A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-1

SCORE: 15
TIME: 30 Min

Each question from 1 to 2 carries 1 score

1. How many electrons can be accommodated in f subshell?

2. Some subshells are given. Find out the subshells which are not possible

(3s, 1p, 3f, 3d)

Each question from 3 to 5 carries 2 score.

3. Third shell of an element X contains 6 electrons.

a) Write down the subshell electronic configuration of the element

b) Find the block and the group of the element.

4. Given below is the subshell electronic configuration of an element with atomic number 24 written by a student: $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^4\ 4s^2$

a) Is the student write it in the correct way? Justify you answer.

b) Rewrite the electronic configuration using noble gas configuration.

5. Select and write down the properties of S-block elements from the statements given below.

a) Metallic hydroxides show basic character

b) Produces coloured compounds

c) Produces ionic compounds

d) Show different oxidation states

Each question from 6 to 8 carries 3 score

6. Subshell electronic configuration of some elements are given (Symbols are not real)

A - $1s^2\ 2s^2\ 2p^4$

B - $1s^2\ 2s^2\ 2p^6\ 3s^1$

C - $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^1$

D - $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^6\ 4s^2$

a) Find the atomic number of element-B

b) Which subshell in element-D has the highest energy?

c) To which period does element-C belong?

7. The outermost shell electronic configuration of an element A (symbol given is not real) is $3s^2\ 3p^4$.

   a) To which period of the periodic table. Does this element belong to?

   b) Find the group number of the element?

   c) Which is the block to which the element belongs?

8. The atomic number of an element is 19

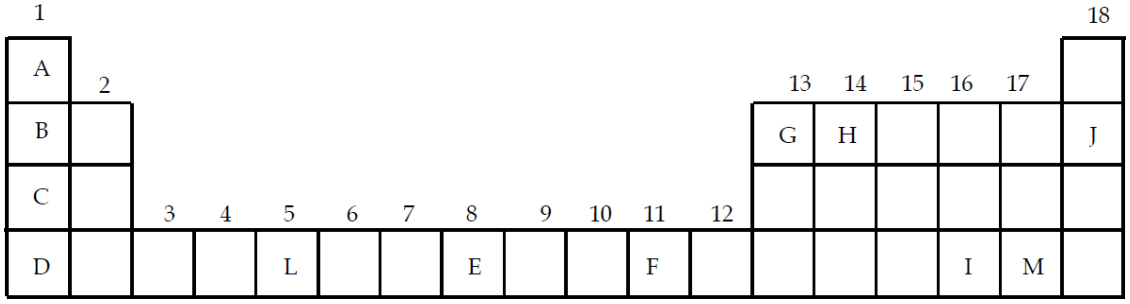
   a) Write the sub shell electronic configuration the element

   b) Identify its group, block and oxidation state?

   c) Write any one characteristics of the block to which the element belongs?

Each question from 9 to 10 carries 4 score

9. See the portion of the Periodic Table shown below:



(a) Which element has 6 electrons in the outermost sub shell?

(b) Which element has the outer sub shell electronic configuration $3d^3\ 4s^2$

(c) Which may form coloured compounds?

(d) Which is the biggest atom in first group?

10. Analyse the given subshell electronic configurations and answer the questions

A -$1s^2\ 2s^2\ 2p^6 3s^2 3p^6$

B -$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^2$

C -$1s^2\ 2s^2\ 2p^6\ 3s^1$

D -$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^6\ 4s^2$

   a) Which element normally shows +1 oxidation state?

   b) Which one of the above is s block element?

   c) Which element shows different oxidation states?

   d) Which is the element that does not take part in chemical reaction?

A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-1

SCORE: 15
TIME: 30 Min

Each question from 1 to 2 carries 1 score.

1. Which are the subshells present in L shell

2. Select the incorrect subshells from the given. Give reason
(2p, 3f, 4d, 2d,5s)

Each question from 3 to 5 carries 2 score.

3. Identify the statements related to transition elements (d-block) from those given below.

a) Most of them are radioactive elements.
b) Oxides are acidic in nature.
c) Give coloured compounds.
d) Most of them are nonmetals.
e) Show variable oxidation states.

4. The last sub shell of an element is 3p and there are 3 electron in it .

a) Write the complete electronic configuration of the element?
b) Identify its group and period?

5. Which of the following is the outer most electronic configuration of copper? justify your answer (atomic number=29)

A: $3d^9\ 4s^2$

B: $3d^{10}\ 4s^1$

Answer any TWO questions from 6 to 8. Each question carries 3 score. (2x3= 6)

6. Match the following

A	B	C
$_{20}Ca$	$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^5$	*p*- block
$_{17}Cl$	[Ar] $3d^6\ 4s^2$	*f*- block
$_{26}Fe$	[Ar] $4s^2$	*d*- block
		s-block

7. The sub shell electronic configuration of an element is [Ar] $3d^5\ 4s^1$

a. Find the atomic number of given elements?

b. Which sub shell is filled by last electron?

c. Find group number of the element?

8. The atomic number of an element is 25

a) Write the sub shell electronic configuration the element

b) Identify its group, period and block?

c) Write any one characteristics of the block to which the element belongs?

Answer any ONE questions from 9 to 10. Each question carries 4 score. (4x1= 4)

9. Analyse the table and answer the questions

Elements (symbols are not real)	**Atomic number**
P	11
Q	18
R	17
S	26

a) Write the sub sell electronic configuration of S.To which block does it belong?
b) Which is an inert gas?
c) Which of the above is a s block element?

10. Analyse the given subshell electronic configurations and answer the questions

A -$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^6\ 4s^2$

B -$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6$

C -$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^1$

D -$1s^2\ 2s^2\ 2p^6\ 3s^2$

a) Which element normally shows +2 oxidation state?

b) Which one of the above is s block element*?*

c) Which element shows different oxidation states?

d) Which is the element that does not take part in chemical reaction?

A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-2

SCORE: 15
TIME: 30 Min

Each question from 1 to 2 carries 1 score.

