

Chapter 4: Sorting Materials and Groups

NCERT Exemplar · Class 6 · Science

Multiple Choice Questions

Question 1

An iron nail is kept in each of the following liquids. In which case would it lose its shine and appear dull?

A.

Mustard oil

B.

Soft drink

C.

Coconut oil

D.

Kerosene

Answer

Correct option: B

Solution

Ans: The correct answer is option b) Soft drink.

Soft drinks are composed of water, carbon dioxide and acid due to which the iron nail is corroded and appears dull.

Question 2

Pick one material from the following which is completely soluble in water.

A.

Chalk powder

B.

Tea leaves

C.

Glucose

D.

Saw dust

Answer

Correct option: C

Solution

Ans: The correct answer is option c) Glucose.

Among the given options, only glucose is highly soluble in water.

Question 3

You are provided with the following materials

(i) Magnifying glass

(ii) Mirror

(iii) Stainless steel plate

(iv) Glass tumbler

Which of the above materials will you identify as transparent?

A.

(i) and (ii)

B.

(i) and (iii)

C.

(i) and (iv)

D.

(iii) and (iv)

Answer

Correct option: C

Solution

Ans: The correct answer is option c) (i) and (iv).

The objects through which we can see at the other side are known as transparent objects. Transparent objects include magnifying glasses and glass tumblers.

Question 4

Boojho found a bag containing the following materials

(i) Mirror

(ii) Paper stained with oil

(iii) Magnet

(iv) Glass spectacles

Help Boojho in finding out the material(s) which is/are opaque.

A.

(i) only

B.

(iv) only

C.

(i) and (iii)

D.

(ii) and (iv)

Answer

Correct option: C

Solution

Ans: The correct answer is option c) (i) and (iii).

Mirror and magnet are opaque. Mirror is the glass painted on one side. And the magnet is made up of iron metal.

Question 5

While doing an activity in class, the teacher asked Paheli to handover a translucent material. Which among the following materials will Paheli pick and give her teacher?

A.

Glass tumbler

B.

Mirror

C.

Muslin cloth

D.

Aluminium foil

Answer

Correct option: C

Solution

Ans: The correct answer is option c) Muslin cloth.

The objects through which we cannot see clearly are known as translucent. Muslin cloth is a translucent object. Aluminium foils and mirrors are opaque. Glass tumbler is transparent.

Question 6

Which pair of substances among the following would float in a tumbler half filled with water?

A.

Cotton thread, thermocol

B.

Feather, plastic ball

C.

Pin, oil drops

D.

Rubber band, coin

Answer

Correct option: B

Solution

Ans: The correct answer is option b) feather, plastic ball.

The lighter material floats in water whereas the heavier material sinks in water.

Question 7

Which among the following are commonly used for making a safety pin?

A.

Wood and glass

B.

Plastic and glass

C.

Leather and plastic

D.

Steel and plastic

Answer

Correct option: D

Solution

Ans: The correct answer is option d) Steel and plastic. Steel is easily moulded. It can be changed into any shape to get sharp points and plastic is used to seal the edges.

Question 8

Which of the following materials is not lustrous?

A.

Gold

B.

Silver

C.

Wood

D.

Diamond

Answer

Correct option: C

Solution

Ans: The correct answer is option c) Wood.

Wood is an organic opaque structure and is not lustrous.

Question 9

Which of the following statements is not true?

A.

Materials are grouped for convenience.

B.

Materials are grouped to study their properties.

C.

Materials are grouped for fun.

D.

Materials are grouped according to their uses.

Answer

Correct option: C

Solution

Ans: The correct answer is option c) Materials are grouped for fun.

Materials are not grouped for fun. They are grouped to study their properties and according to their uses in a systematic manner.

Question 10

Find the odd one out from the following

A.

Tawa

B.

Spade

C.

Pressure cooker

D.

Eraser

Answer

Correct option: D

Solution

Ans: The correct answer is option d) Eraser.

Eraser is made up of an elastic material rubber whereas tawa, spade and pressure cooker are made up of steel metal.

Question 11

Which type of the following materials is used for making the front glass (wind screen) of a car?

A.

Transparent

B.

Translucent

C.

Opaque

D.

All the above

Answer

Correct option: A

Solution

Ans: The correct answer is option a) Transparent.

The windscreen of an automobile is made of transparent glass so that everything can be seen clearly.

Very Short Answer Questions

Question 12

It was Paheli's birthday. Her grandmother gave her two gifts made of metals, one old dull silver spoon and a pair of lustrous gold earrings. She was surprised to see the difference in the appearance of the two metals. Can you explain the reason for this difference?

Solution

Ans: Her dull silver spoon reacted with gases like hydrogen sulphide and lost its shine in moist air. Whereas gold does not react with the gases present in the atmosphere as it is a noble metal.

Question 13

Mixtures of red chilli powder in water, butter in water, petrol in water, and honey in water were given to Radha, Sudha, Sofia and Raveena, respectively. Whose mixture is in solution form?

Solution

Ans: Because honey and water are very soluble in each other, Raveena will receive the product in the form of a solution.

Question 14

On a bright sunny day, Shikha was playing hide and seek with her brother. She hid behind a glass door. Do you think her brother will be able to locate her? If yes, why? If no, why not?

Solution

Ans: Yes, her brother will be able to locate Shikha because she is hiding behind a glass door that is transparent in nature.

Question 15

Take a small cotton ball and place it in a tumbler/bowl filled with water. Observe it for at least 10 minutes. Will it float or sink in water and why?

