

India's Number 1 Education App

CHEMISTRY

BOOKS - EVERGREEN CHEMISTRY (ENGLISH)

CHEMISTRY-2013

Section I 40 Marks

1. From the list given below, select the word(s) required to correctly complete blanks (i) to (ii)

in the following passage. The words from the list are to be used only once. Write the answers as (a) (i), (ii), (iii). Do not copy the passage.

[ammonia, ammonium carbonate, carbon dioxide, hydrogen, hydronium, hydroxide, precipitate, salt, water):

(i) A solution M turns blue litmus red, so it must contain (i) ions, another solution O turns red litmus blue and hence, must contain (ii) ions.
(ii) When solutions M and O are mixed

together, the products will be (iii) and (iv)

(iii) If a piece of magnesium was put into a solution M, (v) gas would be evolved.

Watch Video Solution

2. From the list given below, select the word(s) required to correctly complete blanks (i) to (ii) in the following passage. The words from the list are to be used only once. Write the answers as (a) (i), (ii), (iii). Do not copy the passage. [ammonia, ammonium, carbonate, carbon dioxide, hydrogen, hydronium, hydroxide, precipitate, salt, water):

(i) A solution M turns blue litmus red, so it must contain (i) ions, another solution O turns red litmus blue and hence, must contain (ii) ions.
(ii) When solutions M and O are mixed

together, the products will be (iii) and (iv)

(iii) If a piece of magnesium was put into a solution M, (v) gas would be evolved.

Watch Video Solution

3. From the list given below, select the word(s) required to correctly complete blanks (i) to (ii) in the following passage. The words from the list are to be used only once. Write the answers as (a) (i), (ii), (iii). Do not copy the passage.

[ammonia, ammonium, carbonate, carbon dioxide, hydrogen, hydronium, hydroxide, precipitate, salt, water):

(i) A solution M turns blue litmus red, so it must contain (i) ions, another solution O turns red litmus blue and hence, must contain (ii)ions. (ii) When solutions M and O are mixed together, the products will be (iii) and (iv) (iii) If a piece of magnesium was put into a solution M, (v) gas would be evolved.

Watch Video Solution

4. Identify the gas evolved in the following reaction when :

sodium propionate is heated with soda lime



5. Identify the gas evolved in the following reactions when :

potassium sulphite is treated with dilute

hydrochloric acid.

6. Identify the gas evolved in the following reaction when :Sulphur is treated with concentrated nitric acid.

Watch Video Solution

7. Identify the gas evolved in the following reaction when : a few crystals of KNO_3 are heated in a hard glass test tube.

8. Identify the gas evolved in the following reactions when :

concentrated hydrochloric acid is made to

react with manganese dioxide.

Watch Video Solution

9. State one appropriate observation for the following: Concentrated sulphuric acid is added drop wise to a crystal of hydrated copper sulphate.



of the following:

Copper sulphide is treated with dilute hydrochloric acid.

Watch Video Solution

11. State one appropriate observation for the following: Excess of chlorine gas is reacted

with ammonia gas.



12. State one appropriate observationA few drops of dilute hydrochloric acid areadded to silver nitrate solution, followed byaddition of ammonium hydroxide solution.



13. State one appropriate observation for each

of the following: Electricity is passed through

molten lead bromide.



14. Give suitable chemical terms for

A bond formed by a shared pair of electrons

with both electrons coming from the same

atom.



15. Give suitable chemical terms for

A salt formed by incomplete neutralization of

an acid by a base.



16. Give suitable chemical terms for

A reaction in which hydrogen of an alkane is

replaced by a halogen.

17. Give suitable chemical terms for the following :

A definite number of water molecules bound

to some salts.

Watch Video Solution

18. Give suitable chemical terms for

The process in which a substance absorbs

moisture from the atmospheric air to become

moist, and ultimately dissolves in the

absorbed water.



19. Give a chemical test to distinguish between

the pairs of compounds :

Sodium chloride solution and sodium

carbonate solution

20. Give a chemical test to distinguish between the pairs of compounds :

Hydrogen chloride gas and Sulphur dioxide

gas.



