



PM 01 CY 10 E

Time :  $1 \frac{1}{2}$  hr

Class : X

Score : 40

PM 01 E CHEMISTRY

Answer any four questions from 1 to 5 . Each carries 1 score.(4x1=4)

1. Maximum number of electrons that can accommodate in d subshell is.....(2,6,10,14)
2. 1 mole = .....Molecules
3. Which is the drying agent used in the preparation of ammonia
4. Observe the relation in the first pair and complete the second....
  - a. Iron : Haematite
  - b. Aluminium - .....
5. Which is the functional group of alcohol (-COOH,-OH,-Cl,-R-O )

Answer any 4 questions from 6-10. Each carries 2 score(4x2=8)

6. Molecular mass of ammonia is 17
  - a) Find out the number of molecules in 17g ammonia
  - b) Find out the volume of 170g ammonia at STP
7. Ethanol is an industrially important compound
  - a) Write the industrial preparation of ethanol
  - b) How does rectified spirit prepare from ethanol
8. a) Find out the oxidation state of Mn in  $MnO_2$  ( oxidation state of oxygen is -2 )
  - b) Write the subshell electronic configuration of Manganese ion in  $MnO_2$  (atomic number of Manganese is 25)
9. Zinc and copper are the electrodes of a galvanic cell
  - a. Which electrode acts as cathode?
  - b. Write the chemical reaction taking place at anode
10. Write the difference between calcination and roasting

Answer any 4 from 11 to 15 each carries 3 score (4x3=12)

11. Examine the compounds given below and find out the isomeric pairs. To which type do they belong?
  - a)  $CH_3 - CH_2 - CH_2 - CH_2 - CH_3$
  - b)  $CH_3 - CH_2 - CH_2 - CH_2 - OH$
  - c)  $\begin{array}{c} CH_3 \\ | \\ CH_3 - C - CH_3 \\ | \\ CH_3 \end{array}$
  - d)  $CH_3 - CH_2 - CH_2 - \begin{array}{c} OH \\ | \\ CH \end{array} - CH_3$
  - e)  $CH_3 - CH_2 - CH_2 - OH$
  - f)  $CH_3 - CH_2 - O - CH_3$
  - g)  $CH_3 - CH_2 - CH_2 - CH_2 - CH_2 - OH$

12. a. Match the following

A	B
$\text{CH}_4 + \text{Cl}_2 \rightarrow \text{CH}_3\text{-Cl} + \text{HCl}$	Addition reaction
$2\text{C}_2\text{H}_6 + 7\text{O}_2 \rightarrow 4\text{CO}_2 + 6\text{H}_2\text{O}$	Polymerisation
$n\text{CH}_2=\text{CH}_2 \rightarrow \text{-(CH}_2\text{-CH}_2\text{)}_n\text{-}$	Combustion
$\text{CH}_2=\text{CH}_2 + \text{H}_2 \rightarrow \text{CH}_3\text{-CH}_3$	Substitution reaction

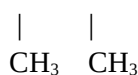
b. Which is the by product formed during the production of soap?

13. Ammonia is commercially prepared by Haber process according to the equation  $\text{N}_2 + 3\text{H}_2 \leftrightarrow 2\text{NH}_3$

Suggest the methods to increase the yield of ammonia

14. a) Give the IUPAC name of the following compounds

i)  $\text{CH}_3 - \text{CH} - \text{CH} - \text{CH}_2 - \text{CH}_2 - \text{CH}_3$



ii).  $\text{CH}_3 - \text{CH}_2 - \text{CH} - \text{CH}_3$



b) Sulphuric acid cannot be used as a drying agent in the laboratory preparation of ammonia, why?

15. Atomic number of an element X is 16.

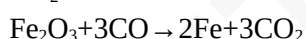
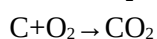
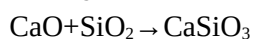
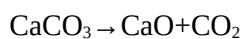
a) Write the subshell electronic configuration of x

b) Find out its Group and Period

c) Write the molecular formula of the compound formed when an element Y with atomic number 11 combines with X

**Answer any 4 questions from 16-20 .Each carries 4 marks .(4x4=16)**

16. Given below are the chemical reactions taking place at blast furnace.



Analyse the above equations and answer the following questions

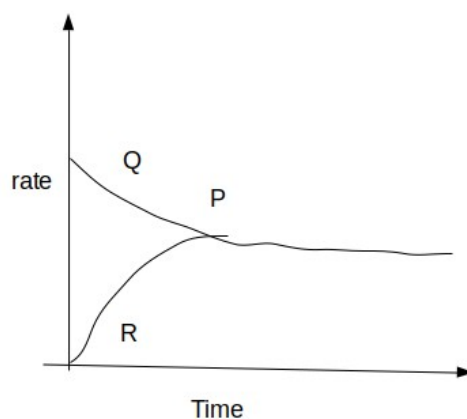
a) Which is the ore of iron?

b) Which is the element used as reducing agent in blast furnace?

c) Which is the flux used here?

d) Write the equation for the formation of slag

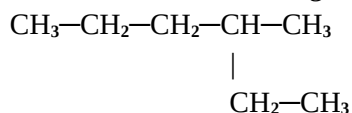
17. Given below is the graph showing the chemical reaction of  $2\text{SO}_2 + \text{O}_2 \leftrightarrow 2\text{SO}_3 + \text{Heat}$



Analyse the graph and answer the following

- Write the chemical equation indicating R in the graph
- What is the importance of P in graph
- What happens to the point P if we use vanadium pentoxide in this reaction, why?

18. Structural formula of an organic compound is given below



- Write the molecular formula of the above compounds
  - Find out the number of carbon atoms present in the longest carbon chain
  - What is the name of the branch .
  - Write the IUPAC name of this compound.
19. The relation between volume and temperature of a given mass of gas at constant pressure is given below

Volume(L)	Temperature(T) K	V/T
600	300	.....x.....
800	.....y.....	2
.....z.....	450	2

- find out the value of x, y ,z
  - Write the gas law associated with this
20. Zinc rod is placed in copper sulphate solution. After sometime it is seen that colour of the solution decreases.
- Write the equation of oxidation reaction ?
  - Write the equation of reduction reaction ?
  - What happens to the colour of solution, when silver is used instead of zinc .?Why?

