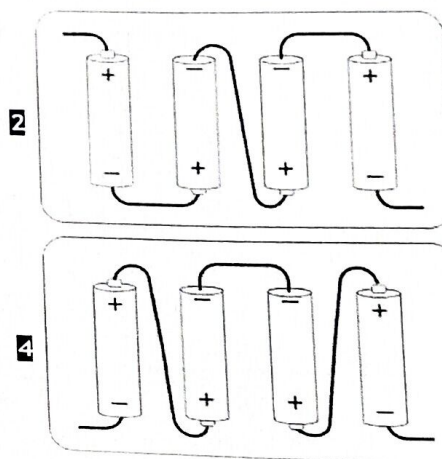
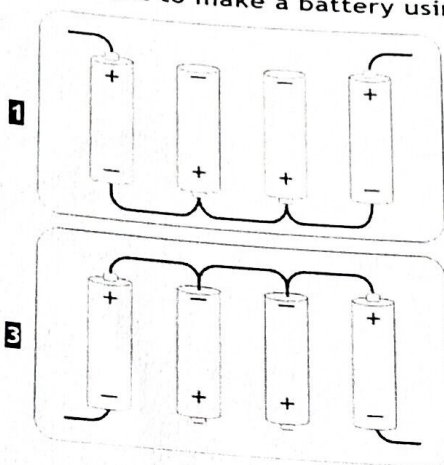




Q: 37 Look at the cells given below.



If you want to make a battery using these cells, how must the wires be connected?



Q: 38 Which among these works on the principle of heating effect of electric current?

1 fuse

2 radio

3 television

4 electric bell

Q: 39 An electric bulb works on electricity and gives out light. We can say that a bulb changes electrical energy into light energy. In which of these is electrical energy changed MAINLY into heat energy?

1 a mixer

2 a ceiling fan

3 a water heater

4 a television set

Q: 40 An image which can be obtained on a screen is called _____.

1 erect

2 inverted

3 real

4 virtual



Q: 41 Shown below is the reflection of a man in a convex and concave mirror. In both cases, the man was at the same distance from the mirror.



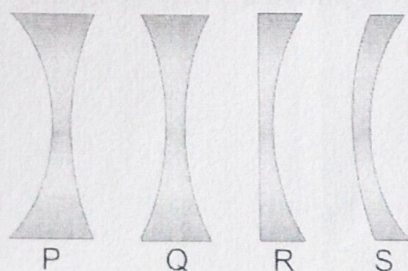
In cars, there is a rear-view mirror so that the driver can see the vehicles behind him. Which of these two curved mirrors would be the MOST appropriate for this use?

- 1 The convex mirror because it shows very small images of the reflected objects.
- 2 The concave mirror because it shows a magnified view of the area from which it is reflecting light.
- 3 The convex mirror because it shows a wider field of view of the area from which it is reflecting light, as well as an upright image.
- 4 The concave mirror because it shows a very detailed field of view of the area from which it is reflecting light, as well as an inverted image.

Q: 42 Light of which of the following colours should enter a prism, so that the only colour of light coming out of it is red?

- 1 sunlight
- 2 red colour light
- 3 white colour light
- 4 any colour of light

Q: 43 Which of the following is a concave lens?



- 1 only P
- 2 only Q
- 3 only Q and R
- 4 all - P, Q, R and S

Q: 44 The roof of a forest made by the branches of the tall trees is called a/an _____.

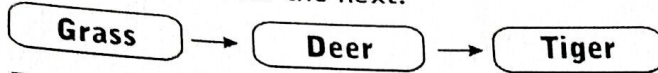
- 1 canopy
- 2 crown
- 3 equator
- 4 understorey



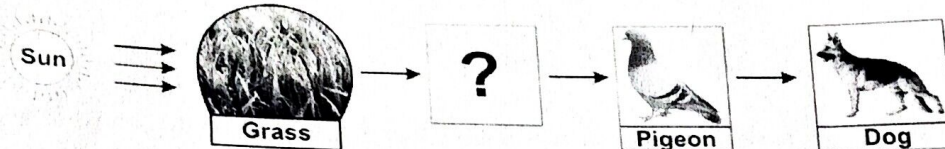
Q: 45 Which of the following will cause an increase in deforestation?

- | | |
|---|---|
| 1 increased use of fertilizers | 2 an increase in earthquakes |
| 3 extinction of some plants and animals | 4 rising human population and its needs |

Q: 46 A food chain shows how some organisms are linked together. In the chain, each organism is food for the next.



For example, in the food chain above, deer eat grass and tigers eat deer. In the food chain below, there is one link missing.



Which of the following animals can fit into the missing box of the food chain?

- | | | | |
|---------------|----------|----------|-------|
| 1 caterpillar | 2 rabbit | 3 turtle | 4 cat |
|---------------|----------|----------|-------|

Q: 47 _____ convert the dead plant and animal tissues into humus.

- | | |
|---------------|---------------------|
| 1 Producers | 2 Consumers |
| 3 Decomposers | 4 Soil and sunlight |

Q: 48 In which of the following are EARTHWORMS used to convert human excreta to fertilizers?

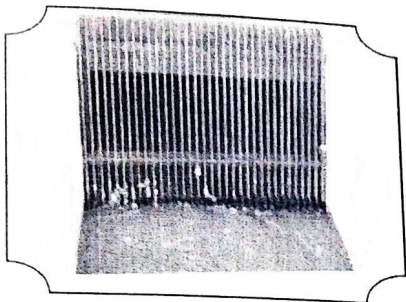
- | | |
|-------------------------------|---------------------------|
| 1 wastewater treatment plants | 2 septic tanks |
| 3 biogas plants | 4 vermicomposting toilets |

Q: 49 The water supplied to cities is first treated in a water purification plant before it reaches peoples homes. What is the advantage of supplying purified water to cities?

- | |
|---|
| 1 It helps to save water. |
| 2 The air in the cities becomes cleaner. |
| 3 More water is available to water plants. |
| 4 The bacteria free water helps to keep people healthy. |



Q: 50 The first step that happens in a wastewater treatment plant is that the wastewater is made to pass through bar screens (as shown here).



Large objects like rags, sticks, cans, plastic packets, napkins etc get stuck on these bars. This step is similar to -

- 1** slicing vegetables into very thin slices
- 2** separating cream from milk using a sieve
- 3** using a broom to clean the dust on a floor
- 4** opening a window to allow fresh air to come inside

End of Questions in Paper