21. Give a chemical test to distinguish between

the following pairs of compounds: Ethene gas

and ethane gas.



22. Give a chemical test to distinguish betweenthe following pairs of compounds :Calcium nitrate solution and zinc nitratesolution.

Watch Video Solution

23. Give a chemical test to distinguish between

the following pair of compounds:

Carbon dioxide gas and sulphur dioxide gas.

24. Choose the most appropriate answer from the following options :

Among the period 2 elements, the element which has high electron affinity is :

A. Lithium

B. Carbon

C. Chlorine

D. Fluorine





25. Choose the most appropriate answer from the following options : Among the following compounds identify the compound that has all three bonds (ionic, covalent and coordinate bond).

A. Ammonia

B. Ammonium chloride

C. Sodium hydroxide

D. Calcium chloride.

Answer:

Watch Video Solution

26. Choose the most appropriate answer from

the following options :

Identify the statement that is incorrect about

alkanes

A. They are hydrocarbons.

B. There is a single covalent bond between

carbon and hydrogen.

C. They can undergo both substitution as

well as addition reactions.

D. On complete combustion they produce

carbon dioxide and water.

Answer:

27. Which of these will act as a non-electrolyte?

A. Liquid carbon tetrachloride

B. Acetic acid

C. Sodium hydroxide aqueous solution acid

D. Potassium chloride aqueous solution

Answer:

28. Choose the most appropriate answer from

the following options :

Which one of the following will not produce

an acid when made to react with water?

A. Carbon monoxide

B. Carbon dioxide

C. Nitrogen dioxide

D. Sulphur trioxide

Answer:

29. Choose the most appropriate answer from the following options :

Identify the metallic oxide which is amphoteric in nature :

A. Calcium oxide

B. Barium oxide

C. Zinc oxide

D. Copper(II) oxide

Answer:



30. Choose the most appropriate answer from the following options :

In the given equation, identify the role played

by concentrated sulphuric acid :

 $S+2H_2SO_4
ightarrow 3SO_2+2H_2O$

A. Non-volatile acid

B. Oxidising agent

C. Dehydrating agent

D. None of the above

Answer:

Watch Video Solution

31. Choose the most appropriate answer from

the following options :

Nitrogen gas can be obtained by heating :

A. Ammonium nitrate

B. Ammonium nitrite

- C. Magnesium nitride
- D. Ammonium chloride

Answer:



32. Choose the most appropriate answer from

the following options :

Which of the following is not a typical property of an ionic compound?

- A. High melting point
- B. Conducts electricity in the molten and in

the aqueous solution state.

- C. They are insoluble in water.
- D. They exist as oppositely charged ions

even in the solid state.

Answer:

33. The metals zinc and tin are present in the

alloy:

A. Solder

B. Brass

C. Bronze

D. Duralumin

Answer:

34. Solve

What volume of oxygen is required to burn completely $90dm^3$ of butane under similar conditions of temperature and pressure ?

 $2C_4H_{10} + 13O_2
ightarrow 8CO_2 + 10H_2O$

Watch Video Solution

35. Solve

The vapour density of a gas is 8. What would

be the volume occupied by 24.0 g of the gas at

STP?





36. Solve

A vessel contains X number of molecules of hydrogen gas at a certain temperature and pressure. How many molecules of nitrogen gas would be present in the same vessel under the same conditions of temperature and pressure

?

Group	IA	IIA	IIIA	IVA	VA	VIA	VIIA	0
number	1	2	13	14	15	16	17	18
2 nd period	Li	1	D			0	J	Ne
	Α	Mg	E	Si		н	м	1
1. 21	R	т	I	2	Q	u		У

- In this table H does not represent hydrogen.
- Some elements are given in their own symbol

and position in the periodic table.

• While others are shown with a letter.

With reference to the table answer the following questions :

Identify the most electronegative element.



1.

	Group number	IA 1	IIA 2	IIIA 13	IVA 14	VA 15	VIA 16	VILA 17	0 18
	2 nd pe- riod	Li		D			0	J	Ne
		Α	Mg	E	Si		Н	М	
2.		R	T	I		Q	ы		y

In this table H does not represent hydrogen.

