MARKING SCHEME
CHEMISTRY F2, 2017

1.
   a) Zinc
   b) Copper (II) oxide
   c) Copper (II) oxide
   d) Zinc
   e) Addition of oxygen to a substance
   f) Removal of oxygen from a substance

2.
   - It turns white anhydrous copper (II) sulphate to blue
   - It turns blue cobalt chloride paper pink

3.
   - To add calcium as a mineral in the soil
   - To neutralize the acidity in the soil (6.5)

4.
   - Glass can be heated while plastic cannot
   - Glass apparatus allows one to make observation when doing an experiment ie they are visible from the side
   -

5.
   - Mix sand and salt with water
   - Filter the sand using a sieve and get sand as a residue
   - Evaporate the filtrate to dryness to obtain crystals of salt

6.
   a)
   - It is a weak acid

   b)
   - F

   c)
   Q

7.
a)
   - Iodine

b)
   - Sublimation

c)
   - To condense the hot iodine vapour

d)
   - Because iodine can sublime while sodium chloride cannot
   -

e)
   - Tripod stand

8.

a)

- Sodium chloride

b)

- Carbon (IV) oxide

c)

- Sodium carbonate + hydrochloric acid $\longrightarrow$ sodium chloride + carbon (iv) oxide + water

9.

a) – **Flame I ,**

- Non-luminous flame; used less time to boil;
- **Flame II,**
- Luminous flame; used more time to boil;

b)

- The beaker in flame II was black at the bottom; because of soot produced by the flame when the air hole is closed carbon burns in limited supply of oxygen

10.

- Distilled water boiled first; this because sea water has dissolved salts that act as impurities hence raising the boiling point;
-

11.

a)

i. Water vapour
ii. Liquid air
iii. Oxygen

b)

- Concentrated sodium hydroxide
- Concentrated potassium hydroxide

c)

- Silica gel

d)

i. Purification
ii. Fractional distillation

e)

- Separation of the contents of crude oil

f)

- They have different but close boiling points

12.

a)

- Burning hydrogen in presence of oxygen in air is explosive

b)

- The black copper (II) oxide changed to brown
- The white anhydrous copper (II) sulphate turned blue

c)

- To absorb the water vapour produced in the combustion tube;

d)

- Reducing property;

13.

- In Mombasa county the environment is salty compared to Kisumu county; the salty environment speeds up the rate of rusting; in Kisumu the rusting process is not speeded by salty environment hence it is slow;

14.

- The bee sting injects acid to the affected part; ammonia is a base which neutralize the acidity which relieves off the pain;

15.

- Cut the tradescantia leaves and place them in a mortar;
- Using a pestle crush the leaves to produce the juice;
- Add propanone as you continue crushing;
- Decant the extract in a beaker;

16.

a)

- Calcium + water $\longrightarrow$ calcium hydroxide + hydrogen gas

b)

- The burning splint burns with a pop sound

c)

- Hydrogen gas is produced which burns with a pop sound in air

d)

- The solution turned pink; solution formed ie calcium hydroxide is an alkaline;

e)

- 11, 12, 13, 14; the solution is an alkaline;

17.

a) A- Upward delivery/ downward displacement of air;

B – Downward delivery/ upward displacement of air;

b) A- They are less dense than air/ they are lighter than air;

B – They are denser than air;

18. Initial volume of air = 200 cm^3

Final volume of air = 160 cm^3

Volume of air used= 40 cm^3;

Percentage volume of air = $\frac{\text{volume of air used}}{\text{Initial volume}} \times 100$;

$= \frac{40}{200} \times 100 = 20\%$

$= 20\%$;

a)

- Carbon (IV) oxide;
- Nitrogen;

19.

- Hydrochloric acid;
- Nitric acid;

- Sulphuric acid;

20.

a)

- Galvanization;

b)

- Zinc is more reactive than iron and hence reacts with oxygen;