1. When a gas contained in a 2L cylinder is completely transferred to a 4L cylinder, the volume of the gas will be .....

2. Find out the molecular mass of sulphuric acid (H_2SO_4)
[Atomic mass: H -1, S-32, O- 16, N-14]

Each question from 3 to 5 carries 2 score.

3. Atomic mass of H=1g, and O=16g

a) Find molecular mass of H_2O?

b) Calculate the number of oxygen molecule in 16 g of oxygen?

4. If an inflated balloon is kept in sunlight, it will burst

a) Explain the reason behind the above phenomenon based on a suitable gas law.

b) Write the mathematical representation of the gas law

5. Calculate the number of GAM in the following sample

a)20g He.

b)36g C.

Each question from 6 to 8 carries 3 score

6. You might have noticed that the size of air bubbles rising from the bottom of an aquarium increases.

a) Explain the reason behind the above phenomenon based on a suitable gas law.

b) Write the mathematical representation of the gas law.

c) State the gas law.

7. The relation showing the volume and temperature of fixed mass of gas at constant pressure is tabulated below.

Volume V(L)	Temperature T(K)	V / T
600	300	2
800	.....(a).....	2
.....(b).....	450	2

i) Find out the values of a and b.

ii)State the gas law associated with this.

iii) Write down any one instance from daily life related with this law.

8. Complete the table.

Substance	Number of molecules	Number of moles	Mass(g)
CO_2	(A)	2	88 g
CH_4	N_A	(B)	16 g
NH_3	$3\times N_A$	(C)	(D)

(Hint: MM: $CO_2 = 44$, $CH_4 = 16$, $NH_3 = 17$)

Each question from 9 to 10 carries 4 score

9. Molecular mass of Nitrogen is 28.

a) What is the GMM of N_2?

b) How many moles of molecules are there in 56 g of Nitrogen?

c) How many molecules are there in it?

d) Calculate the number of Nitrogen atoms present in 28 g of Nitrogen.

10. Find the number of moles of the following.

a) 85 g NH_3.

b) 132 g CO_2.

c) 4 GMM CH_4

d) 32 g Oxygen atoms

A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-2

SCORE: 15
TIME: 30 Min

Each question from 1 to 2 carries 1 score.

1. Which one contains 2 x 6.022 x10^{23} Molecules?

   (28 g N_2 , 2 g H_2 , 32 g O_2 , 44.8 L CO_2)

2. Find out the molecular mass of Nitric acid (HNO_3)
   [Atomic mass: H -1, S-32, O- 16, N-14]

Each question from 3 to 5 carries 2 score.

3. Calculate the number of GMM in the following sample
   a) 88 g CO_2
   b) 28 g N_2

4. Which among the following samples have the same number of molecules.

a) 88 g CO_2 b) 54 g H_2O c) 4 g H_2 d) 17 g NH_3

(Atomic mass: C = 12, O = 16, H = 1, N =14)

5. Weather balloons will expand and burst at higher altitude

a) Explain the reason behind the above phenomenon based on a suitable gas law.

b) Write the mathematical representation of the gas law.

Each question from 6 to 8 carries 3 score

6. During summer tyres of motor vehicles are kept under low pressure.

a) Explain the reason behind the above phenomenon based on a suitable gas law.
b) Write the mathematical representation of the gas law.
c) State the gas law.

7. The data of an experiment conducted on a fixed mass of gas at constant temperature are given

Pressure P(atm)	Volume V(L)	PV
1	10	.....(a)....
2	......(b).....	10
.....(c).....	2.5	10

i) Complete the table and find out the speciality of PV.

iii) Which gas law can be proved by this experiment?

iii) Write down any one instance from daily life related with this law.

8. Complete the table.

Substance	Number of molecules	Number of moles	Mass(g)
H_2O	(A)	3	54 g
CH_4	$3\times N_A$	(B)	(C)
NH_3	N_A	(D)	17 g

(Hint: MM: H_2O = 18, CH_4 = 16, NH_3 = 17)

Answer any ONE questions from 9 to 10. Each question carries 4 score. (1x4= 4)

9. Find the number of moles of the following.
   a) 64 g Oxygen atoms
   b) 64 g CH_4
   c) 5 GMM NH_3.
   d) 90 g H_2O

10. Molecular mass of Oxygen (O_2) is 32.
    a) What is the GMM of O_2 ?
    b) How many moles of molecules are there in 64 g of Oxygen?
    c) How many molecules are there in it?
    d) Calculate the number of atoms present in 32 g of Oxygen.

A+ HUNTERTEST SERIES

CHEMISTRY

CHAPTER-3

SCORE: 15
TIME : 30 Min

Each question from 1 to 2 carries 1 score.

1. NaCl in solid state is not an electrical conductor. Why?

2. Which among the given metals does not react with dilute acids?
a) Sodium (b) Copper (c) Magnesium (d) Lead

Each question from 3 to 5 carries 2 score.

3. The solutions of $ZnSO_4$ and $CuSO_4$ are taken in two different test tubes. An iron nail is kept immersed in each one.
a) In which test tube the iron nail undergoes a colour change?
b) What is the reason for colour change?

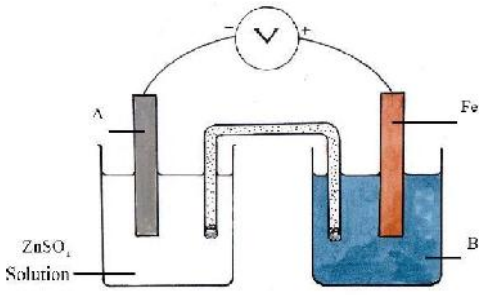
4. Draw a galvanic cell by selecting required materials from the following.

$MgSO_4$, $CuSO_4$, $AgNO_4$, Zn rod, Mg ribbon, Cu rod, beakers, copper wires, water, salt bridge, voltmeter.

