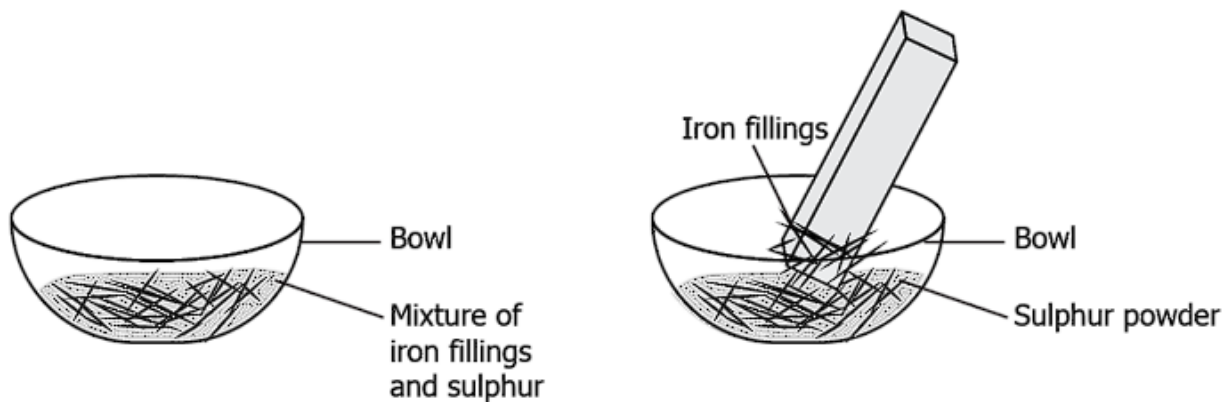


Section 1

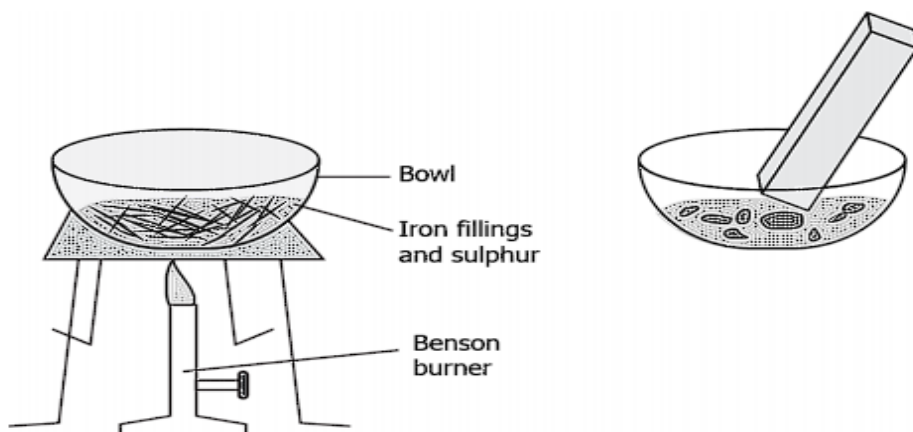
1) Which of the following can be classified as a mixture?

- (a) a clear white salt solution
- (b) a rusted iron nail
- (c) a piece of paper cut into different shapes
- (d) a bowl of water with floating ice cubes

2) During an activity, a student added 10 g iron filings and 10 g sulphur powder in a bowl. He brought a magnet over the bowl and noticed that iron filings were picked up by the magnet.



He put sulphur and iron filings back into the bowl and put it on heat. After some time he brought the magnet over it again. This time, the iron filings were not attracted to the magnet.



Which can be inferred from the activity?

- (a) The contents in the bowl before heating can be classified as a mixture because they appear different.
- (b) The contents in the bowl before heating can be classified as a mixture because they could be separated.
- (c) The contents in the bowl after heating can be classified as a mixture because they were not affected by the magnet.
- (d) The contents in the bowl after heating can be classified as a mixture because their properties changed after heating.

3) A student is asked to make a homogeneous mixture. He is provided with the following substances.

