**GORILLA BRAINS**

**CHEMISTRY**

**REVELATION HOUR QUESTIONS**

**BY**

**DE’ GrAdUaL**

1. How many isotopes have hydrogen? A. 2 B. 3 C. 4 D. 5
2. Which of the following electrons configurations correctly represents an inert element?
3. 1S2 2S2 2P4 B. 1S2 2S2 2P6 3S2 C. 1S2 2S2 2P6 3S2 3P4 D. 1S2  2S2 2P6
4. What type of reaction is represented by the following equation?

 $+ \rightarrow + + energy$

1. Nuclear Fission B. Nuclear Fusion C. Radioactive Decay D. Spontaneous Decay
2. Which of the following ions has the electron configuration 2, 8, 8? A. Na+ B. Mg2+ C. F-  D. Cl-
3. An element with the electron configuration of 1S2 2S2 2P6 would have a combining power of
4. 0 B. 2 C. 6 D. 8
5. Rare gases are stable because they A. contain equal number of protons and neutrons. B. contain more electrons than protons. C. are chemically active D. have octet structure.
6. Which of the following elements would produce coloured ions in aqueous solution?
7. Calcium B. Iron C. Magnesium D. Sodium
8. The energy change that accompanies the addition of an electron to an isolated gaseous atom is
9. Bond energy B. Electronegativity C. electron affinity D. Ionization energy
10. Which of the following hydrohalic acids is the weakest? A. Hbr B. HCl C HF D. HI
11. Which of the following arrangements is in order of increasing metallic property?

A. Li < Na< K B. Na< Li< K C. K<Na<Li D. K<Li<Na

1. Chlorine, bromine and iodine belongs to the same group and A. are gaseous at room temperature. B. form white precipitate with AgNO3(aq) C. react violently with hydrogen without heating D. react with alkali.
2. Which of the following elements can conveniently be placed in two groups in the periodic table? A. Carbon B. Copper C. Hydrogen D. Oxygen
3. The bond formed when two electrons that are shared between two atoms are donated by only one of the atoms is A. Covalent B. Dative C. Ionic D. Metallic
4. When element 20A combines with element 8Y, A. a covalent compound, AY is formed B. an ionic compound, AY is formed C. an ionic Compound, A2Y2 is formed
5. In metallic collids, the forces of attraction are between the mobile valence electrons and A. atoms B. neutrons C. the negative ions. D. positively charged nuclei
6. Which of the following statements about displacement reaction is correct? A. A more electropositive element displaces a less electropositive one B. a less electropositive element displaces a more electropositive one. C. the position of elements in the reactivity series has no effect on the reaction. D. it only occurs when the reaction is at equilibrium.
7. The volume occupied by 17g of H2S at s.t.p is [ H = 1.00, S = 32.0, Molar Volume = 22.4dm3
8. 11.2dm3 B. 17.0dm3 C. 34.0dm3 D. 44.8dm3
9. Consider the reaction represented by the following equation:

XKMnO4(aq) + YSO2(g) +zH2O(l)$K\_{2}SO\_{4(aq)}+2MnSO\_{4(aq)}+2H\_{2}SO\_{2(aq)} X, Y $and Z are respectively

1. 2, 5 and 2 B. 2,2 and 5 C. 5,1 and 2 D. 1,5 and 2
2. What is the amount of magnesium that would contain 1.20 x 1024 particles? [ Mg = 24, Avogadro’s constant = 6.02 x 1023 ] A. 0.5moles B. 2.0 moles C. 12.0moles D. 24.0 moles
3. The number of atoms in one mole of a substance is equal to the A. Mass number B. oxidation number C. atomic number D. Avogadro number.
4. Which of the following statements about a molar solution is correct? It A. is a supersaturated solution. B. cannot dissolve more of the solute at that temperature. C. contains any amount of volume of solution. D contains one mole of solute in 1dm3 of solution
5. A gas that is collected by upward delivery is likely to be A. heavier than air B. insoluble in water C. lighter than air D. soluble in water
6. Bubbling excess carbon (iv) oxide into calcium hydroxide solution results in the formation of A. CaCO3 B. CaO C. Ca(HCO3)2 D. H2CO3
7. The equation $p= \frac{K}{V}$ illustrates A. Boyle’s law B. Charles’ law C. Dalton’s law D. Gay Lussac’s law
8. The initial volume of a gas at 300K was 220cm3. Determine its temperature if the volume became 250cm3 A. 183K B. 264 K C. 300K D. 341 K
9. Consider the following energy profile diagram:

