CHEMISTRY

BOOKS - EVERGREEN CHEMISTRY (ENGLISH)

MODEL PAPER -1

Section I

1. From the list of gases given, choose the gas/gases which match the description given below: Gases : Ammonia, nitrogen dioxide, methane, nitric oxide, hydrogen, oxygen, chlorine, nitrogen.

The gas liberated when conc. HCl reacts with potassium dichromate solution.

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2. From the list of gases given, choose the gas/gases which match the description given below: Gases : Ammonia, nitrogen dioxide, methane, nitric oxide, hydrogen, oxygen, chlorine, nitrogen.

The gas which burns with a green flame and reduces a heated metallic oxide to a metal.

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3. From the list of gases given, choose the gas/gases which match the description given below: Gases : Ammonia, nitrogen dioxide, methane, nitric oxide, hydrogen, oxygen, chlorine, nitrogen.

A gas which is absorbed by iron[II] sulphate solution to give an addition compound.

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4. From the list of gases given, choose the gas/gases which match the description given below: Gases : Ammonia, nitrogen dioxide, methane, nitric oxide, hydrogen, oxygen, chlorine, nitrogen.

Two gases which react in the presence of copper catalyst at high temperatures to give an alcohol.

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5. From the list of gases given, choose the gas/gases which match the description given below: Gases : Ammonia, nitrogen dioxide, methane, nitric oxide, hydrogen, oxygen, chlorine, nitrogen.

The gas liberated when the product of reaction of bromoethane & aqueous KOH – reacts with sodium metal.

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6. State the observation for each of the following:

Dilute hydrochloric acid is added to lead nitrate crystals.

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7. State the observation for each of the following:

The gas formed on reacting with a metallic nitride of a trivalent metal with warm water, is bubbled into copper[II] sulphate solution.

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8. State the observation for each of the following:

Iron[II] sulphide is heated with dilute sulphuric acid and the gas evolved passed through lead acetate solution.

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9. State the observation for each of the following:

The product of reaction of calcium carbide & cold water, is bubbled through ammoniacal copper [II] chloride solution

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10. State the observation for each of the following:

An aqueous solution of sodium sulphate is added to barium chloride solution.

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11. The metallic compound, reduced to the metal by electrolysis is :

A. Iron[III] oxide

B. Copper oxide

C. Magnesium oxide

D. Silver oxide.

Answer:

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12. Hydrolysis of salts form acidic, basic or neutral solutions. The salt which on hydrolysis forms a neutral solution is

A. Ammonium chloride

B. Sodium chloride

C. Magnesium chloride

D. Potassium carbonate.

Answer:

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13. The organic compound having a double carbon-carbon covalent bond is :

A. C_3H_8

B. C_3H_6

C. C_3H_4

D. C_4H_{10}

Answer:

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14. The elements arranged in correct increasing order of electron affinity in a period of the Periodic Table are:

A. Nitrogen, carbon, boron

B. Boron, beryllium, lithium

C. Carbon, oxygen, fluorine

D. Oxygen, nitrogen, carbon.

Answer:

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15. During electrolysis :

A. Cations accept electrons from anode

B. Anions accept electrons from cathode

C. Anions lose electrons to the anode

D. Cations donate electrons to anode

Answer:

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16. Match the following ores in Column A with their correct chemical name in Column B.

Column A	Column B			
1. Zinc Blende	A.	Iron[III] oxide	F.	Zinc sulphite
2. Bauxite	B.	Zinc carbonate	G.	Triiron tetroxide
3. Magnetite	C.	Iron[II] carbonate	H.	Aluminium oxide
4. Calamine	D.	Zinc oxide	I.	Iron[II] oxide
5. Haematite	E.	Hydrated aluminium oxide	J.	Zinc sulphide

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17. Rewrite each incorrect statement in the correct form using appropriate word/words.

In brass, copper imparts hardness to base metal zinc.

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18. Rewrite each incorrect statement in the correct form using appropriate word/words.

The acidity of a dibasic acid eg. H_2SO_4 is two.

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19. Rewrite each incorrect statement in the correct form using appropriate word/words.

An insoluble salt eg. $PbCl_2$ can be precipitated by reaction between two salts.

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20. Rewrite each incorrect statement in the correct form using appropriate word/words.

Bromoethane reacts with alcoholic KOH to liberate ethene by dehalogenation.

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21. Rewrite each incorrect statement in the correct form using appropriate word/words.

Hydronium ion formed from a water molecule and a hydrogen atom contains two lone pairs of electrons.

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22. Give reasons for the following:

Volumes of gases are converted to - standard temperature & pressure [s.t.p.] & then compared.