Some elements are given in their own symbol

and position in the periodic table.

While others are shown with a letter.

With reference to the table answer the question :

Identify the least reactive element of group 1.



Group	IA	IIA	IIIA	IVA	VA	VIA	VIIA	0
number	1	2	13	14	15	16	17	18
2 nd period	Li		D			0	J	Ne
	Α	Mg	E	Si		н	м	
· · · · · · · · · · · · · · · · · · ·	R	т	I		Q	u		У

3.

- In this table H does not represent hydrogen.
- Some elements are given in their own symbol and position in the periodic table.
- While others are shown with a letter.

With reference to the table answer the following questions :

Identify the element from period 3 with least

atomic size.

4.

Watch Video Solution

Group	IA	IIA	IIIA	IVA	VA	VIA	VIIA	0
number	1	2	13	14	15	16	17	18
2 nd period	Li	1	D			0	J	Ne
	Α	Mg	E	Si		н	м	
100	R	т	1	2	Q	u		У

- In this table H does not represent hydrogen.
- Some elements are given in their own symbol

and position in the periodic table.

• While others are shown with a letter.

With reference to the table answer the

following questions :

How many valence electrons are present in Q?

Watch Video Solution

Group	IA	IIA	IIIA	IVA	VA	VIA	VIIA	0
number	1	2	13	14	15	16	17	18
2 nd period	Li		D			0	J	Ne
	А	Mg	E	Si		н	м	
	R	т	I		Q	u		У
	number 2 nd period	number 1 2 nd period Li A R	number 1 2 2 nd period Li A Mg R T	Group IA IIA IIIA number 1 2 13 2 nd period Li D A Mg E R T I	Group IA IIA IIIA IIIA IVA number 1 2 13 14 2 nd period Li D D A Mg E Si R T I I	Group IA IIA IIIA IIIA IVA VA number 1 2 13 14 15 2 nd period Li D - - A Mg E Si - R T I Q	GroupIAIIAIIIAIIIAIVAVAVIAnumber12131415162 nd periodLiDDOAMgESiHRTIQu	GroupIAIIAIIIAIIAIVAVAVIAVIIAnumber1213141516172 nd periodLiDOJAMgESiHMRTIQuVIIA

- In this table H does not represent hydrogen.
- Some elements are given in their own symbol

and position in the periodic table.

• While others are shown with a letter.

With reference to the table answer the

following questions :

Which element from group 2 would have the

least ionization energy?

6.

Watch Video Solution

Group	IA	IIA	IIIA	IVA	VA	VIA	VIIA	0
number	1	2	13	14	15	16	17	18
2 nd period	Li		D			0	J	Ne
	Α	Mg	E	Si		н	м	
	R	т	I		Q	u		у

- In this table H does not represent hydrogen.
- Some elements are given in their own symbol

and position in the periodic table.

• While others are shown with a letter.

With reference to the table answer the

following questions :

Identify the noble gas of the fourth period.



- 7.
- In this table H does not represent hydrogen.
- Some elements are given in their own symbol

and position in the periodic table.

• While others are shown with a letter.

With reference to the table answer the following questions :

In the compound between A and H what type

of bond would be formed and give the

molecular formula for the same.

Watch Video Solution

8. Compare the compounds methane and sodium chloride with regard to solubility in water and electrical conductivity.

9. Choosing the substances from the list given below, write balanced chemical equations for the reactions which would be used in the laboratory to obtain the following salts:

Dilute Sulphuric acid

Copper Iron Sodium

Copper(II) carbonate Sodium carbonate Sodium chloride Zinc nitrate

Sodium sulphate



10. Choosing the substances from the list given below, write balanced chemical equations for the reactions which would be used in the laboratory to obtain the following

salts:

Dilute

Sulphuric acid Iron Sodium

Copper Copper(II) carbonate Sodium carbonate Sodium chloride Zinc nitrate

Zinc carbonate

11. Choosing the substances from the list given below, write balanced chemical equations for the reactions which would be used in the

laboratory to obtain the following salts:

Dilute Sulphuric acid

Iron

Copper Copper(II) carbonate Sodium carbonate Sodium Sodium chloride Zinc nitrate

Copper(II) sulphate

12. Write balanced chemical equations for the reactions which would be used in the laboratory to obtain Iron(II) sulphate.