1. Activated complex B. activation energy C. enthalpy change D. energy reactant
2. Which of the following equimolar solution has the highest conductivity? A. CH3COOH(aq)
3. H2CO3(aq) C. H2SO4(aq) D. NaOH(aq)
4. The colour of phenolphthalein indicator in alkaline solution at the end – point of an acid – base titration is A. colourless B. orange C. pink D. yellow
5. Which of the following statements about enthalpy of neutralization is correct? It A. is constant for a strong acid and a strong base B. cannot be determined using calorimeter C. has a positive value D. is higher for strong acid and a weak base
6. When NH4Cl(s) was dissolved in water, the container was cold to touch. This implies that A. the process is endothermic B. the process is exothermic C NH4Cl is highly soluble in water D. NH4Cl forms a saturated solution
7. Which of the following metallic oxides is amphoteric? A. Al2O3 B. Fe2O3 C. MgO D. Na2O
8. On evaporation to dryness, 250 cm3 of saturated solution of salt X with relative molar mass 101 gave 50.5g of the salt. What is the solubility of the salt? A. 1.0 mol dm-3 B. 20 moldm-3 C. 4.0 mol dm-3 D. 5.0 mol dm-3
9. Consider the following reaction equation X(g) + Y(g) XY(g); ∆H = +220 KJmol-1 if the temperature of the system is increased, the A. backward reaction would be favoured B. forward reaction would be favoured C. reaction would stop D. reaction would be at equilibrium
10. Which of the following conditions would lead to an increase in the rate of a reaction? A. increase in temperature and decrease in the surface area of reactants B. increase in both temperature and concentration of reactants C. decease in temperature and increase in concentration if reactants D. decrease in temperature and increase in surface area of reactants.
11. What is the value of *n* in the following equation?

 Cr2O7-2+14H++*ne*- = 2Cr3++7H2O.

1. 2 B. 3 C. 6 D. 7
2. What mass of copper would be formed when a current of 10.0A is passed through a solution of CuSO4 for 1 hour? $\left[Cu=63.5;1F=96500C\right]$ A. 5.9g B.11.8g C 23.8g D 47.3g
3. Which of the following metals could be used as sacrificial anode for preventing the corrosion of iron? A. copper B. lead C. magnesium D. silver
4. Consider the following electrochemical cell notation: M(s) /M2+ / M2+ (aq) //H+(aq) /H2(g)

The value of the electrode potential is positive when A. electrons flow from the metal electrode, M(s) to hydrogen electrode, H2(g) B electrons flow from electrode, H2(g) to metal electrode, M(s). C. the flow of current is high D. there is equilibrium between the flow of electrons from the hydrogen electrode, H2(g) to metal, M(s)

1. Which of the following compounds determines the octane rating of petrol? A. 1,2,3- trimethylpentane B. 2,3,5 – trimethyloctane C. 2,2,4 – trimethylpentane
2. Which of the following compounds react with ethanoic acid to give a sweet smelling liquid? A. Alkane B. Alkanol C. Alkanal D. Alkyne
3. Which of the following separation techniques would show that black ink is a mixture of chemical compounds? A. Crystallization B. Chromatography C. Filtration D. Sublimation
4. The following substances are examples of addition polymer except A. nylon B. Perspex C. Polyethane D. polychloroethane.
5. When bromine is added to ethane at room temperature, the compound formed is A. 1,1 – dibromoethane B. 1,1- dibromoethene C. 1,2 – dibromoethane D. 1, 2 – dibromoethene
6. Which of the following organic compounds would react with sodium trioxocarbonate (IV) to liberate carbon (IV) oxide?