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23. Give reasons for the following:

Ammonia gas reacts with dilute acids to form corresponding ammonium salts.

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24. Give reasons for the following:

Pure water is termed as a non-electrolyte, while acidified water - an electrolyte.

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25. Give reasons for the following:

All members of the homologous series share a general molecular formula.

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26. Give reasons for the following:

The electron affinity of Argon in period - 3 of the Periodic Table is zero.

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27. Calculate the following:

The volume & number of moles of oxygen liberated at s.t.p. when 5.2 gm. of sodium peroxide $[Na_2O]$ reacts with water.

$2Na_2O_2 + 2H20 \rightarrow 4NaOH + O_2[Na = 23, O = 16]$

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28. Calculate the following:

The percentage of water of crystallisation in $MgSO_{4.7}H_2O[Mg = 24, S = 32, 0 = 16, H = 1]$

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29. Calculate the following:

The volume of unused oxygen when 200cc of ethane $[C_2H_6]$ is exploded with 2000cc of oxygen.

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30. Name & give the structural formula for the final organic product formed in each of the reactions given below :

1,2, dibromoethane on boiling with alcoholic KOH.

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31. Name & give the structural formula for the final organic product formed in each of the reactions given below :

Sodium propanoate & soda lime.

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32. Name & give the structural formula for the final organic product formed in each of the reactions given below :

Ethanol vapours and alumina $[Al_2O_3]$ at 350° C.

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33. Name & give the structural formula for the final organic product formed in each of the reactions given below :

Ethanol with acidified $K_2Cr_2O_7$ on complete oxidation.

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34. Name & give the structural formula for the final organic product formed in each of the reactions given below :

Hydration of ethene in presence of conc. H_2SO_4 at 80° C.

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Section Ii

1. Give balanced equations for the following reactions

:

Lead[II] oxide and caustic potash.

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2. Give balanced equations for the following reactions

:

Copper[II] oxide and dilute sulphuric acid.

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3. Give balanced equations for the following reactions

:

Iron oxide and reducing agent - carbon monoxide.

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4. Give balanced equations for the following reactions

:

Manganese[IV] oxide and conc. hydrochloric acid.

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5. Give balanced equations for the following reactions :

Lead[II] oxide [heated] and ammonia gas.

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6. Draw the electron dot diagram of formation of ammonium ion from ammonia molecule.

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7. Give balanced equations for the conversions – involved in the extraction of aluminium - Baeyer's

process:

Impure bauxite to a sodium salt – using an alkali.

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8. Give balanced equations for the conversions – involved in the extraction of aluminium - Baeyer's process:

Sodium aluminate to an insoluble hydroxide of aluminium.

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9. Give balanced equations for the conversions – involved in the extraction of aluminium - Baeyer's process:

Insoluble hydroxide of aluminium to pure alumina.

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10. Match the salts in List - 1 with their most appropriate method of preparation in List - 2.

List - 1	List - 2
1. Iron [II] chloride	A. Precipitation [double decomposition]
2. Iron [III] chloride	B. Neutralization – of an alkali [titration]
3. Copper [II] sulphate	C. Displacement.
4. Calcium sulphate	D. Direct combination.
5. Sodium nitrate	E. Neutralization – of an insoluble base

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11. Select the correct answer from the choice given in brackets :

The solution which contains both molecules & ions on dissociation of the same. (sodium nitrate, sodium carbonate, sodium hydroxide]

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12. Select the correct answer from the choice given in brackets :

The type of reaction at the anode during electrolysis of copper (II) sulphate solution using copper or

platinum cathode & carbon anode. [reduction, oxidation, redox]

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13. Select the correct answer from the choice given in brackets :

The functional group of the product formed - on hydrolysis of bromoethane with aqueous caustic potash. [alcohol, carboxylic, hydroxyl, aldehydic]

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14. Calculate which of the two compounds – Calcium nitrate or ammonium sulphate has a higher.perceritage of nitrogen. [Ca=40, N=14, 0=16, S=32, H=1]

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15. Give a chemical test to distinguish between each of the following pairs :

Methane & ethyne

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16. Give a chemical test to distinguish between each of the following pairs :

Ethane & ethanol

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17. Give a chemical test to distinguish between each of the following pairs :

Sodium sulphite & sodium sulphide

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18. Give a chemical test to distinguish between the following pairs of chemicals:

Lead nitrate solution and Zinc nitrate solution

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19. Arrange the elements given below as per the instruction in brackets:

Mg, Na, Al [in increasing order of electropositive character]

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20. Arrange the elements given below as per the instruction in brackets:

P, Mg, Na, Cl (in increasing order of atomic size]