- | |
|---------------------|
| A. Water |
| B. Soil |
| C. Milk |
| D. Chocolate powder |
| E. Salt |

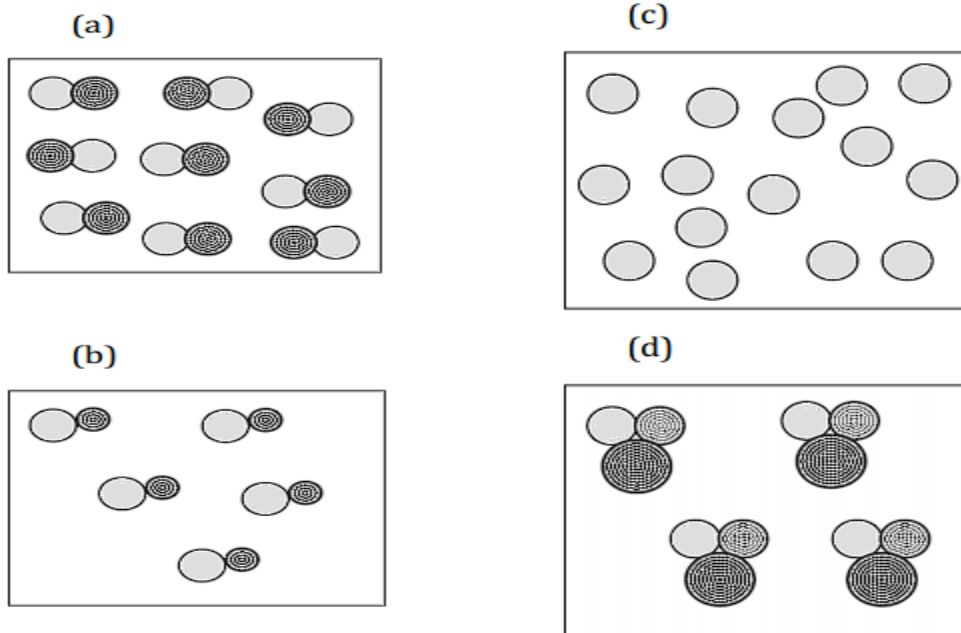
Which two substances should the student mix to form a homogeneous mixture?

- (a) A and B
- (b) C and D
- (c) B and E
- (d) A and E

4) A student crushed a piece of chalk and mixed the chalk powder in 100 mL water. The water appeared white and cloudy. After some time the particles settled at the bottom of the container. She claims that the mixture is a suspension. What justifies her claim?

- (a) The particles mix completely with water.
- (b) The particles of chalk form a separate layer.
- (c) The particles of chalk are visible through the naked eye.
- (d) The particles of chalk are uniformly distributed in water.

5) A student made models using gumballs. Which model would represent an element?



6) Which separation technique can be used to separate salt from camphor?

- (a) sublimation
- (b) filtration
- (c) magnetic separation
- (d) centrifugation

7) Which mixture correctly aligns with their method of separation?

- (a) oil and water filtration
- (b) cream from milk distillation
- (c) salt and water evaporation
- (d) salt and sand centrifugation

8) A student studies that cream is obtained from milk. He also understands that cream is solid, and milk is liquid. Moreover, particles of cream are very small allowing them to pass through a filter paper. Which process should he adopt to separate the cream from the milk?

- (a) filtration, as milk is liquid and hence it can easily be filtered out
- (b) filtration, as the cream is solid and hence it can easily be filtered out
- (c) centrifugation, as cream and milk have a difference in their chemical formula
- (d) centrifugation, as particles of cream and milk have a difference in their density

9) Aayush puts his wet clothes under the sun and observes that his clothes get warm and dries after some time. Which process helped him in this process?

- (a) evaporation as water changes from liquid to solid
- (b) evaporation as water changes from liquid to vapor
- (c) crystallization as water changes from liquid to solid
- (d) crystallization as water changes from liquid to vapor

10) Which option describes the process of crystallization?

- (a) It involves the formation of crystals after solute evaporates.
- (b) It involves the formation of crystals after the solvent evaporates.
- (c) It involves the decomposition of crystals after solute evaporates.
- (d) It involves the decomposition of crystals after the solvent evaporates.

11) Daisy wants to separate the coloured components of a dye as a part of a lab experiment. The dye contains water and coloured components. Which process should she perform?

