1. A compound contains 31.91% potassium, 28.93% chlorine and the rest oxygen. What is the chemical formula of the compound? A. KClO4 B. KClO C. KClO2 D. KClO3 [K = 39, Cl = 35.5, O = 16]
2. The formular CH2O for ethanoic acid is regarded as its A. molecular formula B. general formula C. empirical formula D. structural formula
3. A little quantity of trichloromethane (b.pt 600C) was added to a large quanitity of ethanol (b.pt 780C). The most probable boiling point of the resultant mixture is from A. 690C – 700C B. 700C – 740C C. 820C – 840C D. 600C – 780C
4. The chromatographic separation of ink is based on the ability of the components to A. react with the solvent B. react with each other C. dissolve in each other in the column D. move at different speeds in the column
5. Which of the following gases contains the least number of atoms at s.t.p? A. 1 mole of butane B. 3 moles of ozone C. 4 moles of chlorine D. 7 moles of argon
6. In the reaction E + F G + H, the backward reaction is favoured if the concentration of A. F is increased B. E is increased C. E is reduced D. G is reduced
7. What amount of mercury would be liberated if the same quantity of electricity that liberates 0.65g of zinc is applied? A. 2.01g B. 1.00g C. 4.02g D. 8.04g
8. In the diagram below, the curve that represents the production of oxygen gas from the decomposition of KClO3 in the presence of MnO2 catalyst is

A. R B. P C. S D. Q

1. Which of the following equations show that a reaction is in equilibrium? A. ΔG < 0 B. Δ G = ΔH - T ΔS C. ΔG > 0 D. ΔG = 0
2. PCl5(g) PCl3(g) + Cl2(g) In the reaction above, a decrease in pressure will A. decelerate the reaction B. increase the yield of PCl3 C. increase the yield of PCl3 D. accelerate the reaction
3. When H2S is passed into a solution of iron(III)chloride, the solution turns A. pale green B. pale red C. brown D. colourless
4. The Arrhenius equation expresses the relationship between the speed of a reaction and its A. molecular collisions B. heat of reaction C. catalyst D. activation energy
5. When dissolved in water, NaOH flakes show A. an endothermic change B. an exothermic change C. a slow reaction D. a rapid reaction
6. Cu2S(s) + O2(g) 2Cu(s) + SO2(g) What is the change in the oxidation number of copper in the reaction above? A. +1 to 0 B. 0 to +2 C. +2 to +1 D. 0 to +1
7. The products of the electrolysis of dilute sodium hydroxide using platinum electrodes are A. hydrogen and oxygen gases B. water and hydrogen gas C. water and sodium metal D. sodium metal and oxygen gas
8. The solubility of a salt of molar mass 101g at 200C is 0.34 mol/dm3. If 3.40g of the salt is dissolved completely in 250cm3of water in a beaker, the resulting solution is A. a suspension B. saturated C. unsaturated D. supersaturated
9. Tetraoxosulphate (vi) acid burns the skin by A. hydrolysis B. hydration C. heating D. dehydration
10. When a salt loses its water of crystallization to the atmosphere on exposure, the process is said to be A. efflorescence B. deliquescence C. effervescence D. florescence
11. Three drops of a 1.0mol/dm3 solution of NaOH are added to 20cm3 of a solution of pH 8.4. The pH of the resulting solution will be A. close to that of pure water B. unaltered C. greater than 8.4 D. less than 8.4
12. 25cm3 of a 0.2mol/dm3 solution of Na2CO3 requires 20cm3 of a solution of HCl for neutralization. The concentration of the HCl solution is A. 0.5 mol/dm3 B. 0.6 mol/dm3 C. 0.2 mol/dm3 D. 0.4 mol/dm3
13. The substance least considered as a source of environment pollution is A. lead compounds B. organophosporus compounds C. silicate minerals D. uranium
14. The furring of kettles is caused by the presence in water of A. calcium tetraoxosulphate(vi) B. calcium hydrogentrioxocarbonate(iv) C. calcium hydroxide D. calcium trioxocarbonate(iv)
15. Which of the following solutions containing only hydroxyl ions will liberate hydrogen gas when reacted with magnesium metal? A. 1.0 x 10-6 mol dm-3 B. 1.0 x 10-12mol dm-3 C. 1.0 x 10-2 mol dm-3 D. 1.0 x 10-4 mol dm-3
16. The property which makes alcohol soluble in water is the A. boiling point B. hydrogen bonding C. ionic character D. covalent nature
17. Steam changes the colour of anhydrous cobalt(II)chloride from A. blue to pink B. white to red C. white to green D. blue to white
18. The gas that gives brown colouration in brown ring test is A. NO B. CO2 C. NO2 D. CO
19. Ethanol can easily be produced by A. fermentation of starch B. distillation of starch solution C. catalytic oxidation of methane D. destructive distillation of wood
20. Which of the following gives a precipitate when treated with NaOH solution? A. AlCl3 B. NH4Cl C. CH3COONa D. Na2CO3
21. The major product of the dehydration of the compound below is A.