1. B. C. D.

1. The compound that makes palm wine taste sour after exposure to the air for few days is A. Ethanol B. ethanoic acid C. Methanol D. Methanoic Acid
2. The reagent that can be used to distinguish ethane from ethyne is A. Ammoniacal silver trioxonitrate (V) solution B. Benedict solution C. bromine water D. Fehling’s solution
3. The following substances are ores of metal except A. Bauxite B. cuprite C. Cassiterite D. graphite
4. Which of the following processes does not involve the use of limestone? A. Extraction of iron in the blast furnance B. manufacture of tetraoxosulphate (VI) acid by contact process C. production of washing soda by solvary process D. production of cement
5. Which of the following substances is mainly responsible for the depletion of the ozone layer? A. chlorofluorocarbon B. Carbon (IV) oxide C. Nitrogen D. Oxygen
6. Aluminium is extracted electrolysis from A. bauxite B. Cryolite C. duralumin D. Kaolin
7. The existence of two or more forms of the same element in the same physical state is known as A. allotropy B. Resonance C. hybridization D. isotopy E. isomerism
8. When an atom gains an electron, it becomes A. chemically inactive B. negatively charged C. oxidized D. a cation E. a complex ion
9. The alkali metals exhibit similar chemical properties because A. they occur in the combined state B. they have the same number of valence electrons C. they form crystalline salts D. their salts are soluble in water E. they are highly reactive.
10. What is the likely formula of compound formed between element M in group two and element X in group seven? A. M7 X2 B. M2X C. M2X7 D. MX2 E. MX6
11. “Equal volumes of all gases at the same temeperature and pressure contain the same number of molecules” is an expression of A. Charles’ Law B. Boyles’ Law C. Graham’s Law D. Avogadro’s Law
12. The ideal gas equation can be written as A. $\frac{V\_{1}}{T\_{1}}= \frac{V\_{2}}{T\_{2}}$ B. $P\_{1}V\_{1}=P\_{2}V\_{2}$ C. $V\_{2}= \frac{P\_{1}V\_{1}T\_{1}}{P\_{2}T\_{2}}$ D. $P\_{1}V\_{1}T\_{2}= P\_{2}V\_{2}T\_{1}$ E. $V\_{2}= \frac{V\_{1}T\_{2}}{T\_{1}}$
13. What volume of carbon (IV) oxide is produced at s.t.p. when 2.5g of CaCO3 reacts with excess acid according to the following equation? CaCO3 + 2HCl CaCl2 + H2O + CO2 [CaCO3 = 100; molar volume of a gas at s.t.p. = 22.4dm3] A. 11.20 dm3 B. 5.60dm3 C.2.24dm3 D. 0.56dm3 E. 0.28dm3
14. Which of the following expressions gives the percentage by mass of nitrogen in NH4 NO3 ? [H = 1, N= 14. O= 16] A. $\frac{14}{18} X \frac{100}{1}$ B. $\frac{14}{80} X \frac{100}{1}$ C. $\frac{28}{80} X \frac{100}{1}$ D. $\frac{14}{100} X \frac{80}{1}$ E. $\frac{28}{100} X \frac{80}{1}$
15. A solution of PH 7 is A. acidic B. neutral C. concentrated D. dilute E. saturated
16. Which of the following equations represents a neutralization?

 A. CaCl2 + 2Hcl Cl2 + CaCl2 + H2O B. Na2O2 + H2SO4  Na2SO4 + H2O2 C. H2SO4 +KOH KHSO4 + H2O D. 2Na + 2H20 2NaOH + H2 E. CuSO4 + 2NaOH CU(OH) 2 + Na2SO4

1. Atmospheric oxides are oxides which A. react with water to form acids B. react with water to form alkali C. show neither acid nor basic properties D. react with both acids and alkalis E. contain high proportion of oxygen
2. The following acids are monobasic except A. trioxonitrate (V) acid B. hydrochloric acid C. ethanoic acid D. tetraoxophosphorus (V) acid E. dioxonitrate (III) acid.
3. An arrangement of two different metals in aqueous solutions of their salts to produce an electronic current is known as A. electrochemical cell B. activity series