Solution

Ans: At first the cotton ball will float in water because it is light weighted. But then it will slowly absorb water and become heavier, eventually will sink.

Short Answer Questions

Question 16

Which among the following materials would you identify as soft materials and why? Ice, rubber band, leaf, eraser, pencil, pearl, a piece of wooden board, cooked rice, pulses and fresh chapati.

Solution

Ans: Eraser, rubber band, cooked rice, fresh chapati and leaf are soft materials because they can be easily compressed and scratched easily.

Question 17

You are provided with the following materials— turmeric, honey, mustard oil, water, glucose, rice flour, groundnut oil. Make any three pairs of substances where one substance is soluble in the other and any three pairs of substances where one substance remains insoluble in the other substances.

Solution

Ans: (a) Soluble pairs:

(i) Glucose – water

(ii) Mustard oil – groundnut oil

(iii) Honey – water

(b) Insoluble pairs:

(i) Rice flour – water

(ii) Turmeric – water

(iii) Mustard oil – water

Question 18

During summer holidays, a group of children collected a lump of salt, green grass, broken glass piece, a small thermocol box, pen, iron nail, glass marbles, hair, naphthalene ball, a piece of sugar candy (mishri) and tried to group them on the basis of properties given in Table 4.1 below. Help them in filling the Table.

Material	Hard/Soft	Transparency	Floats/sinks in water	Soluble/insoluble in water
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Solution

Ans:

Material	Hard/Soft	Transparency	Floats/sinks in water	Soluble/insoluble in water
Lump of salt	Hard	Opaque	Floats	Soluble
Green grass	Soft	Opaque	Sinks	Insoluble
Broken glass piece	Hard	Opaque	Sinks	Insoluble
Thermocol box	Soft	Opaque	Sinks	Insoluble
Pen	Hard	Opaque	Floats	Insoluble
Iron nail	Hard	Opaque	Sinks	Insoluble
Glass	Hard	Transparent	Sinks	Insoluble
Marble	Hard	Opaque	Sinks	Insoluble
Hair	Hard	Opaque	Sinks	Insoluble
Naphthalene ball	Hard	Opaque	Sinks	Insoluble
A piece of sugar candy	Hard	Opaque	Sinks	Soluble

Question 19

Arrange the jumbled words to arrive at the appropriate names of materials and also write two uses of each.

(a) milaunuim

(b) tcalpi

(c) serene

(d) gavnier

Solution

Ans: Aluminium

Uses: It is used in aeroplane equipment and as foils.

Ans: Plastic

Uses: Many objects are made, like bucket, lunch box, and pencil box.

Ans: Kerosene

Uses: It's used as a solvent and a fire starter.

Ans: Vinegar

Uses: Food ingredients, preservatives.

Question 20

Match the objects given in Column I with the materials given in Column II.

	Column I		Column II
(a)	Surgical instruments	(i)	Plastic
(b)	Newspaper	(ii)	Animal Product
(c)	Electrical switches	(iii)	Steel
(d)	Wool	(iv)	Plant Product

Solution

Ans: The correct match is-

	Column I		Column II
(a)	Surgical instruments	(iii)	Steel(Rust-free)
(b)	Newspaper	(iv)	Plant Product(Paper)
(c)	Electrical switches	(i)	Plastic(Bad conductor of electricity)
(d)	Wool	(ii)	Animal Product(Obtained from sheep)

Question 21

Pick five objects from the word box given as Fig. 4.1 which are opaque and would sink in water.

O	S	T	P	L	E
A	T	L	E	E	R
C	O	I	N	A	A
O	N	K	C	F	S
A	E	E	I	W	E
L	L	Y	L	R	R

Solution

Ans: Five objects in the puzzle that are opaque and would sink in water are:

- i. Coin
- ii. Pen

iii. Stone

iv. Eraser

v. Coal

Long Answer Questions

Question 22

Chalk, iron nail, wood, aluminium, candle, cotton usually look different from each other. Give some properties by which we can prove that these materials are different.

Solution

Ans: Properties of given materials are-

- i. Chalk- is non-lustrous, rough, and hard.
- ii. Candle- is non-lustrous, smooth, and hard.
- iii. Wood- is non-lustrous, rough, and hard.
- iv. Aluminum- is lustrous, smooth, and hard.
- v. Iron nail- is non-lustrous, smooth, and hard.
- vi. Cotton- is non-lustrous, smooth, and soft.

Question 23

Why do you think oxygen dissolved in water is important for the survival of aquatic animals and plants?

Solution

Ans: For respiration and photosynthesis, aquatic animals and plants rely on oxygen dissolved in water.

Question 24

Differentiate among opaque, translucent and transparent materials, giving one example of each.

Solution

Ans:

Opaque	Translucent	Transparent
Opaque refers to a material that prevents an object from being seen at all. E.g. - wood, marble.	Translucent is a material that allows an object to be viewed but not clearly. E.g. Butter paper, frosted glass.	Transparent is a substance that allows an object to be seen plainly through it. E.g. Clear water, glass.

Question 25

Sugar, salt, mustard oil, sand, sawdust, honey, chalk powder, petals of flower, soil, copper sulphate crystals, glucose, wheat flour are some substances given to Paheli. She wants to know whether these substances are soluble in water or not. Help her in identifying soluble and insoluble substances in water.

Solution

Ans: Soluble and insoluble substances in water-

Salt, sugar, honey glucose, copper sulphate crystals are all soluble in water.

Mustard oil, sawdust, sand, wheat flour, petals of a flower, chalk powder and soil are all insoluble in water.

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