



CHEMISTRY

BOOKS - HT Olympiad Previous Year Paper

SORTING AND SEPARATION OF MATERIALS

Multiple Choice Question

1. Which of the following statements are incorrect?

I. Larger solid particles can be separated from smaller ones by filtration.

II. Cream can be separated from milk by centrifugation

III. A mixture of mud and water can be separated by loading, sedimentation and decantation

IV. Grains can be separated from husk by threshing

A. I and II only

B. II and IV only

C. I, II and III only

D. I and IV only

Answer: D



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2. Which of the following represent characteristics of a pure substance?

I. It has a uniform texture throughout

(homogeneous).

(ii) It has a fixed boiling point or melting point.

III. It is made up of different kinds of atoms/molecules.

IV. It can be an element or a compound,

A. II and III only

B. I and III only

C. I, II and IV only

D. III and IV only

Answer: C



3. A few characteristics are listed here.

(i) Good conductors (ii) Transparent (iii)

Lustrous (iv) Solid (v) Opaque (vi) Insulators

The characteristics generally shown by metals are

- A. (i), (iii) and (v) only
- B. (i), (iii), (iv) and (v) only
- C. (ii), (iv) and (v) only
- D. (i), (iii) and (vi) only

Answer: B



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4. Substance P has rough texture, Q is nonlustrous while R floats on water. P, Q and R could be respectively

A. Copper vessel, steel spoon and wooden bowl

B. Sand paper, wooden bowl and petrol

C. Pumice stone, jute bag and wooden bowl

D. Both (B) and (C).

Answer: D



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5. Select the incorrect match.

A. The solid that settles down when a heterogeneous solid-liquid mixture is allowed to stand - Filtrate

B. A solution in which no more solute can be dissolved - Saturated solution

C. Conversion of vapours to solid directly - Deposition

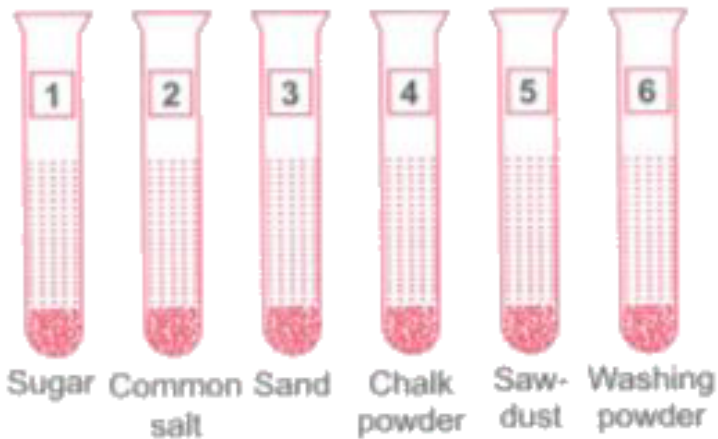
D. None of these

Answer: A



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6. Study the given experimental set-up.



Substances will completely disappear in test tubes

- A. 1, 2 and 6
- B. 2, 3 and 4
- C. 3, 4 and 5

D. 4, 5 and 6

Answer: A



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7. Three groups of materials are given below:

I: Salt, sugar, flour II: Copper, gold, silver III:

Petrol, kerosene, paper

Identify the property common to each group.

	I	II	III
(A)	Solid	Bad conductors of heat	Liquid
(B)	Edible	Non-metallic	Non- inflammable
(C)	Edible	Metallic	Inflammable
(D)	Solid	Good conductors of heat	Non- inflammable



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8. Match column with column II and select the correct option from the given codes.

