



CHEMISTRY

BOOKS - EVERGREEN CHEMISTRY (ENGLISH)

CHEMISTRY-2015

Section I 40 Marks Attempt All Questions From This Section

1. Select from the list the gas that matches the description given in the following case :

(ammonia, ethane, hydrogen chloride, hydrogen sulphide, ethyne)

This gas is used as a reducing agent in reducing copper oxide to copper.

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2. Select from the list the gas that matches the description given in each case: [ammonia, ethane, hydrogen chloride, hydrogen sulphide, ethyne]

This gas produces reddish brown precipitate with nessler's reagent

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3. Select from the list the gas that matches the description given in each case: [ammonia, ethane, hydrogen chloride, hydrogen sulphide, ethyne]

This gas decolourizes bromine water,

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4. Select from the list the gas that matches the description given in each case: [ammonia, ethane, hydrogen chloride, hydrogen sulphide, ethyne]

This gas when treated with potassium permanganate changes its colour from pink to yellow

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5. Select from the list the gas that matches the description given in each case: [ammonia, ethane, hydrogen chloride, hydrogen sulphide, ethyne]

This gas decolourizes bromine water,

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6. Choose the most appropriate answer for each of the following:

Among the elements given below, the element with the least electronegativity is :

A. Lithium

B. Carbon

C. Boron

D. Fluorine

Answer:



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7. Identify the statement which does not describe the properties of alkenes

- A. They are unsaturated hydrocarbons
- B. They decolourise bromine water
- C. They can undergo addition as well as substitution reactions.
- D. They undergo combustion with oxygen forming carbon dioxide and water.

Answer:



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8. This is not an alloy of copper :

- A. Brass
- B. Bronze

C. Solder

D. Duralumin

Answer:

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9. Choose the most appropriate answer for each of the following:

Bonding in this molecule can be understood to involve coordinate bonding.

A. Carbon tetrachloride

B. Hydrogen

C. Hydrogen chloride

D. Ammonium chloride

Answer:



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10. Choose the most appropriate answer

Which of the following would weigh the least ?

A. 2 gram atoms of Nitrogen

B. 1 mole of silver

C. 22.4 litre of oxygen gas at 1 atmospheric pressure and
273 K

D. 6.02×10^{23} atoms of carbon [Atomic masses : Ag = 108,
N = 14, O = 16, C = 12]

Answer:

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11. Complete the calculation. Show working for complete credit

:

Calculate the mass of calcium that will contain the same number of atoms as are present in 3.2 gm of sulphur. [Atomic masses : S = 32, Ca = 40]

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12. Complete the calculation. Show working for complete credit :

If 6 litre of hydrogen and 4 litre of chlorine are mixed and exploded and if water is added to the gases formed, find the volume of the residual gas

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13. Complete the calculation. Show working for complete credit :

If the empirical formula of a compound is CH and it has a vapour density of 13, find the molecular formula of the compound.



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14. State one appropriate observation for -When crystals of copper nitrate are heated in a test tube .



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15. State one relevant observation for the following:

When the gaseous product obtained by dehydration of ethyl alcohol is passed through bromine water.



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16. State one relevant observation: When hydrogen sulphide gas is passed through lead acetate solution.



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17. State one relevant observation - Ammonia gas is burn in a atmosphere of excess oxygen.



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18. State one relevant observation for each of the following: At the Anode when aqueous copper sulphate solution is electrolysed using copper electrodes.

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19. Identify the acid which matches the following description :
The acid which is used in the preparation of a non-volatile acid.

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20. Identify the acid which matches the following description.
(i) The acid which produces sugar charcoal from sugar.

(ii) The acid on mixing with lead nitrate solution produces a white precipitate which is insoluble even on heating.

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21. Identify the acid which matches the following description.

The acid which is prepared by catalytic oxidation of ammonia.

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22. Identify the acid which matches the following description

The acid on mixing with lead nitrate solution produces a white precipitate which is insoluble even on heating

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23. Identify the acid which matches the following description

The acid on mixing with silver nitrate solution produces a white precipitate which is soluble in excess ammonium hydroxide.



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24. Give appropriate scientific reason for the statement :

Zinc oxide can be reduced to zinc by using carbon monoxide, but aluminium oxide cannot be reduced by a reducing agent.



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25. Carbon tetrachloride does not conduct electricity.



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26. Give appropriate scientific reasons for the following statements :

During electrolysis of molten lead bromide, graphite anode is preferred to other electrodes

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27. Identify the acid which matches the following description :

The electrical conductivity of acetic acid is less in comparison to the electrical conductivity of dilute sulphuric acid at a given concentration

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28. Give appropriate scientific reasons for the following statements :

Electrolysis of molten lead bromide is considered to be a redox reaction.

