

1. SORTING MATERIALS INTO GROUPS SOLUTIONS

TEACHING TASK

JEE MAINS LEVEL QUESTIONS

Mutliple Choice Question Type :

1. Metals have shiny appearance called:

A) Smoothness B) Lustre C) Conduction D) Transparency

Answer:B

Solution:Metals have a shiny appearance, which is referred to as "lustre."

2. Substance which completely disappears in water is called as:

A) Soluble B) Insoluble C) Transparent D) Opaque

Answer:A

Solution:A substance that completely dissolves in water is called "soluble."

3. Which of the following will sink in water:

A) A dry leaf B) A bird feather C) A plastic scale D) A metal key

Answer:D

Solution:Metals are generally denser than water, so a metal key will sink, unlike lighter objects like a dry leaf, feather, or plastic scale.

4. The liquid which is soluble in water is:

A) Kerosene B) Coconut oil C) Mustard oil D) Lemon juice

Answer:D

Solution:Lemon juice is water-soluble, while kerosene, coconut oil, and mustard oil are not.

5. Identify the translucent material.

A) Glass B) Frosted glass C) Water D) Air

Answer:B

Solution:Translucent materials allow partial light to pass through, like frosted glass. Glass and water are transparent, while air is also transparent.

6. 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(coca cola)

C) Coconut oil D) Kerosene

Answer:B

Solution:Soft drinks are acidic and can react with iron, causing it to lose its shine and appear dull. Oils (mustard, coconut, kerosene) do not react this way.

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

A) Chalk powder B) Tea leaves C) Glucose D) Saw dust

Answer:C

Solution: Glucose dissolves completely in water, unlike chalk powder, tea leaves, or sawdust, which are insoluble.

8. 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 to her teacher?

A) Glass tumbler B) Mirror C) Muslin cloth D) Aluminum foil

Answer:C

Solution:Muslin cloth is translucent, allowing some light to pass through. A glass tumbler is transparent, while a mirror and aluminum foil are opaque.

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

A) Cotton B) Feather

C) Pin, oil drops D)Rubberband,coin

Answer:B

Solution:Feather floats on water

JEE ADVANCED LEVEL QUESTIONS

Multi Correct Answer Type :

10. You are provided with following materials. Which of the following materials will you identify as transparent?

A) Magnifying glass B) Mirror C) Stainless steel D) Glass tumbler

Answer:A,D

Solution:A) Magnifying glass – Allows light to pass through clearly.

D) Glass tumbler – Transparent when made of clear glass.

B) Mirror – Reflects light (opaque with a reflective coating).

C) Stainless steel – Opaque and does not allow light to pass.

11. Sejal found a bag containing the following materials, Help Sejal in finding the materials which is/are opaque

A) Mirror B) Paper stained with oil C) Magnet D) Glass spectacles

Answer:A,C

Solution: A) Mirror – Has a reflective coating, making it opaque.

C) Magnet – Solid and does not allow light to pass.

B) Paper stained with oil – Becomes translucent (not fully opaque).

D) Glass spectacles – Transparent (unless tinted).

12. Which of the following statements are 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 use.

Answer:A,B,D

Solution: A) Materials are grouped for convenience. – Easier to study and categorize.

B) Materials are grouped to study their properties. – Helps in understanding behavior and uses.

D) Materials are grouped according to their use. – Different applications require classification.

C) Materials are grouped for fun. – Incorrect, grouping has scientific and practical purposes.

Assertion And Reason Type :

13. Assertion : copper, aluminum, silver are good conductors of electricity

Reason : These are the materials that allow the easy flow of electrical charge (electricity)

Answer:A

Solution:Assertion is true because copper, aluminum, and silver are well-known conductors of electricity.

Reason is true because good conductors allow the easy movement of electrons (electrical charge).

The Reason correctly explains why these metals are good conductors.

14. Assertion : Sugar (sucrose) is soluble in water.

Reason : Soluble Materials that can dissolve in a particular solvent.

Answer:A

Solution:Assertion is true because sugar dissolves completely in water.

Reason is true because solubility refers to a substance's ability to dissolve in a solvent (like water).

The Reason correctly explains why sugar is soluble in water.

Comprehension Type :

15. Which of the following materials that can undergo combustion?

A) Wood B) Paper C) Petro D) All the above

Answer:D

Solution:Wood, paper, and petrol are all combustible materials that burn in the presence of oxygen, releasing heat and light.

16. Materials that do not easily catch fire or burn under normal conditions are called

A) Combustible materials B) Non-Combustible materials

C) Semi Combustible materials D) All the above

Answer:B

Solution:.. Materials that do not easily catch fire or burn under normal conditions are called Non-Combustible materials

Examples include glass, metals (like iron), and stone, which do not burn easily under normal conditions.

