

**X-16-A**

Roll No. ....

Total No. of Questions : 27]

[Total No. of Printed Pages : 7

**11<sup>th</sup> ARJKLK23**

**9516-A**

**CHEMISTRY**

[Maximum Marks : 70

Time : 3 Hours]

(Very Short Answer Type Questions)

1 each

1. Define the term 'Closed System'.
2. What are oxidising agents ?
3. Calculate oxidation number of Mn in  $\text{KMnO}_4$ .

4. Write the IUPAC name of the compound  $\text{CH}_3-\overset{\text{CH}_3}{\underset{|}{\text{C}}}=\text{CH}_2$ .

5. Why are alkenes more reactive in nature ?

(Short Answer Type Questions—I)

2 each

6. Calculate the mass of one atom of silver.

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Turn Over

7. What is the significance of de Broglie concept and Heisenberg's principle  
an everyday life ?
8. What are representative elements ?
9. Define 'Law of Mass Action'.
10. What are Isotopes ? Name an isotope of hydrogen which has no neutron.
11. What are *p*-block elements ? Write the names of group-13 elements.
12. Ozone layer is necessary for life. Explain.

Or

Write a brief account of acid rain.

(Short Answer Type Questions—II)

3 each

13. State and explain law of conservation of mass.

14. State and explain Pauli's exclusion principle.

15. Define electron gain enthalpy. How does electron gain enthalpy vary with

(i) a group

(ii) a period

How would you explain these variations ?

16. State and explain Boyle's law.

17. Define Surface Tension. Describe the factors which affect surface tension.

18. State Hess's law. Why is Hess's law considered to be a special case of first law of thermodynamics ?

19. Define the Lewis concept of acids and bases with examples. Name the types of Lewis acids.

20. Name the elements of group-1 (alkali metals). Write their electronic configuration.

21. How is gypsum converted into Plaster of Paris ? Why is Plaster of Paris helpful in setting broken bones ?

22. Give reasons for the following :

(i) Diamond is very hard and non-conductor whereas graphite is soft and good conductor/

(ii) The number of alkanes is very large as compared to silanes.

23. A student was asked by his teacher to separate an impure sample of sulphur containing sand as impurity. He tried to purify it with the help of sublimation. But he was not successful particles of sulphur could not be separated completely from sand :

(i) Why did not the sublimation process succeed ?

( 5 )

- (ii) Suggest an alternate method to affect the separation.
- (iii) What is the value based information associated with it ?

Or

What are Carbanions ? How are they classified ? Give their order of stability.

24. (a) Why alkynes are less reactive than alkenes towards electrophilic reagents such as  $H^+$  ?

(b) How will you get :

(i) Ethylidene chloride

(ii) Dichloroacetaldehyde from acetylene ?

( 6 )

Or

- (a) What happens when ethyl alcohol is heated at  $170^{\circ}\text{C}$  with excess of conc.  $\text{H}_2\text{SO}_4$  ?
- (b) How will you distinguish between ethane and ethene by a chemical test ?

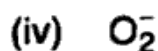
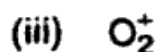
**(Long Answer Type Questions)**

5 each

25. What is meant by hybridisation of atomic orbitals ? Describe the shapes of  $sp$ ,  $sp^2$  and  $sp^3$  hybrid orbitals.

Or

What is meant by bond order ? Calculate bond order of :



( 7 )

26. (a) Explain what do you understand by inductive effect.
- (b) Inductive effect is of permanent nature while electromeric effect is only temporary. Explain.

*Or*

Name the different chromatographic techniques to purify organic compounds. Describe in detail adsorption chromatography.

27. Alkenes show geometrical isomerism, while alkanes do not. Give a suitable explanation.

*Or*

Discuss the orbital structure of benzene.