C–2–A

Roll No.....

Total No. of Questions : **27]**

[*Total No. of Printed Pages* : **4**

XIARKD21
5802–A
CHEMISTRY

Time : 2.30 Hours]

[Maximum Marks : 70

(Very Short Answer Type Questions) 1 each

1. Define Molecular Formula.

2. What is mass of 1 mole of CO_2 ?

3. What is Allotropy ?

4. Out of ethene and ethyne, which is more acidic in nature.

5. Which is most abundant element of group 13 ?

(Short Answer Type Questions—I) 2 each

6. Give reason which of the following set of quantum numbers are not possible :

   (i) $n = 2,\ l = 1,\ m = -1,\ s = -1/2$

   (ii) $n = 2,\ l = 0,\ m = 0,\ s = 0$

7. Write general electronic configuration of P and *d* block elements.

8. What do you understand by open and closed systems ? Illustrate with suitable examples.

9. What is meant by free energy of a substance ? How is it related to enthalpy and entropy ?

10. Calculate oxidation number of Cr in $K_2Cr_2O_7$.

11. Define Isotopes. Name *three* isotopes of hydrogen.

12. What is Acid Rain ?

Or

Name some Hydrocarbon Pollutants.

(Short Answer Type Questions—II) 3 each

13. State and explain law of conservation of mass.

14. State and derive de-Broglie relationship.

15. Define Atomic Radii. Discuss its trend in periodic table.

16. Define vapour pressure. Name factors affecting vapour pressure.

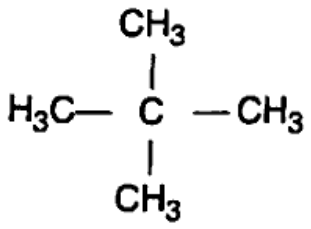
17. Define Boyle's law. How is it represented mathematically ?

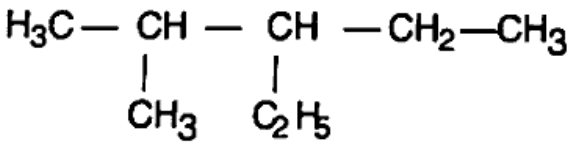
18. Name alkali metals and give their electronic configuration.

19. Explain the biological importance of magnesium and calcium.

20. Name the elements of group 14. Explain why first element of group shows anomalous behaviour.

21. Give IUPAC name of the following :

(i) 

(ii) 

(iii) $H_2C = CH - CH_2 - C \equiv CH$

22. Explain homolytic and heterolytic fission of covalent bond.

23. Explain inductive effect.

24. What happens when :

(i) ethyl alcohol is heated in presence of H_2SO_4 at 443K

(ii) ethyl bromide is heated with alcoholic KOH

(Long Answer Type Questions) 5 each

25. What are Sigma and Pi-bonds ? Explain the different ways of their formation diagrammatically which one is stronger and why ?

Or

Define the term hybridisation. Using this concept explain the shapes of PCl_5 and SF_6 molecules.

26. State Le-Chatelier's principle. Give *two* examples of its application in chemical industries.

Or

Explain the term Ionic product of water and pH value. How does the farmer change with temperature ? What is pH scale ?

27. Write short notes on the following :

(i) Friedal-Craft reaction

(ii) Wurtz reaction

Or

Explain the structure of benzene and give its important chemical reactions.