5. A) Which are the ions present in molten sodium chloride?
B) Which is the gas liberated at the anode?

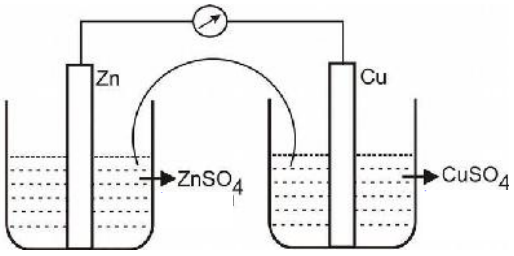
Each question from 6 to 8 carries 3 score

6. The picture of a Galvanic cell is given below



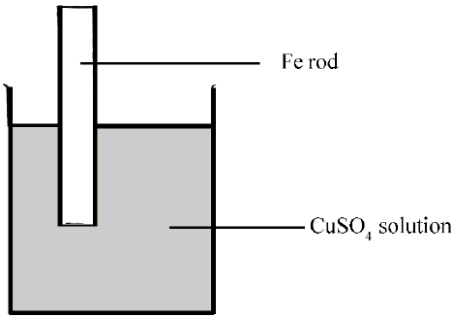
a) Identify A and B.
b) Give the direction of electron flow?
c) Write the equation of chemical reaction at cathode.

7.



a) Find out of the anode and cathode of the above cell?
b) Write down the equation for the chemical reaction occurs in cathode?
c) Write the redox reaction occurring in the cell.

8.



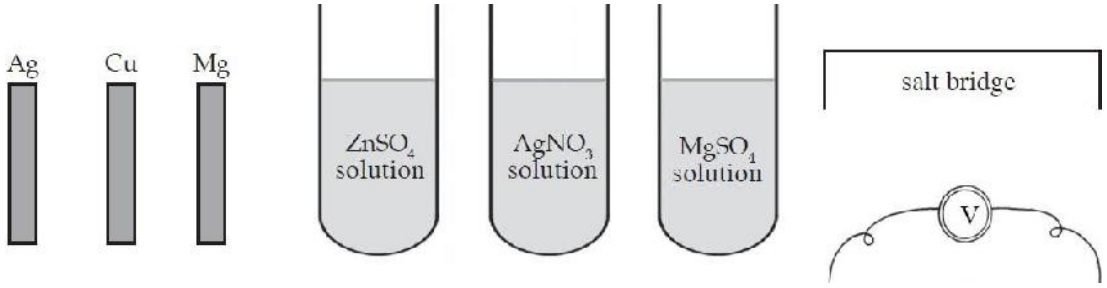
a) What are the changes that can be observed with the iron rod and the colour of copper sulphate solution?

b) Write the equations of the oxidation reactions.

c) What will be the change if silver rod is used instead of iron rod? What is the reason?

Each question from 9 to 10 carries 4 score

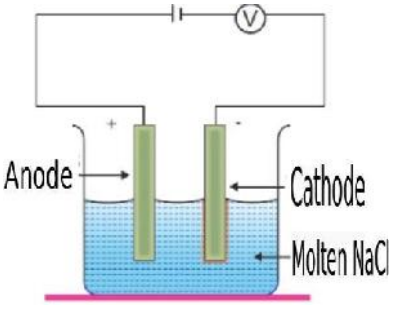
9.



a) Which among these behave only as the anode when they are connected?
b) Draw the arrangement of the cell thus constructed.
c) Find out of the anode and cathode of the above cell?
d) Write down the equation for the chemical reaction occurs in anode?

10. Figure of an electrolytic cell is given

a) Which type of energy change is occurring in an electrolytic cell?
b) Which is the product obtained at the cathode?
c) Write the equation of the chemical reaction taking place at anode
d) Write any two instances where electrolysis is made use of.



A+ HUNTER TEST SERIES

CHEMISRTY

CHAPTER-3

SCORE: 15
TIME: 30 Min

Each question from 1 to 2 carries 1 score.

1. Write any two practical utilities of electrolysis?

2. Which among the given metals does not react with dilute acids?

(a) Sodium (b) Copper (c) Magnesium (d) Lead

Each question from 3 to 5 carries 2 score.

3. Write, what happens to the following situation

A: a rod of Mg is immersed in copper sulphate ($CuSO_4$) solution

B: a piece of silver (Ag) is dipped in zinc sulphate solution ($ZnSO_4$)

4. Ions are the current carrier in electrolytes.

a) Sodium chloride in solid state is not a electrical conductors, but molten sodium chloride can conduct electricity, give reason

b) What are the product obtained at the anode and cathode during the electrolysis of molten sodium chloride?

5. Draw a galvanic cell by selecting required materials from the following.

Silver wire, Copper rod, two beaker, Copper sulphate, Silver nitrate, Salt bridge, Voltmeter,Copper wire, Water

Answer any TWO questions from 6 to 8. Each question carries 3 score. (2x3= 6)

6. In the electrolysis of molten NaCl

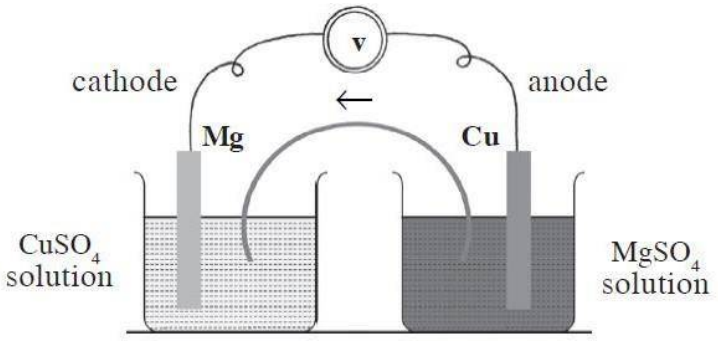
a) Which type of energy change is occurring in an electrolytic cell?

b) Which are the ions present in molten sodium chloride

c) Write the chemical equation of reaction taking place at anode?

7. Cu is placed below Mg in the reactivity series

Given below is the diagram of a galvanic cell formed between magnesium and copper. Draw the diagram by correcting the errors. Give reasons for the corrections made.