C. thermocouple D. voltameter E. galvanometer

1. In which of the following compounds is the oxidation number of nitrogen equal to +3? A. NO2  B. N2O C. NO D.HNO3
2. Which of the following statements is not correct about electrolysis? A. Reduction occurs at the anode B. Anions migrate to the anode C. Positive ions migrate to the cathode D. concentration affects the discharge of ions E. Electrolytes conduct electric current
3. Which of the following is not correct about catalyst? It A. remains unchanged chemically at the end of a reaction B. helps to establish equilibrium faster reversible reaction C. can start a chemical reaction which normally not take place D. is usually specific in its action E. alters the rate of chemical reaction
4. The rate of production of hydrogen gas from the reaction between zinc granules and hydrochloric acid can be increased by A. cooling the reaction mixture B. using zinc powder instead of zinc granules C. using zinc rod instead of zinc granules D. carrying out the reaction at a higher pressure E. carrying out the reaction in a closed vessel.
5. What does x represent in the following equation? $H\_{2(g)}+^{1}/\_{2}O\_{2(g)}\rightarrow H\_{2}O\_{(l)}; ∆H=xkJ.$ A. Bond Energy B. Activation Energy C. Ionization energy D. Enthalpy of formation



1. Which method of separation does the following diagram illustrate? A. Filtration B. Evaporation C. Sublimation D. Magnetization E. Crystallization
2. If the third member of a homologous series is C3H8, the fifth member will be A. C5H8 B. C5H9 C. C5H10 D. C5H11 E. C5H12
3. Which of the following exhibits resonance? A. Benzene B. Butane C. Pentene

 D. Octane E. Hexane

1. On exposing palm wine to air for some days, it becomes sour owing to the conversion of A. glucose to ethanol B. glucose to gluconic acid C. ethane to ethanoic acid D. ethanol to ethanal E. palm wine to palmitic acid.
2. When acidified KMnO4 solution is declourised by ethane, the gas acts as A. s straight –chain hydrocarbon B. a saturated hydrocarbon C. a reducing agent D. a dehydrating agent E. an oxidizing agent
3. The amount of hydrogen will be required for complete hydrogenation of one mole of pent-3-yne? A. I mole B. 2 moles C. 3 moles D. 5 moles E. 6 moles
4. When excess carbon (IV) oxide is passed into lime water, the turbidity produced initially disappears due to formation of A. calcium oxide B. calcium carbide C. calcium hydrogentrioxocarbonate (IV) D. trioxocarbonate (IV) acid E. calcium trioxocarbonate (IV)
5. Which of the following is a disaccharide? A. fructose B. Starch C. Cellulose D. Sucrose E. Glycogen

Use the following information to answer 77 and 78

Compound X was boiled with concentrated hydrochloric acid for a long time. One of the products found to be a sugar.

1. Compound X was probably A. rubber B. polyethene C. nylon D. Cellulose E. Ethanol
2. What type of reaction was involved between compound X and concentrated hydrochloric acid? A. polymerization B. Fermentation C. Hydrolysis D. Neutralization

E. Esterification

1. The component of air that can be removed by alkaline pyrogallol solutions is

A. oxygen B. nitrogen C. water vapour D. carbon (IV) oxide E. noble gases

1. During water treatment for town supply, water is passed through layers of sand beds in order to A. soften the water B. filter the water C. decolorize the water D. destroy the germs in the water E. coagulate colloidal particles in the water
2. The cleasing action of a soap in hard water is not satisfactory because soap A. forms insoluble calcium and magnesium salts B. is made from fats and oils C. has an organic component D. alters the surface tension of water E is a sodium salt of higher carboxylic acids
3. What is the role of MnO2 in the reaction represented by the following equation?