- (a) Evaporation as water changes from liquid to vapor.
- (b) Crystallization as water changes from vapour to solid.
- (c) Distillation as it separates substance based on boiling point.
- (d) Chromatography as it separates the solutes that dissolve in the same solvent.

12) Himanshu wants to separate two photosynthetic pigments P and Q from the plant extract. He uses paper chromatography for the separation of these pigments and observes pigment P is separated first. What can be a likely reason for the same?

- (a) Pigment P has the low density.
- (b) Pigment Q has the high density.
- (c) Pigment P is more soluble in water and rises faster.
- (d) Pigment Q is more soluble in water and rises slower.

13) Which method can be used to separate two liquids (different boiling point) from their mixture?

- (a) Distillation, as it separates liquid based on boiling point.
- (b) Evaporation, as it separates liquid based on melting point.
- (c) Chromatography as it separates components that have low melting point.
- (d) Centrifugation as it separates components that have higher boiling point.

14) A researcher uses fractional distillation to separate the components of crude oil. Why she chose this method?

- (a) crude oil has components that have very less difference in their mass
- (b) crude oil has components that have very less difference in their density
- (c) crude oil has components that have very less difference in their boiling points
- (d) crude oil has components that have very less difference in their melting points

15) How distillation differs from fractional distillation, even though both have evaporation & condensation?

- (a) a distillation setup has a heating source
- (b) a fractional distillation setup has a water condenser
- (c) a distillation setup does not have a fractional column
- (d) a fractional distillation setup does not have a distillation flask

16) A student wants to separate gases from air. The student asked his teacher, the teacher suggested to use fractional distillation to separate gases from air. How the fractional distillation is suitable to separate gases from air?

- (a) it arranges the gases in the column depending on their density
- (b) it arranges the gases in the column depending on their boiling point
- (c) it arranges the gases in the column depending on their freezing point
- (d) it arranges the gases in the column depending on their temperature

17) A person has two objects X and Y. The student hit the objects X and Y. The object X makes the ringing sound, but Y does not make the ringing sound. What are X and Y?

- (a) X: iron; Y: coal
- (b) X: copper; Y: iron
- (c) X: coal; Y: coke
- (d) X: iron; Y: copper

18) A student listed some items in a table as shown.

1. iron block
2. oxygen
3. chlorine
4. gold
5. silicon
6. germanium

Which option classifies the given items as metal, non-metal, and metalloids?

(a)

Metals	Non-Metals	Metalloids
iron block	chlorine	silicon
oxygen	gold	germanium

(b)

Metals	Non-Metals	Metalloids
iron block	oxygen	chlorine
silicon	gold	germanium

(c)

Metals	Non-Metals	Metalloids
iron block	oxygen	silicon
gold	chlorine	germanium

(d)

Metals	Non-Metals	Metalloids
iron block	silicon	oxygen
gold	germanium	chlorine

19) A student listed some items as shown

- | |
|--|
| <ol style="list-style-type: none">1. methane2. silicon3. acetic acid4. hydrogen |
|--|

Which substances cannot be broken into simpler substances?

- (a) methane and silicon
- (b) silicon and hydrogen
- (c) acetic acid and hydrogen
- (d) methane and acetic acid

20) The table lists a few properties of substances:

- | |
|--|
| <ol style="list-style-type: none">1. Density2. Colour3. Lustre |
|--|

To apply the process of centrifugation in a mixture, which property of the substances should vary?

- (a) only colour
- (b) only density
- (c) both luster and colour
- (d) both colour and density

21) To apply the process of centrifugation in a mixture, which property of the substances should vary?

- (a) only colour
- (b) only density
- (c) both luster and colour
- (d) both colour and density

22) Name the mixture whose particles are large enough to scatter light

- (a) Colloid
- (b) Pure Solution
- (c) Homogenous Solutions
- (d) All of the above

23) An example of a liquid metal and a liquid non-metal is

- (a) gallium, mercury
- (b) mercury, chlorine
- (c) mercury, bromine
- (d) bromine, sulphur

24) Which of the following property does not describe a compound?