	Column I		Column II
P.	Chalk-water mixture	(i)	A gaseous mixture
Q.	Glucose solution	(ii)	A solid-gas mixture
R.	Fizzy drink	(iii)	A homogeneous solid-liquid mixture
S.	Smoke	(iv)	A heterogeneous solid-liquid mixture
T.	Air	(v)	A gas-liquid mixture

A. P-(iii), Q-(iv), R-(v), S-(i), T-(ii)

B. P-(v), Q-(i), R-(iv), S-(ii), T-(i)

C. P-(i), Q-(i), R-(iv), S-(v), T-(iii)

D. P-(iv), Q-(iii), R-(v), S-(i), T-(i)

Answer: D



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9. A few statements about centrifugation method are given

I. The mixture containing very small suspended particles is rotated at a high speed in a centrifuge machine. II. The denser particles stay at the top. III. The method is used to separate water from wet clothes in a washing machine. IV. The method can be used in laboratories for separating plasma and

platelets.

The correct statements are

A. I and IV only

B. I, II and III only

C. II, III and IV only

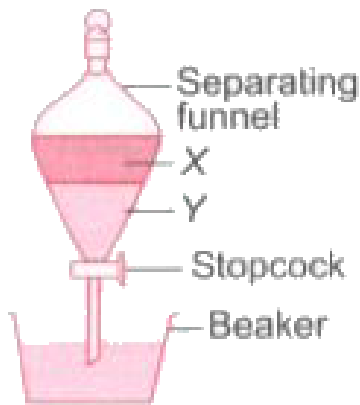
D. I, III and IV only

Answer: D



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10. Shobha took two liquids, X and Y and separated them with the help of separating funnel as shown in the figure.



Liquids X and Y could be respectively

- A. Coconut oil and water
- B. Diesel and water

C. Water and mercury

D. All of these

Answer: D



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11. Study the given table showing some daily used items which can be made from more than one material.

	Item	Wood	Plastic	Metal	Glass
(i)	Cooking pot	✓	✓	✗	✗
(ii)	Storage container	✓	✓	✓	✓
(iii)	LPG cylinder	✓	✓	✗	✓
(iv)	Tea cup	✓	✓	✓	✗

Which of these are incorrect?

- A. (i) and (iv) only
- B. (i), (ii) and (iv) only
- C. (i) and (iii) only
- D. (ii) and (iii) only

Answer: B





12. A science teacher labelled three glass slides as P Q and R. She painted slide Q with light blue colour, slide R with black colour and slide P was left as such. Then she asked students to put the slide on a white paper having (X) mark on it. Students will be able to see the mark clearly or partially

A. In slide P as it is translucent

B. In slide Q as it is translucent

C. In slide R as it is opaque

D. In all the slides as paint does not change
the nature of glass.

Answer: B



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13. Depending upon the nature of the constituents present in a mixture, Suhana, a class 6 student suggested some methods of separation as shown in the table.

	Mixtures	Methods of separation
1.	Corns and husk	Winnowing
2.	Saw dust and water	Filtration
3.	Milk and water	Separating funnel
4.	Glucose and water	Decantation
5.	Salt and water	Distillation

Which of these is/are incorrect method(s) of separation?

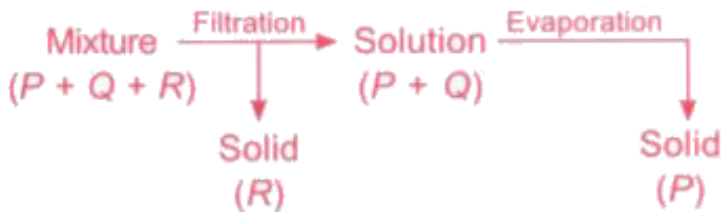
- A. 1 and 2 only
- B. 3 and 4 only
- C. 1 and 5 only
- D. 4 only

Answer: B



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14. Study the given flow chart carefully.



P, Q and R could be respectively

A. Chalk powder, water and sawdust

B. Salt, water and sugar

C. Sugar, water and sawdust

D. Sawdust, water and sugar.

Answer: A



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15. Read the given statements and select the correct option

Statement 1: Handles of cooking utensils are made up of metals like copper, aluminium etc.

Statement 2: Metals are poor conductors of heat

A. Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.

B. Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.