13. State two relevant observation

Ammonium hydroxide solution is added to

copper (II) nitrate solution in small quantities

and then in excess.

14. State two relevant observation

Ammonium hydroxide solution is added to

zinc nitrate solution in minimum quantities

and then in excess.

Watch Video Solution

15. State two relevant observation

Lead nitrate crystals are heated in a hard glass

test tube.

16. Copper sulphate solution is electrolysed using copper electrodes. Study the diagram given below and answer the question that follows: Which electrode to your left or right is known as the oxidising electrode and why?



Copper (II) Sulphate Solution

Watch Video Solution

17. Copper sulphate solution is electrolysed using copper electrodes. Study the diagram

given below and answer the question that follows: Which electrode to your left or right is

known as the oxidising electrode and why?



Copper (II) Sulphate Solution

18. Copper sulphate solution is electrolysed using copper electrodes. Study the diagram given below and answer the question that follows:



Copper (II) Sulphate Solution

Write the equation representing the reaction

that occurs.

19.

Watch Video Solution

and a many spectrum with	X	Y
Normal Electronic Configuration	2,8,7	2,8,2
Nature of oxide	Dissolves in water and turns blue litmus red.	Very low solubility in water. Dissolves in hydrochloric acid.
Tendency for oxidising and reducing reactions	Tends to oxidise elements and compounds.	Tends to act as a reducing agent.
Electrical and Thermal conductivity	Very poor electrical conductor. Poor thermal conductivity.	Good Electrical conductor. Good Thermal conductor.
Tendency to form alloys and amalgams	No tendency to form alloys.	Forms alloys.

Using the information above, complete the following:

..... is the metallic element.



and the set of the second s	X	Y
Normal Electronic Configuration	2,8,7	2,8,2
Nature of oxide	Dissolves in water and turns blue litmus red.	Very low solubility in water. Dissolves in hydrochloric acid.
Tendency for oxidising and reducing reactions	Tends to oxidise elements and compounds.	Tends to act as a reducing agent.
Electrical and Thermal conductivity	Very poor electrical conductor. Poor thermal conductivity.	Good Electrical conductor. Good Thermal conductor.
Tendency to form alloys and amalgams	No tendency to form alloys.	Forms alloys.

Using the information above, complete the following:

Metal atoms tend to have a maximum of

electrons in the outermost energy level.

Watch Video Solution

20.

and the second second second	X	Y
Normal Electronic Configuration	2,8,7	2,8,2
Nature of oxide	Dissolves in water and turns blue litmus red.	Very low solubility in water. Dissolves in hydrochloric acid.
Tendency for oxidising and reducing reactions	Tends to oxidise elements and compounds.	Tends to act as a reducing agent.
Electrical and Thermal conductivity	Very poor electrical conductor. Poor thermal conductivity.	Good Electrical conductor. Good Thermal conductor.
Tendency to form alloys and amalgams	No tendency to form alloys.	Forms alloys.

21.

Using the information above, complete the following:

Non-metallic elements tend to form

oxides while metals tend to form oxides.

and the advantage of the second s	X	Y
Normal Electronic Configuration	2,8,7	2,8,2
Nature of oxide	Dissolves in water and turns blue litmus red.	Very low solubility in water. Dissolves in hydrochloric acid.
Tendency for oxidising and reducing reactions	Tends to oxidise elements and compounds.	Tends to act as a reducing agent.
Electrical and Thermal conductivity	Very poor electrical conductor. Poor thermal conductivity.	Good Electrical conductor. Good Thermal conductor.
Tendency to form alloys and amalgams	No tendency to form alloys.	Forms alloys.

Using the information above, complete the following:

Non-metallic elements tend to be

conductors of heat and electricity.