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29. Give balanced chemical equations for the following conversions A, B and C :



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30. Differentiate between the terms strong electrolyte and weak electrolyte. (stating any two differences)



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31. Answer the question :

Explain the bonding in methane molecule using electron dot structure.



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32. Answer the question :

The metals of Group 2 from top to bottom are Be, Mg, Ca, Sr, and Ba.

(1) Which one of these elements will form ions most readily and why ?

(2) State the common feature in the electronic configuration of all these elements.

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Section II 40 Marks Attempt Any Four Questions From This Section

1. Arrange the following as per the instructions given in the brackets:

Cs, Na, Li, K, Rb (increasing order of metallic character).

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2. Arrange the following as per the instructions given in the brackets :

Mg, Cl, Na, S, Si (decreasing order of atomic size).

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3. Arrange the following as per the instructions given in the brackets :

Na, K, Cl, S, Si (increasing order of ionization energy).



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4. Arrange the following as per instructions given in the brackets:

Cl, F, Br, I (increasing order of electron affinity)



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5. Choose the most appropriate answer from the following list of oxides which fit the description. Each answer may be used only once :

$[SO_2, SiO_2, Al_2O_3, MgO, CO, Na_2O]$

A basic oxide.



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6. Choose the most appropriate answer from the following list of oxides which fit the description. Each answer may be used only once :

$[SO_2, SiO_2, Al_2O_3, MgO, CO, Na_2O]$

An oxide which dissolves in water forming an acid.



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7. Choose the most appropriate answer from the following list of oxides which fit the description. Each answer may be used only once :

$[SO_2, SiO_2, Al_2O_3, MgO, CO, Na_2O]$

An amphoteric oxide.

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8. Choose the most appropriate answer from the following list of oxides which fit the description. Each answer may be used only once :

$[SO_2, SiO_2, Al_2O_3, MgO, CO, Na_2O]$

A covalent oxide of a metalloid.

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9. Element X is a metal with a valency 2, Y is a non metal with a valency 3.

Write an equation to show how Y forms an ion.



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10. A metal 'X' has valency 2 & a non - metal 'Y' has a valency 3. If 'Y' is a diatomic gas ,write an equation for the direct combination of X&Y to form a compound.



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11. Give the balanced chemical equations for the Ethanoic acid to ethylethanoate.



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12. Give the balanced chemical equations for the Calcium carbide to ethyne.



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13. Give the balanced chemical equations for the Sodium ethanoate to methane.



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14. Using their structural formulae identify the functional group by circling them :

(i) Dimethyl ether. (ii) Propanone.



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15. Using their structural formulae identify the functional group by circling them :

(i) Dimethyl ether. (ii) Propanone.

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16. Name of the following

Process by which ethane is obtained from ethene.

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17. Name the following:

A hydrocarbon which contributes towards the greenhouse effect.

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18. Name of the following

Distinctive reaction that takes place when ethanol is treated with acetic acid.



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19. Name of the following

The property of elements by virtue of which atoms of the element can link to each other in the form of a long chain or ring structure



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20. Name

Reaction when an alkyl halide is treated with alcoholic

potassium hydroxide.



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21. Identify the anion present in each of the following compounds :

A salt M on treatment with concentrated sulphuric acid produces a gas which fumes in moist air and gives dense fumes with ammonia.



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22. Identify the anion present in each of the following compounds :

A salt D on treatment with dilute sulphuric acid produces a

gas which turns lime water milky but has no effect on acidified potassium dichromate solution.

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23. Identify the anion present in each of the following compounds :

When barium chloride solution is added to salt solution E a white precipitate insoluble in dilute hydrochloric acid is obtained

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24. The following table shows the tests a student performed on four different aqueous solutions which are X, Y, Z and W. Based on the observations provided, identify the cation

present :

Chemical test	Observation	Conclusion
To solution X, ammonium hydroxide is added in minimum quantity first and then in excess.	A dirty white precipitate is formed which dissolves in excess to form a clear solution.	(i)
To solution Y, ammonium hydroxide is added in minimum quantity first and then in excess.	A pale blue precipitate is formed which dissolves in excess to form a clear inky blue solution.	(ii)
To solution W, a small quantity of sodium hydroxide solution is added and then in excess.	A white precipitate is formed which remains insoluble.	(iii)
To a salt Z, calcium hydroxide solution is added and then heated.	A pungent smelling gas turning moist red litmus paper blue is obtained.	(iv)

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25. Give balanced chemical equations for - i] Lab preparation of ammonia using an ammonium salt.

(ii) Reaction of ammonia with excess chlorine .iii] Reaction of ammonia with sulphuric acid.