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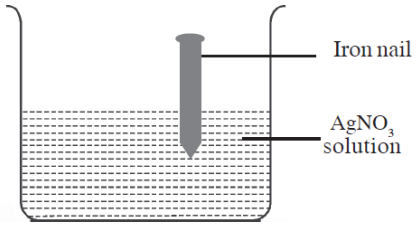


a) What change took place on the surface of the iron nail?

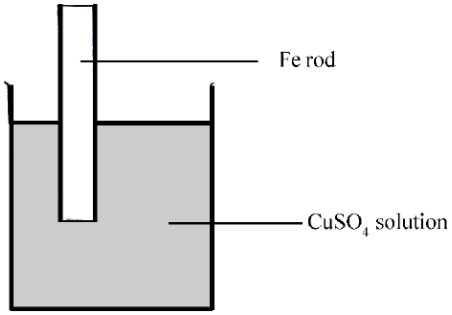
b) Which among the following reactions are involved in the above change?

- $Fe^{2+} + 2e \rightarrow Fe$
- $Ag^{+} + 1e \rightarrow Ag$
- $Fe \rightarrow Fe^{2+} + 2e$
- $Ag \rightarrow Ag^{+} + 1e$
- $Ag^{2+} + 2e \rightarrow Ag$

c) Which is oxidised? Which is reduced?

Each question from 9 to 10 carries 4 score

9.



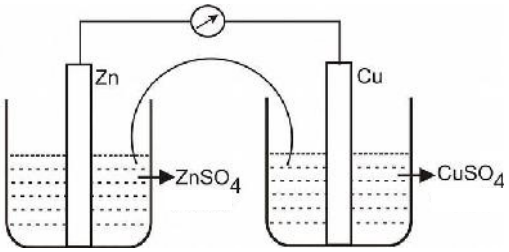
a) What are the changes that can be observed with the iron rod and the colour of copper sulphate solution?

b) Write the equations of the oxidation reactions.

c) What will be the change if silver rod is used instead of iron rod? What is the reason?

d) Write the equations of the reduction reactions.

10. The picture of a Galvanic cell is given below



a. Give the direction of electron flow?
b. Which metal act as anode?
c. Write down the redox reaction taking place in this cell?
d. Write the energy change occurring in the given cell.

A+ HUNTER TEST SERIES

CHEMISRTY

CHAPTER-3

SCORE: 15
TIME: 30 Min

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1. Write any two practical utilities of electrolysis?

2. Which among the given metals does not react with dilute acids?

(a) Sodium (b) Copper (c) Magnesium (d) Lead

Each question from 3 to 5 carries 2 score.

3. Write, what happens to the following situation

A: a rod of Mg is immersed in copper sulphate ($CuSO_4$) solution

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4. Ions are the current carrier in electrolytes.

a) Sodium chloride in solid state is not a electrical conductors, but molten sodium chloride can conduct electricity, give reason

b) What are the product obtained at the anode and cathode during the electrolysis of molten sodium chloride?

5. Draw a galvanic cell by selecting required materials from the following.

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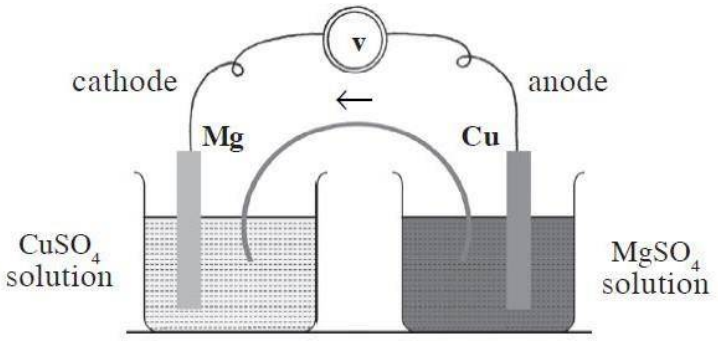

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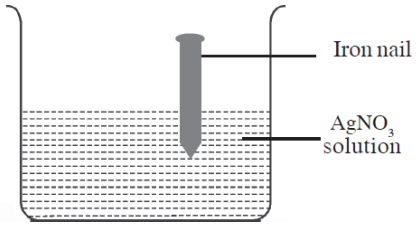

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- $Fe^{2+} + 2e \rightarrow Fe$
- $Ag^{+} + 1e \rightarrow Ag$
- $Fe \rightarrow Fe^{2+} + 2e$
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- $Ag^{2+} + 2e \rightarrow Ag$

c) Which is oxidised? Which is reduced?

Each question from 9 to 10 carries 4 score

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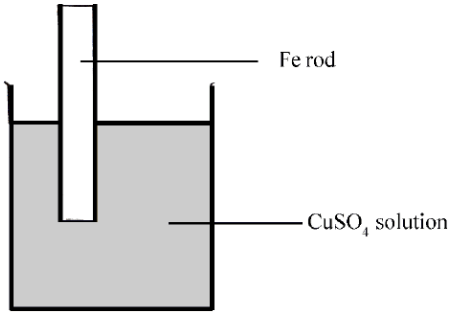


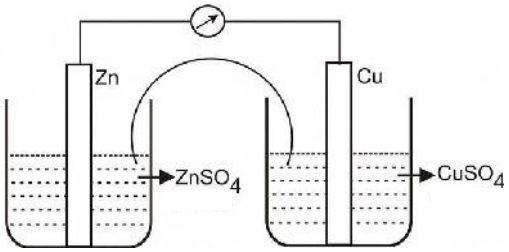
a) What are the changes that can be observed with the iron rod and the colour of copper sulphate solution?

b) Write the equations of the oxidation reactions.

c) What will be the change if silver rod is used instead of iron rod? What is the reason?

d) Write the equations of the reduction reactions.

10. The picture of a Galvanic cell is given below



a. Give the direction of electron flow?
b. Which metal act as anode?
c. Write down the redox reaction taking place in this cell?
d. Write the energy change occurring in the given cell.

