

ANSWERS

FORM 2 2<sup>ND</sup> TERM 2

Q1. Connect the burner to the gas tap and close the air hole. (3 m)

- Turn the gas fully
- Light the burner
- Now move/turn the collar to fully open the air-hole to obtain the non-luminous flame.  
NB penalize when the procedure is wrong from the very start!

b) Invisible /not clearly seen and thus can easily cause fire. (1m)

Q2. a) Temporary/physical. (1 m)

b) permanent/chemical. (1 m)

Q3. i) Fractional distillation. (1 m)

ii) By use of a separating funnel

Nb the candidate must describe the procedure to score the 2 marks, failure penalize. (2 m)

4. A solution of sodium hydroxide neutralize the effects of methiodic acid in the sting that cause irritation. (2 mks)

Q5. i) hydrogen gas (1 m)

ii) the PH of the solution is between 7-9.

- Calcium metal reacts slowly with cold water thus forms a weak solution. (1 m)

iii) for testing the presence of  $\text{CO}_2$  in a sample

- For chemical (qualitative) analysis, 1 point. (1 m)

6) a)  $\text{MgO}$  (1/2 m)

b)  $\text{Cl}_2\text{O}_7$ (1/2 m)

Q7. boiled water excluded(s)  $\text{O}_2$  from water

- the anhydrous  $\text{CaCl}_2$  absorbed moisture from the air getting to the nails.(1 m)

b) Al forms a protective oxide(layer)

-Al is more reactive than iron thus cover it (sacrificial or cathodic protection)

Q8. grey bead of lead form.(1 m)

Q9. a) the complete set up must

-show inlet for the delivery fuse as it release gas to gas jar

-have a well labeled beehive stand

-method of gas collection strictly upward delivery

There must be a suitable drying agent.(3 mks)

Penalize accordingly

b)  $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{l})$ .(1 mk)

Q10. a) Graphite contains localized electrons that are responsible for conducting electric current through.(1 ½ mk)

b) Molten lead(ii) chloride contains free mobile ions

Q11.  $\text{C}(\text{s}) + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g})$ .(1 mk)

ii)  $2\text{CO}(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{CO}_2(\text{g})$ .(1 m)

b) i) Carbon (ii) oxide.(1 m)

ii) Odorless and colorless thus cannot be felt or seen.(2 m)

Q12. a) i) Calcium carbonate

ii) Extinguishing flames

- Fizzy drinks
- refrigeration

Q13. a) B and E (1 m) each=2

b) H.(1 m)

c) D has a smaller atomic radius than K because of its stronger nuclear charge.(2 mks)

d) J has more delocalised electrons than K and therefore conducts electronic current better(more) than K does.(2 m)

e) J,K, and D any Z elements and award (1 m each)

f) B and E a valency of 3

K and D a valency of 1

I and J a valency of 2

Any 2,2mks

Total 2 mks.

g) D group-1 1 mk

period 4

G group 7 1 mk

Period 2

h) a) E

b) K and D

Q14. a) A substance formed when part or all of an acid is replaced by a metal or ammonium radical.(1 m)

b) Put 50cm<sup>3</sup> of solutions of dilute hydrochloric in a burette.

-titrate it into a chemical flask containing sodium hydroxide

-run the acid drop wise until the pink colour in the conical flask disappears

- evaporation the solution formed crystals of sodium chloride.(3 m)

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c) seasoning of food(food adding)

-as fertilizers

-making fire works

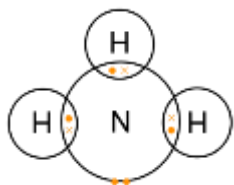
-road making or surfacing

-in hospitals in people with fractures.(2 m)

Q15. i) deliquescent.(1 m)

ii) efflorescence.(1 mk)

16.



17. a) Graphite has delocalized electrons

b) Due to strong covarent packed giant covalent(atomic) structure.(1 m)

Q18. a) A group of atoms that reacts as a unit.(1m)

b) i)  $(\text{NH}_4)_2\text{SO}_4$ (1m)

ii)  $\text{Ca}_3(\text{PO}_4)_2$ .(1m)

Q19. a) Diamond

b) making jewellery

-drilling equipment

Q20. because of the strong hydrogen bonding in ethanol compared with the weak van der waals force in dimethyl ether.(2mk)

Q21. a) the atomic radii decrease across the period.(1m)

This is due to the stronger nuclear charge in silicon that attract electrons to the nucleus comared with sodium.(2 m)

b) due to strong nuclear charge in silicon that pulls electron to the nucleus thus resisting removal of electrons.(2m)

Q22. i) q, r or s.(2m)

ii)w(1m)

iii) D<sub>2</sub>O<sub>3</sub>.(1m)

iv) the candidate to indicate any element on the grid in group(viii).(1m)

v) Assign the element on the shaded grid.(1m)

vi) d has a bigger atomic radius than r,r has a stronger nuclear charge than d.(2m)

vii)  $\frac{75 \times 12}{100} \times \frac{25 \times 14}{100} = 9 + 3.5$   
 $\frac{100}{100} = 12.5$

Q23. it is inert not reactive and thus wont damage the filament.

Q24. a) magnesium, sodium,potassium

b)  $2F(s) + H_2O(g) \rightarrow F_2O(aq) + H_2(g)$

or  $F(s) + 2H_2O(g) \rightarrow 2FOH(aq) + H_2(g)$ .(1 mk)

c alkali earth metal(1 mk)

d) metal f or metal H(1 mk)