C. Statement 1 is true but statement 2 is false.

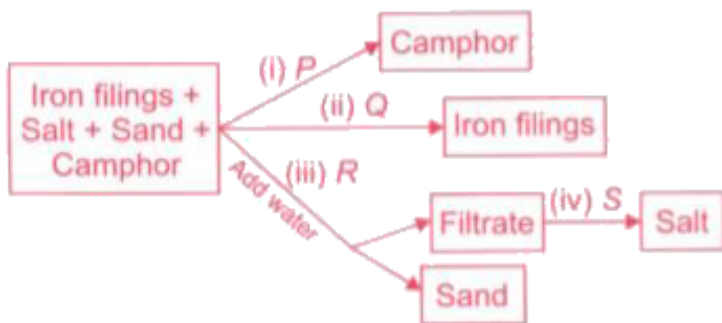
D. Both statements 1 and 2 are false.

Answer: D



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16. Study the given flow chart and identify the processes P, Q, R and S carried out in the given sequence for separation of the mixture.



- | | P | Q | R | S |
|-----|---------------------|---------------------|-------------|-------------|
| (A) | Sublimation | Magnetic separation | Filtration | Evaporation |
| (B) | Magnetic separation | Filtration | Sublimation | Evaporation |
| (C) | Evaporation | Magnetic separation | Filtration | Sublimation |
| (D) | Sublimation | Magnetic separation | Evaporation | Filtration |



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17. Properties of three solid substances X, Y and Z are given below:

X: Heavy and non-magnetic Y: Light and non-magnetic Z: Magnetic

If X, Y and Z are of same size and colour then, which of the following can be used to separate these particles from their mixture?

A. Handpicking followed by filtration

B. Magnetic separation followed by winnowing

C. Magnetic separation followed by sieving

D. Sublimation followed by distillation

Answer: B



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18. The table below shows the properties of four substances K, L, M and N.

Substance	Colour	Taste	Magnetic	Dissolves in water
K	White	Salty	No	Yes
L	Blue	Sweet	No	No
M	White	Sweet	No	Yes
N	Black	Metallic	Yes	No

Which two substances would be most difficult to separate when mixed together in water?

A. K and L

B. K and M

C. L and N

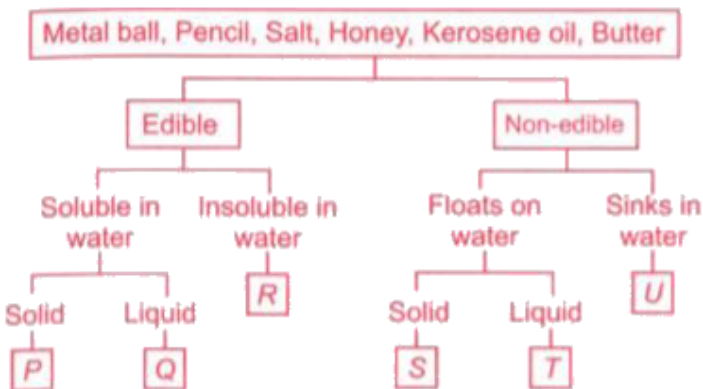
D. M and N

Answer: B



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19. The given flow chart was prepared by Natasha for sorting materials into different groups. She handed over the chart to her teacher with few blanks. Fill in the blanks from the given options.



A. P-Butter, Q-Honey, R-Salt, S-Metal ball, T-Kerosene oil, U-Pencil

B. P-Salt, Q-Honey, R-Butter, S-Pencil, T-

Kerosene oil, U-Metal ball

C. P-Salt, Q-Butter, R-Honey, S-Metal ball, T-

Pencil, U-Kerosene oil

D. P-Metal ball, Q-Honey, R-Butter, S-Salt, T-

Kerosene oil, U-Pencil

Answer: B



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20. A brief information about three substances is given here

X: Transparent, smooth to touch and insulator.

Y: Yellow in colour, good conductor of heat and electricity, lustrous. Z: Man-made material, an insulator, used to make switches and handles of cooking utensils. X, Y and Z could be respectively

A. Water, copper, aluminium

B. Glass, gold, plastic

C. Paper, aluminium, copper

D. Silver, gold, copper.

Answer: B



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