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26. Give the chemical equations for the following:

Reaction of ammonia with excess of chlorine.

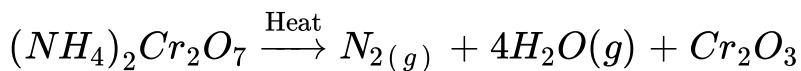
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27. Give balanced chemical equation for

Reaction of ammonia with sulphuric acid.

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28. Consider the reaction and based on the reaction answer the questions that follow :

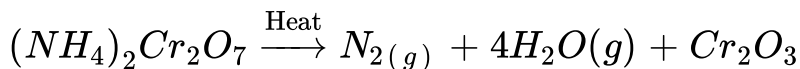


Calculate:

The quantity in moles of $(NH_4)_2Cr_2O_7$ if 63 gm of $(NH_4)_2Cr_2O_7$ is heated.

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29. Consider the reaction and based on the reaction answer the questions that follow :

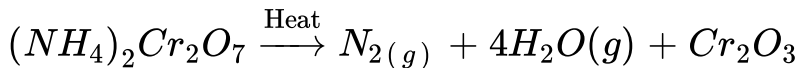


Calculate:

The quantity in moles of nitrogen formed when 63g of $(NH_4)_2Cr_2O_7$ is given

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30. Consider the reaction and based on the reaction answer the questions that follow :



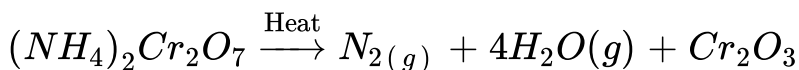
Calculate:

The volume in litres or dm of N_2 evolved at S.T.P when 63g of $(NH_4)_2Cr_2O_7$ is taken.

(M.M of $(NH_4)_2Cr_2O_7$ is 252)

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31. Consider the reaction and based on the reaction answer the questions that follow :



Calculate:

The mass in gram of Cr_2O_3 formed at the same time.

[Atomic masses : H = 1, Cr = 52, N = 14]

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32. For each of the substance listed below, describe the role played in the extraction of aluminium. (1) Cryolite (2) Sodium hydroxide (3) Graphite.



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33. Explain why :

In the electrolysis of alumina using the Hall Heroult's Process, the electrolyte is covered with powdered coke.



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34. Give a balanced chemical equations for the action of sulphuric acid on each of the following:

(A) Potassium hydrogen carbonate

(B) Sulphur

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35. In the contact process for the manufacture of sulphuric acid give the equations for the conversion of sulphur trioxide to sulphuric acid.

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36. Copy and complete the following table.

Name of the process	Catalyst	Temperature	Equation for the reaction
Haber's Process			

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37. Write the equation taking place at the anode in mercury cell

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38. Dilute nitric acid is generally considered a typical acid but not so in its reaction with metals. Explain ?

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39. Concentrated nitric acid appears yellow when it is left standing in a glass bottle. Explain ?

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40. All glass apparatus is used in the laboratory preparation of nitric acid. Explain ?

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41. The following questions are pertaining to the laboratory preparation of hydrogen chloride gas :

Write the equation for its preparation mentioning the condition required.

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42. The following questions are pertaining to the laboratory preparation of hydrogen chloride gas :

Name the drying agent used and justify your choice.



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43. The following questions are pertaining to the laboratory preparation of hydrogen chloride gas :

State a safety precaution you would take during the preparation of hydrochloric acid.



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44. An element L consists of molecules.

What type of bonding is present in the particles that make up

L?



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45. An element L consists of molecules.

When L is heated with iron metal, it forms a compound FeL.

What chemical term would you use to describe the change undergone by L?



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46. From the list of the following salts choose the salt that most appropriately fits the description given

:

$[AgCl, MgCl_2, NaHSO_4, PbCO_3, ZnCO_3, KNO_3, Ca(NO_3)_2]$

A deliquescent salt.



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47. From the list of the following salts choose the salt, that most appropriately fits the description given in the following :

$[AgCl, MgCl_2, NaHSO_4, PbCO_3, ZnCO_3, KNO_3, Ca(NO_3)_2]$

An insoluble chloride.



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48. From the list of the following salts choose the salt, that most appropriately fits the description given in the following :

$[AgCl, MgCl_2, NaHSO_4, PbCO_3, ZnCO_3, KNO_3, Ca(NO_3)_2]$

On heating, this salt gives a yellow residue when hot and white when cold.



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49. From the list of the following salts choose the salt, that most appropriately fits the description given in the following :

$[AgCl, MgCl_2, NaHSO_4, PbCO_3, ZnCO_3, KNO_3, Ca(NO_3)_2]$

On heating this salt, a brown coloured gas is evolved.



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