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21. Arrange the elements given below as per the instruction in brackets:

Li, F, C, O [in increasing order of nuclear charge]

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22. Give balanced equations for the following conversions :

Liquor ammonia to ammonium sulphate

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23. Give balanced equations for the following conversions :

Nitric acid to sulphuric acid

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24. Give balanced equations for the following conversions :

Silver nitrate to silver chloride

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25. 'X' an organic compound - containing “carbon, hydrogen & oxygen only contains, 1.92g. of carbon & 0.48g. of hydrogen. If the compound weighs 3.68g, & has a vapour density of 69, find the molecular formula of the compound. [C=12, H=1, O=16]

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26. Calculate what mass of sodium chloride, contains the same number of molecules as 6.0g. -of water. [Na=23, CI=35.5] [H=1, 0=16]

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27. Complete the statement - One gram of calcium carbonate represents moles of the compound. [Ca=40, O=16, C=12]

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28. Rewrite the incorrect statement in the correct form – The number of gram atoms in 28g, of nitrogen is 3g. atoms. [N = 14]

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29. Refer to the flow chart diagram below & give balanced equations with conditions if any, for the following conversions A to D.

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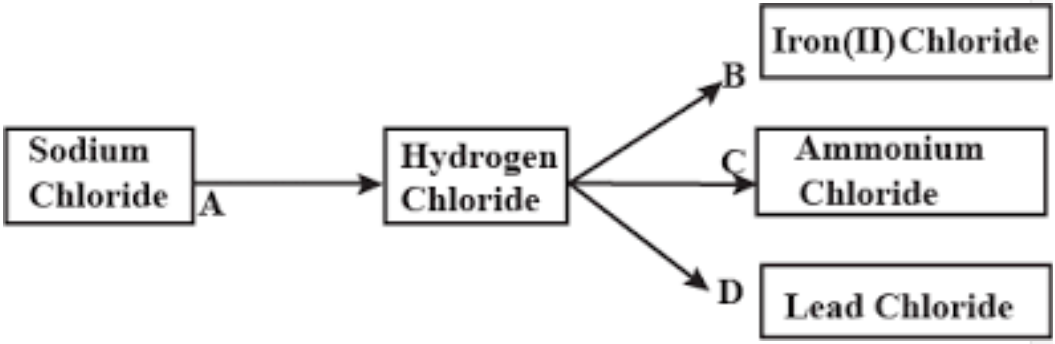

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30. Name the following:

A metal present in duralumin and brass, but not in magnalium,

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31. Name the following:

A metal present in type metal, but not in solder.

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32. Common impurities present in bauxite are

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33. Name the following:

A non-metallic element other than carbon, which forms a neutral & an acidic oxide.

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34. Name the following:

A metal 'Y' which on ionisation forms Y^{3+}

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35. Give a balanced equation for conversion of the hydroxide of the metal in Period - 3, group 13 of the Periodic Table - to its respective oxide – by thermal decomposition.

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36. With reference to homologous series of organic compounds - state :

The vapour density of the third member of the alkane series.

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37. With reference to homologous series of organic compounds - state :

The molecular formula of the fourth member of the alkyne series.

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38. Give balanced equation for the conversion of :

Dichloroethane to trichloroethane

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39. Give balanced equation for the conversion of :

Ethanol to sodium ethoxide

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40. Name the anion in each of the following compounds :

Compound 'X' reacts with barium chloride solution to give a white precipitate insoluble in dil. hydrochloric acid.

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41. Name the anion in each of the following compounds :

Compound 'Y' on heating with dilute sulphuric acid, liberates a gas which turns lime water milky, but has no effect on potassium permanganate solution.

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42. Name the anion in each of the following compounds :

Compound 'Z' on heating with conc. sulphuric acid, liberates a gas which on bubbling through silver

nitrate solution gives a white precipitate, soluble in liquid ammonia.

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43. Draw the branched structural formula of :

Methoxy methane

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44. Draw the branched structural formula of :

2-methyl propan-2-ol

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45. Using sulphuric acid as one of the reactants, how would you obtain sulphur dioxide gas as one of the products using the following:

An active metal below aluminium in the activity series of metals.

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46. Using sulphuric acid as one of the reactants, how would you obtain sulphur dioxide gas as one of the products using the following:

An acidic gas

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47. Using sulphuric acid as one of the reactants, how would you obtain sulphur dioxide gas as one of the products using the following:

A yellow non-metal.

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48. Choose the correct word from the brackets to complete the following sentences.

Anions are discharged at the anode during electrolysis. The tendency of the anions to get

[reduced / oxidised] at the anode increases on (ascending / descending] the electrochemical series.

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