B.

C.

D.

1. An example of an element that can catenate is A. bromine B. nitrogen C. chlorine D. carbon
2. The reaction of an alkene with hydrogen in the presence of a catalyst is A. substitution reaction B. an oxidation reaction C. a nucleophilic reaction D. an addition reaction
3. The number of isomers formed by C6H14 is A. 4 B. 5 C. 2 D. 3
4. Which of these pairs are synthetic and natural macromolecules respectively? A. Haemoglobin and nylon, creatine and polyethylene B. Nylon and polyethylene, creatine and haemoglobin C. Nylon and creatine, polyethylene and haemoglobin D. Polyethylene and creatine, nylon and haemoglobin
5. Ordinary glass is manufactured from silica, CaCO3 and A. Na2CO3 B. K2CO3 C. K2SO4 D. NaHCO3
6. A red precipitate of copper(I)carbide is formed when ammonium solution of copper(I)chloride is introduced into A. CH3CH2CH2CH3 B. CH2 = CH – CH2CH3 C. CH­3CH2 – C = CH D. CH3 – C = C – CH3
7. The compound below is

A. glycol B. primary alkanol C. secondary alkanol D. tertiary alkanol

1. The boiling of fat and aqeous caustic soda is referred to as A. hydrolysis B. esterification C. acidification D. saponification
2. The most important use of hydrogen is in the A. manufacture of ammonia B. manufacture of methyl alcohol C. manufacture of ethyl alcohol D. hydrogenation of oils
3. Which of the following polymers is suitable for packaging and electric insulation? A. polyamide B. polyethene C. polycarbonate D. polystyrene
4. Hydrogen is readily released when dilute hydrochloric acid reacts with A. Cu B. Na C. Au D. Ag
5. The intermediate product formed when ethanol is progressively oxidized to ethanoic acid with potassium heptaoxodichromate(VI)is A. butanal B. ethanal C. methanol D. propanal
6. A rock sample was added to cold dilute HNO3. The gas evolved was passed into a solution of acidified K2Cr2O7 and the solution turned green. The rock sample contains A. Cl- B. C. D.
7. Which of the following statements is true of a proton? A. The mass of a proton is 1840 times the mass of an electron B. The total mass of the protons in a particular nucleus is always half the nuclear mass C. The mass of a proton is one –twelfth the molar mass of carbon D. the mass of a proton is 1.0008g
8. Which of the following chlorides would exhibit the least ionic character? A. MgCl2 B. CaCl2 C. LiCl D. AlCl3
9. A fixed mass of gas has a volume of 92cm3 at 30C. What will be its volume at 180C if the pressure remains constant? A. 15.3cm3 B. 87.3cm3 C. 552.0cm3 D. 97.0cm3
10. The processes which returns carbon(iv)oxide to the atmosphere include A. respiration, decay and combustion B. photosynthesis, respiration and transpiration C. ozone depletion, combustion and decay D. photosynthesis, decay and respiration
11. The postulate of Dalton’s atomic theory which still holds is that A. atoms can neither be created nor destroyed B. the particles of the same element are exactly alike C. particles of different elements combine in a simple whole number ratio D. all elements are made of small indivisible particles
12. A gas X diffuses twice as fast as gas Y under the same conditions. If the relative molecular mass of X is 28, calculate the relative molecular mass of Y. A. 112 B. 120 C. 56 D. 14
13. X in the equation below represents A. B. C. D.
14. If 0.75 mole of cyclopropane and 0.66 mole of oxygen are mixed in a vessel with a total pressure of 0.7 atmosphere, what is the partial pressure of oxygen in the mixture? A. 0.44 atmosphere B. 0.22 atmosphere C. 0.55 atmosphere D. 0.33 atmosphere