MnO2 + 4HCl MnCl2 + Cl2 +2H2O A. Bleaching agent B. Oxidizing agent C. amphoteric oxide D. Basic oxide E. catalyst

1. Nitrogen is prepared on a large scale by the A. fractional distillation of liquefied air B. decomposition of ammonium dioxonitrate (III) C. electrolysis of brine D. Haber process E. contact process
2. Ammonia gas is suitable for performing the “Fountain” experiment because the gas is A. colorless B. a cooling agent C. alkaline to litmus D. a reducing agent E. very soluble in water
3. Which of of the following metals will be the most suitable for use where lightness and resistance to corrosion are of importance? A. lead B. Copper C. Iron D. Calcium

E. Aluminium

1. What amount of copper is deposited when 13.0g of zinc reacts with excess copper (II) tetraoxosulphate (VI) solution according to the following equation? $Zn\_{(s)}+ CUSO\_{4(aq)}\rightarrow ZnSO\_{4(aq)}+Cu\_{(s)} [Cu=63.5, Zn=65]$ A. 0.1 mole B. 0.2 mole C. 0.3 mole D. 0.4 mole E. 0.5 mole
2. The products formed when sodium hydrogen trioxocarbonate (IV) is heated strongly are A. carbon (IV) oxide and sodium hydride B. Carbon (IV) Oxide and sodium trioxocarbonate (IV) C. sodium trioxocarbonate (IV) and steam D. carbon (IV) oxide and steam
3. The following are properties of transition metals except A. variable oxidation states B. tendency to form complex ions C. formation of coloured ions D. ability to act as catalyst E. low melting points
4. The following salts will produce a gas on reacting with hydrogen acid except A. $CuSO\_{4} B. CaCO\_{3} C. FeS D. Na\_{2}SO\_{3} E. K\_{2}CO\_{3}$

***SECTION II***

*Shade A if only IV is correct; shade B if only I and II correct; shade C if only III and IV are correct; Shade D if only I,II and III are correct; Shade E if I, III and IV are all correct A*

1. The method of collection of gas depends on its I. boiling point II. Odour III. Density IV. Solubility
2. Which of the following are radioactive isotopes used? I. Scientific research II. Sterilization of equipment III. Dating techniques IV. Treatment of cancer
3. Which of the following is/are manufactured by the electrolysis of concentrated sodium chloride solution? I. Chlorine II. Sodium hydroxide III. Hydrogen IV. Sodium oxochlorate (I)
4. Which of the following metals will produce hydrogen on reacting with dilute hydrochloric acid? I. Zn II. Mg III. Fe IV.AI
5. The major air pollutants that can result from smoky vehicles include I. acid fumes II. Hydrogen sulphide III. Carbon (II) oxide IV. Carbon particles
6. Which of the following reactions at equilibrium will be affected by an increase in pressure?

I.$N\_{2(g)}+3H\_{2(g)}\rightarrow 2NH\_{3(g)} II. 2SO\_{2(g)}+O\_{2(g)}\rightarrow 2NH\_{3(g)}III. N\_{2(g)}+O\_{2(g)}\rightarrow 2NO\_{\left(g\right) }IV. CO\_{(g)}+H\_{2}O\_{(g)} \rightarrow CO\_{2(g)}+H\_{2(g)}$

1. Which of the following methods is/are used for the extraction of the alkali metals? I. Reduction by the use of carbon II. Roasting of the ore in air III. Thermal reduction

IV. Reduction by electrolysis

1. Which of the following can be deduced from the equation below? $XY\_{(aq)}+PQ\_{(aq)}\rightarrow XQ\_{(s)}+PY\_{(aq)}; ∆H=-65,700J.$ I. The heat content of the reactants is higher than that of the products. II. The reaction involves double decomposition III. The reaction is slow IV. A large amount of heat is absorbed.
2. Hydrocarbons which exhibit structural isomerism include I. C6H6 II. C3H6 III. C4H8 IV. C5H12
3. Avogadro number can be defined as the number of I. molecules in 22.4dm3 of a gas at s.t.p. II. Molecules in one mole of a compound. III. Electrons in 96500 coulombs of electricity IV. Electrons in the outermost shell of an atom