A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-4

SCORE: 15
TIME : 30 Min

Each question from 1 to 2 carries 1 score.

1. Find relation and fill in the blank.
Bauxite: Leaching
Tinstone :…….

2. Which is the method used to refine tin? Why?

Each question from 3 to 5 carries 2 score.

3. Electricity is used as the reducing agent during the production of Aluminium. But gold, which is found in the free state can be separated easily. What is thereason for this?

4. Aluminium can be found in clay, mica, cryolite and bauxite.
(a) Which is the ore of aluminium among the four substances given above?
(b) Give any two requirements for a mineral to be considered as an ore

5. Magnetite and copper pyrites ($CuFeS_2$) are some ores.
(a) Which of the ores is concentrated by froth floatation?
(b) Which one is concentrated by magnetic separation?

Each question from 6 to 8 carries 3 score

6. Metallurgy involves all the processes leading to the separation of a pure metal from its ore
a) Distinguish a mineral from an ore.
b) What type of ores are usually concentrated by Froth Floatation process? Give Example

7.
Some important chemical equations of reactions taking place in a blast furnace are given below:

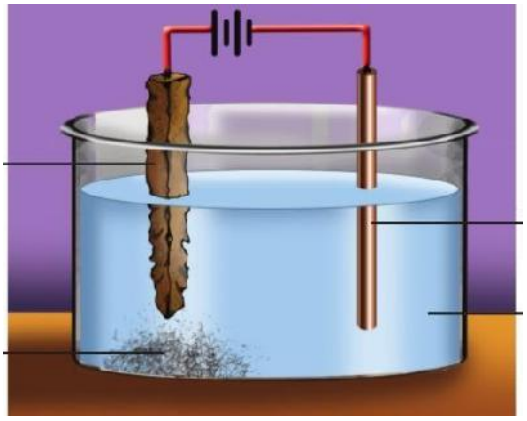
$Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

$CaCO_3 \rightarrow CaO + CO_2$

$CaO + SiO_2 \rightarrow CaSiO_3$

a) What are the substances fed into the blast furnace along with the ore of iron?
b) Which compound acts as the reducing agent here?
c) Select the equation for slag formation.

8. The figure showing the electrolytic refining of copper is given.



a) What are the anode, cathode and electrolyte of this cell?
b) Write the equation of chemical reaction occurring at anode

Each question from 9 to 10 carries 4 score

9. The chemical reaction $CaO + SiO_2 \rightarrow CaSiO_3$ takes place in a blast furnace. Based on this

(a) Find out the gangue, flux and slag. Explain each. (3)

(b) What criteria should be adopted while selecting a flux during the production of a metal? (1)

10. Nature of some ores are given. pick out the method of concentration from the box.

magnetic separation, froth flotation, levigation, leaching

A: ores are lighter and impurities are heavier
B: Ore is magnetic, but impurities are non-magnetic
C: Use a solution which dissolve the ore
D: Ore is heavier and impurities are lighter.

A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-4

SCORE: 15
TIME : 30 Min

Each question from 1 to 2 carries 1 score.

1. The ore of a metal is lighter than the impurities. Which method is suitable for its concentration?

2. Find relation and fill in the blank.
Roasting : Sulphides
Calcination :…….

Each question from 3 to 5 carries 2 score.

3. Concentrated Cu_2S is converted into oxide by roasting.
(a) Write the process of roasting.
(b) How impurities like sulphur and phosphorus are removed in this process?

4. Bauxite and clay are two naturally occurring minerals of aluminium.
(a) Which one of these is an ore of aluminium?
(b) Give two reasons for your answer

5. Electricity and Carbon monoxide (CO) are reducing agents used to extract metals from their ores.
(a) Which of these is used to extract sodium from sodium chloride? Why?

(b) Which reducing agent is used to extract iron from haematite?

Each question from 6 to 8 carries 3 score

6. Complete the table.

Metal	Method of refining
Tin	(x)
Zinc	(y)

(a) identify x and y
(b) Which property of metals is made use of in the above process?

7. Iron produced in blast furnace

(a) Name the ore used here?

(b) Why coke is added along with the ore to the blast furnace?

(c) What is the role of limestone in blast furnace?

8. Briefly explain the following terms.

a) Pig iron

b) Liquation

c) Minerals

Each question from 9 to 10 carries 4 score

9. Given below are the reactions taking place in a blast furnace. Examine them and answer the questions given below.

$CaCO_3 \rightarrow CaO + CO_2$ $\quad C+O_2 \rightarrow CO_2$

$CO_2 + C \rightarrow 2CO$ $\quad Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

$CaO + SiO_2 \rightarrow CaSiO_3$

(a) Which is the ore of iron? (1)

(b) Which compound is used for reduction of the ore? (1)

(c) Identify the gangue, flux and slag. (2)

10. Match the following

Ore	Nature of the ore	The method of concentration
Copper pyrites	Density of the ore is heavier than gangue	Leaching
Magnetite	Ore and gangue do not dissolve in same solvent	Hydraulic washing
Ore of gold	Density of the ore is lighter than gangue	Magnetic separation
Bauxite	Magnetic natured ore	Froth floatation

A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-5

SCORE: 15
TIME: 30 Min

Each question from 1 to 2 carries 1 score.

1. $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$

Which of the following does not have any effect on the equilibrium?

(Temperature , Pressure , Concentration)

2. NH_3 gas is not passed through H_2SO_4 during its lab preparation. Why?

Each question from 3 to 5 carries 2 score.

3. $2CO_2 + O_2 \rightleftharpoons 2CO_2 + Heat$

The given reaction is at equilibrium. Explain on the basis of Le Chatelier principle how the following conditions influence forward reaction.

a. Increase in concentration of oxygen

b. Increase in temperature.

4. A glass rod dipped in con HCl is shown in a gas jar filled with ammonia

(a) Write the observation

b) $NH_3 + HCl \rightarrow$ .....

