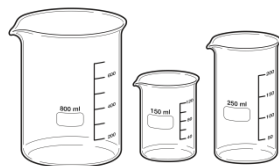
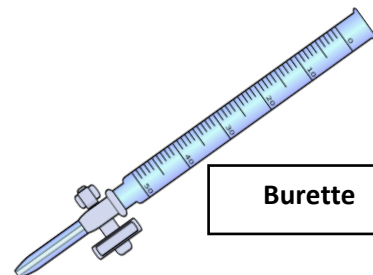


1. (2 mks)



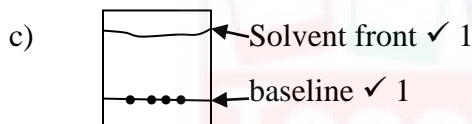
Beaker



Burette

1. i) Sublimation ✓ 1
- ii) Separating funnel ✓ 1
- iii) Solvent extraction. ✓ 1
- iv) Simple distillation method. ✓ 1

2. a) Have different solubilities ✓ 1
- b) B ✓ 1



3. a) Impure ✓<sup>1</sup>/<sub>2</sub>; does not have sharp/constant ✓<sup>1</sup>/<sub>2</sub> m.p. and b.p.
- b) AB – Solid ✓ 1
- CD – Liquid ✓ 1

4. i) Their molecules/particles are very compact together – no spaces for expansion or compression. ✓ 1
- ii) Molecules / particles ✓<sup>1</sup>/<sub>2</sub> very wide apart – have large ✓<sup>1</sup>/<sub>2</sub> spaces for compression.

5. Type – Chemical ✓ 1

Explanation – Combines with oxygen ✓ 1 to form new substance Magnesium Oxide//

- Large amount of energy evolved ✓ 1

6. i) Y

ii) V @ ✓1

iii) W

7. i) Pb @ ✓1

ii) Fe NB: Penalize joining; F or small p

iii) S

8. Mixture ✓1; its constituents ✓1 can be separated by physical means.

9.

Zinc Oxide / ZnO @ ✓1

water / H<sub>2</sub>O

magnesium oxide

sodium carbonate

10. a) i) Smallest indivisible particle of an element that that do not exist on its own but can take part in a chemical reaction. ✓1

ii) Smallest particle of an element, that can exist on its own and can take part in a chemical reaction. ✓1

b) i) Sodium, Sulphur and Oxygen // Na, S, O @ ✓½

ii) Potassium, Hydrogen, Carbon and Oxygen // K, H, C, O @ ✓½

11. a) i) X – Chimney

Y – Base @ ✓1

Z – Collar

ii) Luminous flame ✓1

iii) Thin outer blue ✓ ½

Large luminous middle ✓ ½

Inner colourless ✓ ½

iv) .

Luminous	Non-luminous flame
<ul style="list-style-type: none"> <li>- Produces light / bright</li> <li>- Large wavy</li> <li>- Quiet</li> <li>- Produces soot</li> <li>- Less hot</li> </ul>	<ul style="list-style-type: none"> <li>- No light produced / dull</li> <li>- Short steady</li> <li>- Roaring : NB: any 2 matches</li> <li>- No soot produced</li> <li>- Fairly / very hot</li> </ul>

b) i) Non-luminous

ii) P – blue region, Q – Pale green / blue region, R – Colourless region

iii) When air hole is fully open.

c) - Very hot / fairly hot

- Steady

- Roaring Any 2 @ ✓ 1

- Dull

d) Spirit lamp, charcoal jiko, candle, kerosene stove, portable burner.

Any 2 @ ✓ ½

12. a) Fractional distillation ✓ 1

b)  // NB: Water in lower than water out.

c) L – Liebig condenser / Condenser ✓ 1

M – Fractionating column ✓ 1

d) Have different ✓ ½ boiling points which are close ✓ ½ to each other

e) Condense the vapour ✓ 1 back to liquids

f) No heating of the mixture ✓ 1

g) In oil refinery ✓ 1

Separation of components of air (from ✓ 1 liquid air)

13. a) Hydrated Iron( III) Oxide ✓ 1

b) i) Tube I – Little rusting noted; Tube II – ✓ 1 no rusting noted

ii) Little air dissolved in cold water make ✓ 1 a bit of rusting to occur in Tube I

In tube III, anhydrous Calcium Chloride ✓ 1 absorbs all water and no rusting occurs

iii) Oiling, greasing, painting, galvanizing, sacrificial / protection, alloying.

Any 2 correct @ ✓ 1

iv) Acidic conditions

Presence of salt ions 2 @ ✓ 1

Higher temperatures

14. K) Gal bladder

L) Duodenum

M) Pancrease

(3mks)

15. a) Movement of molecule/ions/atoms (acc substances) from a region of high concentration to a region of low concentration; (2mks)

b) **Diffusion gradient** (2mk)

The higher the diffusion gradient the faster the higher the rate of diffusion; (Acc the converse