22.

	X	Y
Normal Electronic Configuration	2,8,7	2,8,2
Nature of oxide	Dissolves in water and turns blue litmus red.	Very low solubility in water. Dissolves in hydrochloric acid.
Tendency for oxidising and reducing reactions	Tends to oxidise elements and compounds.	Tends to act as a reducing agent.
Electrical and Thermal conductivity	Very poor electrical conductor. Poor thermal conductivity.	Good Electrical conductor. Good Thermal conductor.
Tendency to form alloys and amalgams	No tendency to form alloys.	Forms alloys.

23.

Using the information above, complete the following:

Metals tend to electrons and act as

agents in their reactions with elements and

compounds.



24. Give balanced equations for

Reduction of hot copper (II) oxide to copper

using ammonia gas.



25. Give balanced equations for

Oxidation of carbon with concentrated nitric

acid.

26. Give balanced equations for

Dehydration of concentrated sulphuric acid

with sugar crystals.

Watch Video Solution

27. Copy and complete the following table

relating to important industrial process:

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



28. The following questions relate to the extraction of aluminium by electrolysis :
Name the other aluminium containing compound added to alumina and state its significance.

Watch Video Solution

29. The following questions relate to the extraction of aluminium by electrolysis :

Give the equation for the reaction that takes

place at the cathode.



30. The following questions relate to the extraction of aluminium by electrolysis :Explain why is it necessary to renew the anode periodically.

31. Give balanced chemical equation for the preparation of the following organic compounds.

A saturated hydrocarbon from iodomethane

Watch Video Solution

32. Give balanced equations for the laboratory

preparations of butene from butanol

33. Give balanced equations for the laboratory preparations of the organic compounds :An unsaturated hydrocarbon from calcium carbide.



34. Give balanced equations for the laboratory

preparations of.

i] A saturated hydrocarbon from iodomethane.

ii] An unsaturated hydrocarbon from an alcohol.

iii] An unsaturated hydrocarbon from calcium

carbide.

iv] An alcohol from ethyl bromide.

Watch Video Solution

35. Give the structural formula of each of the

isomer of butane

36. Give the structural formulae for the following

An isomer of n-butane.

(ii) 2-propanol.

(iii) Diethyl ether.

Watch Video Solution

37. Draw the structural formula for the diethyl

ether



38. Give reasons for

Methane does not undergo addition reactions,

but ethene does.



39. Give reasons for the following :

(i) Methane does not undergo addition reactions, but ethene does.

(ii) Ethyne is more reactive than ethane.

(iii) Hydrocarbons are excellent fuels.



 MnO_2 as a catalyst

 $2KClO_3 \stackrel{MnO_2}{\longrightarrow} 2KCl + 3O_2$

Calculate the mass of $KClO_3$ required to

produce 6.72 litre of O_2 at S.T.P. [atomic

masses of K = 39, Cl = 35.5, O = 16).



42. O_2 is evolved by heating $KClO_3$ using MnO_2 as a catalyst $2KClO_3 \xrightarrow{MnO_2} 2KCl + 3O_2$ Calculate the number of moles of oxygen produced in the above reaction if 56g of $KClO_3$ is used. **43.** O_2 is evolved by heating $KClO_3$ using MnO_2 as a catalyst $2KClO_3 \xrightarrow{MnO_2} 2KCl + 3O_2$ Calculate the mass of $KClO_3$ required to produce 6.72 litre of O_2 at S.T.P. [atomic masses of K = 39, Cl = 35.5, O = 16).

Watch Video Solution

44. Identify the following substance which is underlined: An <u>alkaline gas</u> which produces

dense white fumes when reacted with

hydrogen chloride gas.



45. Identify the following substance which is underlined: An acid which is present in vinegar.



46. Identify the following substance :

A gas which does not conduct electricity in the liquid state but conducts electricity when dissolved in water.

Watch Video Solution

47. Identify the following substance : A dilute mineral acid which forms a white precipitate of barium sulphate when treated with barium chloride solution.





48. Identify: The element which has the

highest ionization potential.