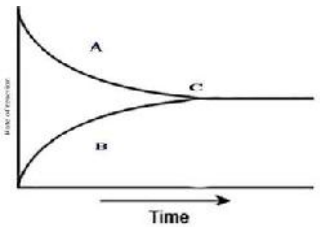
5. Analyse the following situations and give reason for it

a) When an ammonia tanker leaks, water is sprayed to reduce its intensity

b) A temperature of 450°C is chosen during industrial production of ammonia

Each question from 6 to 8 carries 3 score

6. Analyse the graph and answer the following questions.



a) Identify the part of the graph which represents forward reaction

b) Identify the part of the graph which represents equilibrium state.

c) From the given statements, select the correct ones regarding chemical equilibrium.

i. Chemical equilibrium is static at the molecular level.

ii. Both reactants and products co-exist.

iii. The rates of forward and backward reactions are equal.

iv. Chemical equilibrium is attained in an open system.

7. What happens to the rate of forward reaction of the equilibrium during the following situation?

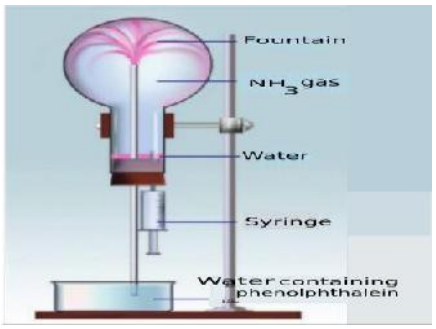
$$2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)} + \text{heat}$$

a) Increase in temperature

b) SO_3 is removed

c) Pressure is decreased

8. Analyse the figure and answer the questions



a) Why did water get into the flask on pressing the piston of syringe?

b) What property of ammonia is exhibited by the change of colour of water entering the flask in to pink?

c) Complete the equation

$NH_3 + H_2O \rightarrow$ ----------

Each question from 9 to 10 carries 4 score.

9. $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g) + \text{Heat}$

What will be the effect of the following factors on the system at equilibrium?

a. Ammonia is removed from the system

b. Decreased the temperature

c. Decreased the pressure

d. Hydrogen is added

10. Ammonia is an important raw material for the production of nitrogenous fertilizers which are essential for the growth of plant.

a. Write down chemical equation of preparation of ammonia in laboratory?

b. Why ammonia gas is passed through quick lime (CaO)?

c. The ammonia collector is placed inverted, why?

d. How can you identify Ammonia?

A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-5

SCORE: 15
TIME: 30 Min

Each question from 1 to 2 carries 1 score.

1. Write any one use of sulphuric acid

2. Liquor ammonia: concentrated aqueous solution of ammonia

Liquid ammonia: .....

Each question from 3 to 5 carries 2 score.

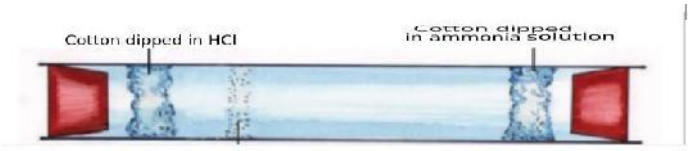
3. Balanced chemical equation of the industrial preparation of ammonia is,

$N_2\,(g) + 3H_2\,(g) \rightleftharpoons 2NH_3\,(g) + \text{heat}$

Explain the effect of the following:

(a) Increase in pressure
(b) Increase in temperature

4. Two bits of cotton wool dipped separately in Con. HCl and ammonia solution are placed at the ends of a glass tube as shown in the figure.



a) What is the white fume formed by the reaction?

b) Why is the thick white fume formed near the cotton wool dipped in Con.HCl.

c) Complete the equation

$NH_3 + H_2O \rightarrow$ ----------

5. Analyse the following situations and give reason for it

a) When an ammonia tanker leaks, water is sprayed to reduce its intensity

b) A temperature of 450°C is chosen during industrial production of ammonia

Each question from 6 to 8 carries 3 score.

6. $2NO(g) + O2(g) \rightleftharpoons 2NO2(g) + \text{heat}$ in this reaction how do the following changes influence the amount of the product?

a) Increase the temperature
b) Increase the pressure
c) Decrease the concentration of oxygen

7.

a) If we show a red litmus paper over ammonia gas, what change can be observed?
b) Which property of ammonia is shown here?
c) Write any one use of ammonia

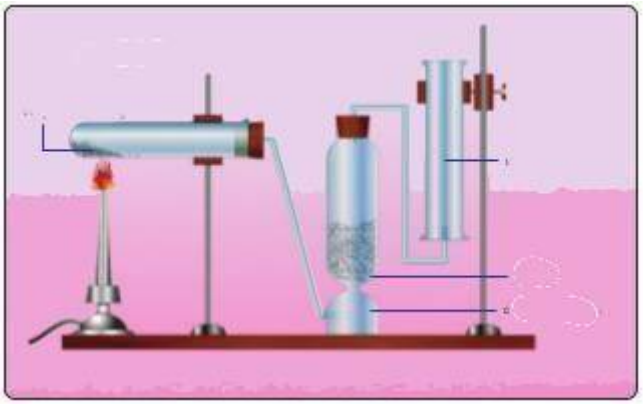
8. $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$

(a) What is the total number of moles of reactants and products in the above reaction?

(b) What is the effect of pressure in this reversible reaction? Explain.

Each question from 9 to 10 carries 4 score.

9. Observe the figure showing the laboratory preparation of ammonia and answer the question



a) Through which substance is ammonia passed to make it dry?

b) Ammonia is collected in an inverted gas jar. why?

c) Complete the equation

$2NH_4Cl + Ca(OH)_2 \rightarrow$ ..... + ...+ H_2O

d) How can you identify Ammonia

10. **$A(g) + B(g) \rightleftharpoons 2C(g) + D(g)$ + Heat**

What will be the effect of the following factors on the system at equilibrium?

(i) **B** is removed from the system

(ii) Increase the temperature

(iii) Decreased the pressure

(iv) **A** is added

A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-6

SCORE: 15
TIME: 30 Min

Each question from 1 to 2 carries 1 score.

