- garden tools

- Uses of ammonia
  - manufacture of fertilisers/nylon/nitric acid/cleaning agent/oven cleaner/hair dye/urea/refrigeration/explosives

- Uses of sodium hydroxide
  - drain cleaner/oven cleaner/extraction of aluminium/purification of bauxite/manufacture of biodiesel/paper/soap/washing powder/textiles/dyes (1)

- Uses of chlorine
  - treating drinking water/treating water in swimming pools/kills bacteria in water/chlorination of water/manufacture of paper products/plastics/PVC/dyes/textiles/medicines/antiseptics/ insecticides/herbicides/fungicides/solvents/paints/disinfectant/bleach/hydrochloric acid

- Uses of hydrogen
  - fuel/rocket fuel/fuel cells/in welding/manufacture of ammonia/NH3/margarine/methanol/ hydrochloric acid/refrigerants

- State two uses of graphite that depend on the properties below (2)
  - ***good conductor of electricity:*** - electrodes or brushes in electric motors (1)
  - ***is soft:*** **-** pencils or lubricants (or polishes) (1)

- Explain the uses of aluminium limited to food containers and the manufacture of aircraft (2)
  - ***manufacture of aircraft:*** because of its strength and low density
  - ***food containers:*** because of its resistance to corrosion

- Uses of zinc
  - making brass/alloys
  - galvanising
  - sacrificial protection
  - batteries
  - roofing

- Uses of copper
  - electrical wiring
  - cooking utensils

- Uses of calcium carbonate (2)
  - manufacture of cement
  - manufacture of iron
  - neutralising acidic soils/rivers/streams/lakes

Uses of calcium oxide and slaked lime (2)
  - treating acidic soils
  - neutralising acidic industrial wastes
  - flue gas desulfurization

- Name the uses of the following fractions (4)
  - refinery gas: => bottled gas for heating and cooking
  - gasoline/petrol: => fuel/petrol for cars

- same concentration (1)
- measure pH (1)
- the higher the pH, the stronger the base (1)

- State **one** use of sodium hydroxide (1)
  - drain cleaner/oven cleaner/extraction of aluminium/purification of bauxite/manufacture of biodiesel/paper/soap/washing powder/textiles/dyes (1)

- State **one** use of chlorine (1)
  - treating drinking water/treating water in swimming pools/kills bacteria in water/chlorination of water/manufacture of paper products/plastics/PVC/dyes/textiles/medicines/antiseptics/ insecticides/herbicides/fungicides/solvents/paints/disinfectant/bleach/hydrochloric acid (1)

- State **one** use of hydrogen (1)
  - fuel/rocket fuel/fuel cells/in welding/manufacture of ammonia/NH3/margarine/methanol/ hydrochloric acid/refrigerants (1)

- A mixture of ammonium sulfate and sodium hydroxide was warmed in a test-tube. The gas was tested with damp red litmus paper.
  - a) State the name of the gas released (1)
    - ammonia (1)
  - b) State the color change of the litmus paper (1)
    - blue (1)

- Fish live in water which is neutral.Acid rain decreases the pH of the water in lakes and rivers. Both of the bases, calcium oxide and calcium carbonate can neutralise this acid and increase the pH. Explain why calcium carbonate is a better choice (1)
  - calcium oxide soluble in water/reacts with water to form CaOH (1),
  - causing the pH to rise above 7/water becomes alkaline (1)

  OR
  - calcium carbonate insoluble in water (1)
  - pH cannot rise over 7/water neutral (1)

- Explain why farmers don't want their crop to become too alkaline (1)
  - so plants can grow better/so crops can grow better/plants cannot grow well in alkaline conditions
- Complete the word equations for the reactions of ethanoic acid: (2)
  - calcium + ethanoic acid => calcium ethanoate + hydrogen
  - zinc oxide + ethanoic acid => zinc ethanoate + water

8.2-Types of oxides

- Aluminium oxide is amphoteric. It is insoluble in water.
  Describe experiments to show that aluminium is amphoteric. (3)
  - add a named acid, (e.g. HCl, H_2SO_4) **and** add a named alkali, (e.g.NaOH) (1)
  - aluminium oxide (Al_2O_3) will react with/neutralise, both reagents (1), forming a solution/dissolving in it. (1)

8.3-Preparation of salts

- Complete the table below. (6)

- Describe a test to show that a compound is unsaturated.
  - Test: Add bromine water
  - Result: From brown to colourless

14.6-Alcohols

- Predict the names of the products formed when pentan-1-ol
  - reacts with an excess of oxygen (1)
    - carbon dioxide and water
  - is dehydrated to form an alkene (1)
    - pentene
  - is oxidised by acidified potassium dichromate (VI) (1)
    - pentanoic acid

14.7-Carboxylic acids

- State the name of the ester formed from butanol and ethanoic acid (1)
  - Butyl ethanoate (1)

- State the name of the product formed, when But-1-ol is oxidised by potassium manganese (VII) (1)
  - Butanoic acid (1)

14.8.1-Polymers

- What type of polymerisation takes place when ethene forms a polymer? (1)
  - addition (1)

- What type of polymerisation takes place when propene is polymerised to form polypropene? (1)
  - addition (1)