- (a) It is composed of two or more elements
- (b) It is a pure substance.
- (c) It cannot be separated into constituents by physical means
- (d) It is mixed in any proportion by mass

25) The formation of water from oxygen and hydrogen is a

- (a) Physical change
- (b) Chemical change
- (c) Reversible change
- (d) Both Physical and Reversible change

26) The components of a solution are:

- (a) Dispersed particles and solvent
- (b) Solute and solvent
- (c) Dispersed phase and dispersion medium
- (d) Solute and dispersed medium

27) Which of the following substances will not dissolve in water?

- (a) Sugar
- (b) Sodium chloride
- (c) Copper sulphate
- (d) Carbon

28) Tincture of iodine has antiseptic properties. This solution is made by dissolving

- (a) iodine in potassium iodide
- (b) iodine in vaseline
- (c) iodine in water
- (d) iodine in alcohol

29) In a water-sugar solution

- (a) water is solute and sugar is solvent
- (b) water is solvent and sugar is solute
- (c) water is solute and water is also solvent
- (d) none of these

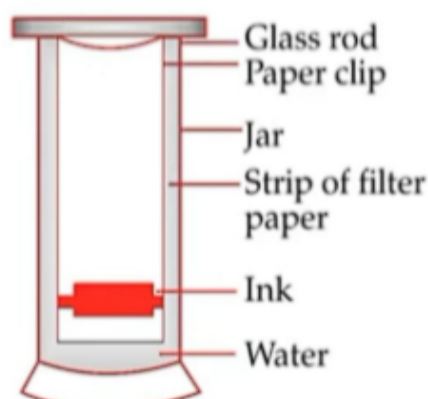
30) Which of the following are physical changes?

- (i) Melting of iron metal
 - (ii) Rusting of iron
 - (iii) Bending of an iron rod
 - (iv) Drawing a wire of iron metal
- (a) (i), (ii) and (iii)
(b) (i), (ii) and (iv)
(c) (i), (iii) and (iv)
(d) (ii), (iii) and (iv)

Section 2

Read the following and answer question no.1 to 5

A child wanted to separate the mixture of dyes constituting a sample of ink. He marked a line by the ink on the filter paper and placed the filter paper in a glass containing water as shown in figure. The filter paper was removed when the water moved near the top of the filter paper.



1) Identify the technique used by the child..

- (a) Sedimentation
- (b) Filtration
- (c) Chromatography
- (d) Distillation

2) What would you expect to see, if the ink contains three different coloured components ?

- (a) We will not see any band on the filter paper.
- (b) We would see three bands on the filter paper at various lengths.
- (c) We would see infinite bands on the filter paper.
- (d) We would see single band on the filter paper.

3) Give one application where you can use this technique.

- (a) To separate salt from sand
- (b) To separate wheat from husk
- (c) To separate oil from water
- (d) To separate drugs from blood.

4) For the separation of what kind of substances is the above process used

- (a) For the separation of insoluble substances
- (b) For the separation of single solute that dissolves in single solvent.
- (c) For the separation of those solutes that dissolve in the same solvent.
- (d) For the separation of those solutes that dissolve in the different solvents.

5) What is chromatography?

- (a) It is an agricultural method to separate grains
- (b) A method to separate magnetic impurities from non-magnetic impurities
- (c) The process of separating the suspended particles of an insoluble substance
- (d) Method of separating and identifying various components in a mixture, which are present in small trace quantities.

Section 3

Directions: In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

- (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
- (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
- (c) Assertion (A) is true but reason (R) is false.
- (d) Assertion (A) is false but reason (R) is true.

Q1. Assertion : When a beam of light is passed through a colloidal solution placed in a dark place the path of the beam becomes visible.

Reason : Light gets scattered by the colloidal particles.

Q2. Assertion : A mixture of acetone and methanol can be separated by fractional distillation.

Reason : The difference between their boiling points is very less

Q.3. Assertion : A solution of table salt in a glass of water is homogeneous.

Reason : A solution having different composition throughout is homogeneous.

Q4. Assertion : In sublimation, a substance changes directly from solid to vapour without passing through liquid state and vice-versa.

Reason : Distillation involves two processes i.e., vaporisation and condensation.