Board of Intermediate Education - Telangana

MODEL QUESTION PAPER

Chemistry-I (w.e.f. 2026-27)

TIME : 3 HOURS] **[MAX. MARKS : 60**

SECTION-A

10×2=20

NOTE: Answer all the questions

1. What is screening effect?
2. Define dipole moment. Write its units.
3. Assign the oxidation number to the underlined element in each of the following:

   (a) $\underline{Cr}O_4^{2-}$ (b) $\underline{Mn}O_4^-$
4. Define a system. Give one example.
5. What is a Lewis base? Give one example.
6. Write complete electronic configurations of any two alkali metals.
7. Why is gypsum added to cement?
8. Give the uses of silicones.
9. Graphite is a good conductor of electricity - explain.
10. What is pyrolysis?

SECTION-B

6×4=24

NOTE: Answer any Six of the following questions

11. State Heisenberg uncertainty principle and explain its significance.
12. Explain the hybridisation involved in IF_7 molecule.
13. What are sigma (σ) and pi (π) bonds? Write the differences between them.
14. Balance the following redox reaction by ion–electron method:

    $Fe^{2+}(aq) + Cr_2O_7^{2-}(aq) \rightarrow Fe^{3+}(aq) + Cr^{3+}(aq)$ (Acidic medium)
15. What is entropy? Explain with examples.
16. Derive the relation between Kc and Kp for the equilibrium:

    $N_2(g) + 3\,H_2(g) \rightleftharpoons 2\,NH_3(g)$
17. Calculate the pH of 0.001 M NaOH.
18. How does diborane react with:

    (a) CO (b) $N(CH_3)_3$

SECTION-C 2×8=16

NOTE : Answer any Two of the following

19. Explain emission and absorption spectra. Discuss the general description of the line spectrum of hydrogen atom.

20. What is a periodic property? How do the following properties vary in a period and a group?

    (a) Ionization energy (IE) (b) Electronegativity (EN) (c) Electron-gain enthalpy

21. Describe any two methods of preparation of acetylene. Write any two chemical properties of acetylene with equations.

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