Matrix Matching Type :

17. **Answer:A-3,B-1,C-4,D-2**

Solution:

Column-I

Column-II

A) Rubber

3) Electric Insulator

B) Paper

1) Combustible substance

C) Metals

4) Sinking material

D) Water

2) Tranparent material

Integer Type :

18. Wood, Metal, Brick, Cardboard, Frosted glass, Wax paper - out of them how many are Translucent Materials ?

Answer:2

Solution:Translucent materials allow partial light to pass but not clear images.

Frosted glass (translucent)

Wax paper (translucent)

Others are opaque: Wood, Metal, Brick, Cardboard.

19. Based on electrical conductivity materials are classified into how many types?

Answer:3

Solution:1. Conductors (Allow electricity to flow easily, e.g., metals like copper).

2. Insulators (Do not allow electricity to flow, e.g., rubber, wood).

3.Semiconductors :Materials with intermediate conductivity, between conductors and insulators

20. rocks, minerals, Glass, Cork, Styrofoam - out of them how many can float on water ?

Answer:2

Solution:Float:Cork (less dense than water),Styrofoam (lightweight, air-trapped structure).

Sink:Rocks, Minerals, Glass (denser than water).

LEARNERS TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CQU'S)**Mutliple Choice Question Type :**

1. Which of the following materials is hard?

A) Cotton B) Paper C) Sponge D) Table

Answer:D

Solution:Tables are typically made of hard materials like wood or metal.

Cotton, paper, and sponge are soft materials.

2. Which of the following will float on water?

A) Iron B) Ice C) Stone D) Book

Answer:B

Solution:Ice is less dense than water, so it floats.

Iron, stone, and books (if not hollow) usually sink.

3. An object can be made of different ____.

A) Materials B) Shape C) Size D) All of the above

Answer:D

Solution:Objects can vary in materials, shape, and size.

4. Which of the following is a miscible liquid?

A) Ink B) Petrol C) Oil D) Milk

Answer:A

Solution:Miscible liquids mix completely (e.g., ink in water).

Petrol, oil, and milk are immiscible or partially miscible

5. Heavy substances ____ in water.

A) Sink B) Float C) Sometimes sink and sometimes float D) First float, then sink

Answer:A

Solution:Dense/heavy materials (like metals) sink in water.

6. The liquids that dissolve in one another are called ____.

A) Immiscible B) Miscible C) Insoluble D) None

Answer:B

Solution: The liquids that dissolve in one another are called Miscible

Example: Alcohol and water.

Immiscible = Do not mix (e.g., oil & water).

7. The property of materials to be compressed easily is ____.

A) Softness B) Hardness C) Lustre D) All the above

Answer:A

Solution:Soft materials (like sponge) can be compressed easily.

Hardness = Resistance to compression.

8. The materials which allow light to pass through them completely are called —.

A) Transparent B) Translucent C) Opaque D) Lustrous

Answer:A

Solution: The materials which allow light to pass through them completely are called Transparent

Examples: Glass, water.

Translucent = Partial light, Opaque = No light.

9. The substances that allow light to pass through them partially are called ____.

A) Transparent B) Translucent C) Opaque D) Lustrous

Answer:B

Solution: The substances that allow light to pass through them partially are called Translucent

Examples: Frosted glass, wax paper.

10. Which of the following materials is transparent?

A) Stainless steel plate B) Glass tumbler C) Mirror D) Plastic bottle

Answer:B

Solution:Glass is transparent (clear visibility).

Mirror (opaque + reflective), plastic bottle (often translucent), steel (opaque).

JEE MAINS LEVEL QUESTIONS**Mutliple Choice Question Type :**

11. Which of the following materials is translucent?

A) Stained glass B) Mirror C) Wall D) Cloth

Answer:A

Solution:Translucent materials allow partial light to pass (e.g., stained glass, frosted glass).

Mirror (opaque + reflective), wall (opaque), and cloth (opaque) do not allow light transmission.

12. Which of the following materials do not have lustre?

A) Iron B) Gold C) Plastic D) Clothes

Answer:C,D

Solution:Lustre refers to a shiny appearance. Metals like gold and iron generally possess a lustrous quality. However, plastics and clothes typically lack this shine and are considered non-lustrous.

13. Which of the following statements is incorrect?

- A) Some materials appear shiny, while others appear dull.
- B) Some materials are rough, while others are smooth.
- C) Certain materials are hard, while others are soft.
- D) Some stones are transparent, while some glasses are opaque.

Answer:D

Solution:Stones are generally opaque (very few exceptions like gemstones).

14. All gases in the air are ____ conductors of heat.

- A) Good B) Bad C) Both A and B D) Sometimes good, sometimes bad

Answer:B

Solution:Gases (like nitrogen, oxygen) are poor conductors of heat due to low molecular density.