1. The compounds which contain the functional group alkoxy (-O-R) are called -------

2. The IUPAC names of two organic compounds are given below

- Ethoxy ethane
- Butan-1-ol

(a) Which type of isomerism is shown by these compounds?

Each question from 3 to 5 carries 2 score.

3.

$CH_3 - CH_2 - CH_2 - OH$

(a) Write its molecular formula (1)

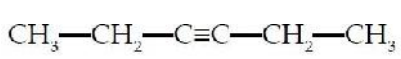
(b) Write the structural formula of one of its isomers. (1)

4. $CH_3–O–CH_3$

(a) Write the IUPAC name of the compound

(b) Write the structural formula of any one isomer of the compound

5.

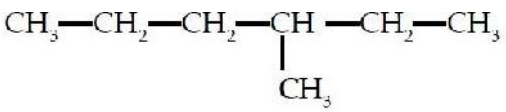


(a) Give the molecular formula of the compound. (1)

(b) Write the IUPAC name of the compound. (1)

Each question from 6 to 8 carries 3 score

6.



(1) Some statements related to this compound are given below. Choose the correct statements.

(a) There are two branches in the compound

(b) It is a hydrocarbon

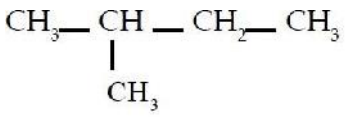
(c) $-CH_3$ is a branch

(d) It is included in the alkene family

(e) There are 5 carbon atoms in the longest chain. (2)

(2) Based on the IUPAC rule number the longest carbon chain. (1)

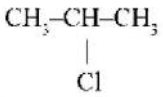
7.



(a) Write its molecular formula. (1)

(b) Write the structures of two other possible isomers. (2)

8.



(a) Write the molecular formula of the compound given.

(b)What is the functional group present ?

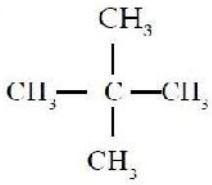
(c) Write the IUPAC name .

Each question from 9 to 10 carries 4 score

9.

(i)

(ii)



(a) Write the molecular formulae of these two compounds (1)

(b) Write the structure and IUPAC name of another compound having the same molecular formula. (2)

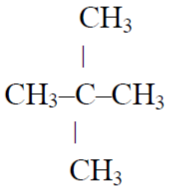
(c) Which type of isomerism is this? (1)

10. Examine the compounds given below and find out the isomeric pair, to which type isomer they belong?

A : $CH_3–CH_2–CH_2–CH_2–CH_3$

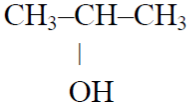
B: $CH_2–CH_2–CH_2–O–CH_3$

C:



D: $CH_3–CH_2–O–CH_3$

E:



A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-6

SCORE: 15
TIME: 30 Min

Each question from 1 to 2 carries 1 score.

1. Which of the following can be the molecular formula of an alkene

(C_3H_4, C_3H_6, C_3H_8)

2. When the teacher asked a student to write the structural formula of propan-2-ol, he wrote like this.

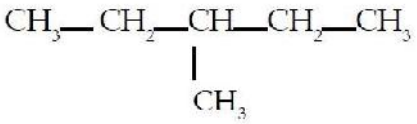
CH_3-CH_2- CH_2- OH

If there is any mistake in it, write the correct structural formula.

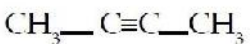
Each question from 3 to 5 carries 2 score.

3. The structural formulae and the names of two organic compounds are given. Correct if there is any mistake in the name

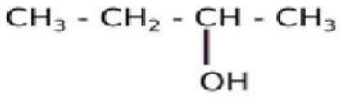
(a) 2-methylpentane



(b) But-3-yne



4.



a) Identify the functional group in the above compound. (1)
b) Write the IUPAC name of this compound. (1)

5. The IUPAC name of a compound is 2,3-dimethylbutane.

(a) Draw the structure of this compound. (1)
(b) What is its molecular formula? (1)

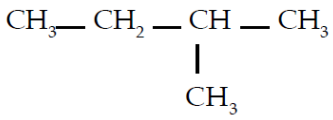
Each question from 6 to 8 carries 3 score

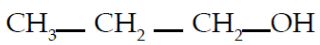
6. Details of an organic compound are given below.

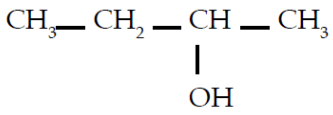
(i) It is a hydrocarbon
(ii) There are 7 carbon atoms
(iii) It is a saturated hydrocarbon
(iv) There is an ethyl group on the third carbon atom.

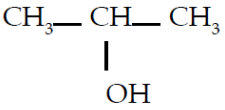
(a) Write the structure of the compound.
(b) Give the IUPAC name.
(c) Write one homologue of this compound.

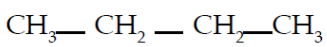
7. Find out the pairs which exhibit chain isomerism and position isomerism from the compounds given below.

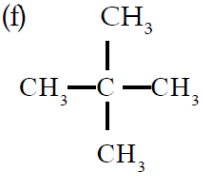
(a) 

(b) 

(c) 

(d) 

(e) 

(f) 

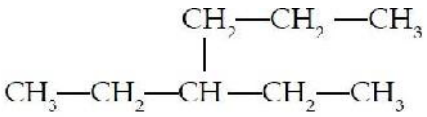
8. The structural formulae of two organic compounds are given

(a) What is the similarity between these compounds? (1)

(b) What is the difference between them? (1)

(c) This phenomenon is known in which name? (1)

Each question from 9 to 10 carries 4 score

9. 

(a) The number of carbon atoms in the longest carbon chain (1)

(b) What is the name of the branch? (1)

(c) Which is the position number of the branch? (1)

(d) The IUPAC name of this organic compound (1)

10. The structural formula of some organic compounds are given below

I. $CH_3–CH_2–O–CH_3$

II. $CH_3–CH_2–CH_2–OH$

III. $CH_3–CH_2–CH_2–CH_3$

a. Which of these is an alkane?

b. Write the structural formula of the position isomer of the 2nd compound?

c. Which of the given compounds are functional isomer?

d. Write the structural formula of the chain isomer of the 3rd compound?