- What is the empirical formula of the polymer formed from ethene (1)
  - CH_2

- Give the empirical formula of: (2)
  - ***propene:*** CH_2
  - ***polypropene:*** CH_2

- Deduce the maximum mass of polypropene that could be produced from 1kg of propene (1)
  - 1kg (1)

14.8.2-Synthetic polymers

- Name the catalyst needed to form an ester from ethanoic acid and methanol (1)
  - concentrated sulfuric acid (1)

- Name the ester formed when ethanoic acid reacts with methanol (1)
  - methyl ethanoate (1)

- Give the name of a polyester (1)
  - terylene (1)

- Suggest a use for terylene (1)
  - ropes (1)

31) in an experiment observation of pH value, and they ask what type of acid/base is used, your answer should be weather weak or strong. A strong acid lies between pH values of 0 and 2, and a weak one lies between 3 and 6. 7 is neutral. A weak base lies between 8 and 11, while a strong one lies between 12 and 14.

32) A concentrated acid is an acid that contains a large number of H+, hydrogen ions. Vice versa with dilute acid.

33) A concentrated base is a base that contains a large number of OH-' hydroxide ions. Vice versa with dilute base.

34) a strong acid is one that ionizes completely giving H+ in solutions. Vice versa with a weak one..

35) A strong base is one that ionizes completely giving OH- in solutions. Vice versa with a weak one..

36) Concentrated: is a solution that contains a large number of solute or little amount of water is involved.

37) How can you make crystals? 1)heat till point of crystallization. 2) leave to cool gradually. 3) filter, dry and collect the crystals!

38) How can you detect the point of crystallization? Place a stirring rod in the solution and see the formation of the first crystals on it.

39) When you crush, you use a pestle and mortar.

40) Grass is ground with ethanol rather than water because chlorophyll is more soluble in ethanol.

41) Colour of rusty iron fillings is brown (orange and red are I think accepted)

42) If pure oxygen was used instead of air, rusting will be faster.

43) you can speed up the drying process by using a fan or by increasing temperature or by using a hair-drier if you have one) , NOT a catalyst.

44) The action of a lie big condenser is to change steam to water.

45) to check for the purity for a collected solvent, test it's melting or boiling point.

46) The chromatogram needs to be sprayed with locating agent is amino acids are investigated because they are colorless.

47) If water contained salt, this will have no effect on rusting, however if a bigger substance is being rusted, it will be slower.

48) Hydrated copper sulphate will turn from blue to white upon heating.

49) saturated: no more solute can be dissolved in a solvent AT A CONSTANT TEMPERATURE..

50) An excess amount of reactant is used to make sure all the other reactant will be used.

51) Sometimes, crystals are dried using filter paper instead of heating to prevent the complete loss of water from crystals, and to prevent crystals from breaking.

Examiner tips for IGCSE Chemistry 0620

Source: eddistutorial.com/uploads/3/0/6/6/3066260/examiner_tips_for_igcse_chemistry_0620_final.pdf

!!!!Must read this !!!!

- If you are distilling an aqueous solution of a salt, the salt itself does not evaporate as it has too high a boiling point. Only the water evaporates (1.30)

Organic chemistry

- Examiners are often very particular. One way to please them is to use the word 'only' in the definition of a hydrocarbon i.e. the answer 'a compound containing only carbon and hydrogen'. (2.4(d)(i))
- Only one compound is formed in the reaction of ethene with steam. Remember, this is a simple addition reaction (one compound formed from two or more substances) – a common error is to say that hydrogen is also formed (1.40)(2.2(b)(v))
- When trying to identify 'cracking' reactions from a set a reactions given, look out for one molecule of reactant forming two or more molecules of product. Remember that cracking does not involve oxygen
- 'Clear' does not mean 'colourless'; when bromine is added to an alkene the colour change is red-brown to colourless, not red-brown to clear (3.7(c)(ii))

Periodic table and metals

- Don't confuse the properties of elements with those of their compounds (especially when they appear in the same question). For example, if asked about the properties of the element oxygen, don't give the properties of an oxide (1.5)
- The properties of transition elements often cause problems. Remember that transition elements themselves are NOT coloured, it is their compounds that are coloured
- When trying to distinguish between a transition metal and a non-transition metal, information on boiling points is more important than information on density. Some non-transition elements (such as lead) are very dense (1.25)
- If asked about the specific properties of transition metals, don't list general properties of metals, such as 'shiny', 'malleable' etc.
- In questions about sacrificial protection, remember that the more reactive metal of the pair will corrode. To answer this sort of question, know the order of common metals in the reactivity series (1.32)
- 'Corrosive' and 'corrosion' are often confused. 'Corrosive' means that a chemical 'eats away' another substance – acids and alkalis are corrosive. 'Corrosion' is the process of 'eating away'. A statement such as 'iron is corrosive' is therefore incorrect (2.6(d)(v))
- The source of an element is where it is found (i.e. a particular place or in a particular substance) – a source of sulphur is the southern USA, or petrol. It does not mean the process of extraction. Don't write vague statements such as 'underground' (3.2(a)(i))
- Sulphur dioxide is not used 'to make wood pulp', it is used to bleach wood pulp (3.2(a)(ii))