15. Choose the odd one out of the given options below.

- A) Gold B) Silver C) Diamond D) Plastic

Answer:D

Solution:Gold, silver, and diamond are natural, lustrous materials.

Plastic is synthetic and non-lustrous (unless polished).

16. Purpose of sorting materials into groups is

- A) to study their properties B) convenienceC) both A and B D) Mud

Answer:C

Solution:Sorting helps in studying properties (A) and provides convenience (B) in identification/usage.

17. Which one of the following liquids is immiscible with water?

- A) Vinegar B) Glycerine C) Lemon juice D) Kerosene

Answer:D

Solution:Immiscible liquids do not mix with water (e.g., kerosene, oil).

Vinegar, glycerine, and lemon juice are water-soluble (miscible).

18. Which one of the following liquids is immiscible with water?

- A) Vinegar B) Glycerine C) Lemon juice D) Kerosene

Answer:D

19. Which one of the following liquids is immiscible with water?

- A) Vinegar B) Glycerine C) Lemon juice D) Kerosene

Answer:D

20. We see a number of things lying around us. For example. pen, paper, chair, cooking utensils, water, fruits etc. Choose the option which is not related to them.

- A) They have varying shapes and sizes.
- B) They are made of different substances.
- C) Some are man-made while some are naturally formed.
- D) All are made up of plastics.

Answer:D

Solution:D) All are made up of plastics

Incorrect: Many items (e.g., fruits, water, metals) are not plastic.

Other options correctly describe material diversity.

JEE ADVANCED LEVEL QUESTIONS

Multi correct answer type :

1. Which among these is not soluble in water:

A) Metal B) Lemon juice C) Wood D) Plastic

Answer:A,C,D

Solution:A) Metal: Metals are insoluble in water (though some may react chemically, they don't dissolve).

C) Wood: Wood is an organic material that doesn't dissolve in water (though it may absorb water).

D) Plastic: Most plastics are hydrophobic and insoluble in water.

Incorrect Option:

B) Lemon juice: This is water-soluble (it mixes uniformly with water).

2. Freshly cut surface of _____ doesnot shine.

A) Cotton B) jute C) iron D) wood

Answer:A,B,D

Solution:A) Cotton & B) Jute: These are natural fibers with rough, non-reflective surfaces that don't shine when cut.

D) Wood: Freshly cut wood appears rough and matte (no shine unless polished).

Incorrect Option:

C) Iron: A freshly cut iron surface is lustrous (shiny) due to its metallic nature.

Assertion and Reason Type :

3. Assertion : Materials which can be compressed or scratched easily are called soft.

Reason : The material which can difficult to compress are called hard.

Answer:A

Solution:Assertion is true because soft materials (like cotton, sponge) can be easily compressed or scratched.

Reason is true because hard materials (like iron, stone) resist compression and scratching.

The Reason correctly explains the Assertion by defining hardness as the opposite property of softness

4. Assertion : The materials through which objects can be seen but not clearly are known as materials translucent.

Reason : The oily patch on paper are the translucent.

Answer:B

Solution:Assertion is true because translucent materials (e.g., frosted glass, wax paper) allow partial light transmission, blurring objects.

Reason is true because an oily patch on paper does act as a translucent medium.

However, the Reason merely provides an example rather than explaining the Assertion's definition.

Comprehension Type:

5. Materials that will not allow the flow of heat is called

- A) Thermal Conductors B) Electrical Insulators
C) Electrical Conductors D) Thermal Insulators

Answer:D

Solution:Thermal insulators resist heat flow.

6. Which is the correct example of Thermal Conductors?

- A) Copper B) Silver C) aluminum D) All the above

Answer:D

Solution:Copper, silver, and aluminum are excellent thermal conductors due to free electrons that transfer heat efficiently.

Matrix Matching Type:

7. **Answer:A-2,B-1,C-4,D-3**

Solution:

Column-I

- A) float on the surface of a fluid
B) form a homogeneous solution
C) easy flow of heat
D) do not allow any light to pass through

Column-II

- 2) Buoyant Materials
1) Miscible Liquids
4) Thermal Conductors
3) Opaque Materials

KEY

TEACHING TASK									
1	2	3	4	5	6	7	8	9	10
B	A	D	D	B	B	C	C	B	A,D
11	12	13	14	15	16	17	18	19	20
A,C	A,B,D	A	A	D	B	3,1,4,2	2	2	2
LEARNERS TASK									
1	2	3	4	5	6	7	8	9	10
D	B	D	A	A	B	A	A	B	B
11	12	13	14	15	16	17	18	19	20
A	C,D	D	B	D	C	D	D	D	D
JEE ADVANCED LEVEL QUESTIONS									
1	2	3	4	5	6	7			
A,C,D	A,B,D	A	B	D	D	A-2,B-1,C-4,D-3			