A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-7

SCORE: 15
TIME: 30 Min

Each question from 1 to 2 carries 1 score.

1. Write the two products formed by the thermal cracking of CH_3 -CH_2 -CH_3

2. Which among the following can undergo polymerisation reaction?
(C_3H_8 , C_2H_4 , CH_4 , C_4H_{10})

Each question from 3 to 5 carries 2 score.

3. $CH_4 + Cl_2 \rightarrow$ A + HCl

a. What is the name of the compound A?

b. To which type does this reaction belong?

(Addition reaction, Substitution reaction, Combustion, Polymerisation)

4. Some equations are given

- $CH_2 = CH_2 + A \rightarrow CH_3 – CH_3$
- $CH_3 – CH_3 + Cl_2 \rightarrow B + HCl$

a) Find out A and B

b) Write the name of the first reaction

5. PVC is a polymer commonly used for making pipe

a) What is polymerization?

b) Draw the structure of monomeric unit of poly vinyl chloride

Each question from 6 to 8 carries 3 score

6.

A $CH \equiv CH + H_2 \longrightarrow X$

B $X + H_2 \longrightarrow Y$

C $Y + Cl_2 \longrightarrow Z + HCl$

a. Write the structural formula of the compounds X, Y, and Z

b. which type of chemical reaction is implied by C?

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7. $CH_4 + A \longrightarrow CO_2 + H_2O$

$CH_4 + Cl_2 \longrightarrow B + HCl$

$C + H_2 \longrightarrow CH_3\text{-}CH_3$

a). Find A,B and C and name the type of reactions in each of the above equation

8. Given below are certain hydrocarbons

CH_4, C_4H_{10}, C_3H_6, C_6H_{14}

(a) Which among these can undergo addition reactions?

(b) Complete the following reactions

(i) $CH_4 + O_2 \rightarrow$ ..... + ...

(ii) $C_4H_{10} + Cl_2 \rightarrow$ ..... + ...

Each question from 9 to 10 carries 4 score

9. What are a,b,c and d?

Reactions A	Product B	Name of the reaction C
$CH_3\text{-}CH_3 + Cl_2$	**a**	Substitution reaction
$C_2H_6 + O_2$	$CO_2 + H_2O$	**b**
n $CH_2 = CH_2$	**c**	Polymerisation
$CH_3 - CH_2 - CH_3$	$CH_2 = CH_2 + CH_4$	**d**

10. The equation for the preparation of 8 - 10 % alcohol is given

I $C_{12}H_{22}O_{11} + H_2O \xrightarrow{\text{invertase}} C_6H_{12}O_6 + C_6H_{12}O_6$

II $C_6H_{12}O_6 \xrightarrow{\text{Zymase}} 2C_2H_5OH + 2CO_2$

(a) What is the alcohol obtained by this reaction called?

(b) How is it converted into rectified spirit?

(c) What is meant by methylated spirit?

(d) How is power alcohol prepared?

A+ HUNTER TEST SERIES

CHEMISTRY

CHAPTER-7

SCORE: 15
TIME: 30 Min

Each question from 1 to 2 carries 1 score.

1. PVC is a polymer used for the preparation of pipes. What is the name of its monomer?

2. Which of the following molecule undergo addition reaction?
(methane, ethane, propene, butane)

Each question from 3 to 5 carries 2 score.

3. The major component in cooking gas is butane (C_4H_{10}).

a) Write the chemical equation for the reaction when butane undergo combustion. (1)

b) Identify the product obtained when butane undergoes thermal decomposition. (1)

[C_5H_{10}, C_5H_{12}, C_3H_6, C_6H_{12}]

4. $C_3H_8 \rightarrow CH_4 + A$
(a) Give the molecular formula of A
(b)To which category does the compound A belong?
(Alkane , Alkene , Alkyne)

5. Examine the equation given

$CH_2{=}CH{-}CH_3 + H_2 \rightarrow CH_3{-}CH_2{-}CH_3$

a) Choose the saturated hydrocarbon and unsaturated hydrocarbon in the above equation

b) By which name is this type of reactions are known?

Each question from 6 to 8 carries 3 score

6. Fill the blanks using suitable chemicals.

a. $CH_4 + \underline{A} \rightarrow \underline{B} + HCl$
b. $CH{\equiv}CH + H_2 \rightarrow \underline{C}$
c. $CH_2 = CH_2 + HCl \rightarrow \underline{D}$

7. a) Different stages in the manufacture of a substance is given below. Fill in the blanks.

$C_{12}H_{22}O_{11} + 2H_2O \xrightarrow{\text{A}} C_6H_{12}O_6 + C_6H_{12}O_6$ (1)

$C_6H_{12}O_6 \xrightarrow{\text{Zymase}} \text{.....B.....} + 2CO_2$ (1)

b) Which among the following compounds must react with the product 'B' to get an ester? (1)

[$CH_3{-}CHO$, $CH_3{-}COOH$, $CH_3{-}CH_2{-}CH_2{-}OH$]

8. . A polymerisation reaction is given

n $CF_2 = CF_2 \rightarrow$ -- [--CF_2 - CF_2 --]-- $_n$

(a) Name the monomer .

(b) What is the name of the polymer?

(c) Give any one use of the polymer

Each question from 9 to 10 carries 4 score

9. Match the following suitably.

Reactants	Products	Name of the chemical reaction
a. $CH_4 + Cl_2$	$CO_2 + H_2O$	Addition reaction
b. $C_3H_8 + O_2$	$C_2H_4 + CH_4$	Substitution reactions
c. $CH_2=CH_2 + H_2$	$CH_3Cl + HCl$	Thermal decomposition
d. $CH_3 - CH_2 - CH_3$ + Heat	$CH_3 - CH_3$	Combustion

10. Complete the reactions by finding out a, b, c and d