

**Sample Paper**  
**Class – XII**  
**Subject – Chemistry**

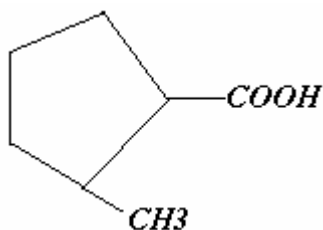
Time: Three Hours Max. Marks: 70

General Instructions

1. All questions are compulsory.
2. Question nos. 1 to 8 are very short answer questions and carry 1 mark each.
3. Question nos. 9 to 18 are short answer questions and carry 2 marks each.
4. Question nos. 19 to 27 are also short answer questions and carry 3 marks each.
5. Question nos. 28 to 30 are long answer questions and carry 5 marks each.
6. Use log tables if necessary, use of calculators is not allowed.

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1. State Hardy-Schulze rule.
2. Give the chemical formula for the compound potassium hexacyanocobaltate
3. Why propanol has higher boiling point than that of the hydrocarbon, butane?
4. Give the IUPAC name of the following compounds:



5. Write zwitter ion of amino acetic acid.
6. What is meant by anomers?
7. Give one example of biodegradable polymer?
8. What type of drug pencillin is?
9. Define the following and give one example of each:
  - i) Antihistamines
  - ii) Antacids
10. Distinguish between 'chain growth polymerisation' and 'step growth polymerisation' and give one example of each type.
11. Explain why tert-butyl chloride reacts with aqueous sodium hydroxide by  $S_N^1$  mechanism while n-butyl chloride reacts by  $S_N^2$  mechanism?
12. What are amident nucleophiles? Explain with suitable example.
13. Using valance bond theory, predict the geometry and magnetic behaviour of  $[\text{NiCl}_4]^{-2}$ .
14. What is lanthanoids contraction? What are the consequences of lanthanoids contraction?
15.  $\text{Zn(s)} + \text{Cu}^{+2}(\text{aq}) \rightleftharpoons \text{Zn}^{+2}(\text{aq}) + \text{Cu(s)}$ , Given:  $E^\circ_{\text{Zn}^{+2}/\text{Zn}} = -0.763\text{V}$  and  $E^\circ_{\text{Cu}^{+2}/\text{Cu}} = +0.34\text{V}$ .
16. Calculate the equilibrium constant for the reaction



a) An organic compound 'A'  $C_8H_6$  on treatment with dilute  $H_2SO_4$  containing mercuric sulphate gives compound 'B'. Which can also be obtained from a reaction of benzene with acid chloride in the presence of  $AlCl_3$ ? 'B' on treatment with  $I_2$  in aq.KOH gives 'C' and yellow compound 'D'. Identify A,B,C and D. Give the chemical reactions involved.

b) How will you convert:

- i) acetophenone to ethyl benzene                      ii) propanone to 2-Propanol.  
State conditions and reactions in each case.

- 29    i) Xe has highest polarising power. Why?  
      ii) Halogens are coloured. Why?  
      iii) Noble gases are mostly chemically inert. Why?  
      iv) Nitrogen does not form pentahalide. Why?  
      v) Bismuth is a strong oxidising agent in pentavalent state. Why?

30. a) Time required for 10% completion of a first order reaction at 298K is equal to that required for its 25% completion at 308K. If the value of A is  $4 \times 10^{10} s^{-1}$ . calculate k at 318K and  $E_a$ .

b) Account about pseudo first order reaction with suitable example.

c) Show that in a first order reaction, time required for completion of 99.99% is 10 times of half-life ( $t_{1/2}$ ) of the reaction.