Model Question Paper

Roll No ..... SOS (10+2) Class

(Chemistry)

Total no. of questions : 28

Time Allowed : 3 hrs **Maximum Marks : 75**

Candidates are required to Answer in their own words as far as practicable.
Marks allotted to each question are indicated against it.

Special Instructions:-

(i) You must indicate on your answer book the same question no. as appears in your question paper.

(ii) All questions are compulsory. Internal choices have been given in some questions.

(iii) Q. No. 1 to 10 are multiple choice types questions (MCQ) carrying 1 marks each

(iv) Q. No. 11 to 20 are very short answer types questions carrying 3 marks each

(v) Q. No. 21 to 25 are Short answer types questions carrying 4 marks each

(vi) Q. No. 26 to 28 are shrot answer types questions carrying 5 marks each

(vii) Use of log tables is allowed.

(viii) Calculator is not allowed

1. The co-ordination number of metal crystallising in a hexagonal close packing is 1

(a) 12 (b) 4

(c) 8 (d) (6)

2. The mole fraction of glucose in 10% w/w glucose solution is 1
   (a) 0.01 (b) 0.02
   (c) 0.03 (d) 0.04
3. Units of cell constant is 1
   (a) s^{-1} (b) $mol^{-1} s^{-1}$
   (c) cm^{-1} (d) L^{-1}
4. Units of rate constant for zero order reaction is 1
   (a) s^{-1} (b) mol L^{-1}
   (c) mol $L^{-1} s^{-1}$ (d) L^{-1} $mol^{-1} s^{-1}$
5. Shape selective catalysis is a reaction cataysed by 1
   (a) zeolites (b) enzymes
   (c) platinum (d) ziegler-natta catayst
6. Heating pyrites to remove sulphur is called 1
   (a) smelthing (b) roasting
   (c) calcination (d) liquation
7. Which of the following is not present in RNA? 1
   (a) uracil (b) thymine
   (c) cytosine (d) guanine
8. Whcih of the following transition metal ions has highest magnetic moment. 1
   (a) Cu^{2+} (b) Ni^{2+}
   (c) CO^{2+} (d) Fe^{2+}
9. Which of the following ligands will not show chelating effect. 1
   (a) EDTA (b) DMG
   (c) ethane-1,2- diamine (d) SCN^{-}
10. Deficiency of vitamin 'B' causes: 1
   (a) anaemia (b) beri-beri
   (c) night blindness (d) scurvy

11. What do you mean by imperfection in solids? Discuss metal excess defect in detail. 3

12. Calculate the mole fraction of benezene in solution containing 30% by mass in CCl_4. 3

Or

Show that depression in freezing point is a colligative property. How will you calculate molar mass of solute from depression in freezing point? 3

13. Discuss Faraday's laws of electrolysis with example. 3

14. Give any three points of difference between order of rection and molecul arity. 3

Or

Derive integrated rate equation for first order reaction. 3

15. Discuss the structure, hybridisation and magnetic properties of $[CNi(CN)_4]^{-2}$ complex on basis of valence bond theory. 3

16. (a) What are reducing and non reducing sugars? 2
    (b) Why N_2 is practically unreactive at room temperature. 1

17. (a) How will you convert ethyl alcohol into ethyl chloride. 1
    (b) Write short note on Swarts reaction. 1
    (c) Write short note on Sandmeyer's reaction. 1

Or

    (a) Write short note on Markovnikov's rule. 1
    (b) How will you convert propene to propan-l-ol. 1
    (c) Write short note on Finkelstein reaction. 1

18. (a) Why do transition metals exhibit variable oxidation states. 2

Or

What is lanthanoid contraction? What are its consequences. 2

    (b) Calculate spin only magnetic moment of M^{2+} (aq) ion. The atomic no of M is 27. 1

19. Write a note on cleansing action of soap. 3

Or

Discuss process of dialysis with help of a diagram. 3

20. How will you distinguish between primary, secondary and tertiary alcohols. 3

21. (a) What do you mean by metallurgy. What do you think is the difference between ore and mineral. 2

(b) Write short note on magnetic separation. 2

Or

(a) Discuss process of leaching of alumina from bauxite. 2

(b) What is the difference between calcination and roasting? 2

22. (a) Discuss structure of carboxyl group in detail. 2

(b) What is difference between thermoplastic and thermosetting polymers? 2

Or

(a) Explain why carboxylic acid is a stronger acid than phenol? 2

(b) Write down the synthesis of Nylon 6,6. 2

23. (a) Discuss Gabriel phthalimide synthesis. 2

(b) Write short note on natural rubber. 2

Or

(a) Discuss Hoffmann bromamide degradation reaction. 2

(b) What are elastomers? Discuss in detail. 2

24. (a) Discuss synthesis and structure of XeF_4. 2

(b) Which is a stronger reducing agent Cr^{2+} or Fe^{2+}? 1

(c) What do you mean by Brownian movement? 1

Or

(a) Why are the elements of group 18 known as noble gases? 2

(b) Name an element of lanthanoid series which is well known to exhibit +4 oxidation state. 1

(c) What do you mean by Tyndall effect? 1

25. (a) Define order of a reaction? 1

(b) Why do we need to classify drugs in different ways. 1

(c) Complete the reaction. 1

$$CH_3 - CH_2 - CH_2 - O - CH_3 + HBr \rightarrow$$

(d) Why is ICl more reactive than I_2. 1

26. (a) A hydrocarbon X does not react with chlorine in dark but gives a single monochloro compound C_5H_9Cl in brigth sunlight. Identify the hydrocarbon. 2

(b) What are biodegradable polymers. 2

(c) Noble gases have very low boiling points, why? 1

27. (a) Write chemical rection for the following 2

(i) Etard reaction (ii) Carnnizzaro reaction.

(b) How will you convert benzene into aniline? 1

(c) Give structure of zwitter ion. 1

(c) What do you mean by the term "acid rain"? 1

28. (a) What are antibiotics? Give example. 2

(b) Write chemical equation of carbylamine reactions. 1

(c) Write IUPAC name of acetaldehyde. 1

(d) What is wood spirit ? 1