

Sub.Code : 212

NEB - GRADE XII
Chemistry
Model Question [2077(2020)]

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Time: 1.30 hrs.

Full Marks: 30

Group 'A'

- Attempt any **five** questions. 5x2=10
1. Write two important features of hybrid orbitals. 2
 2. Define the terms: 1+1
 - i) Primary standard solution
 - ii) Acidimetry
 3. How many coulombs are required to produce 50 gm. of Al when electrode reaction is $Al^{+++} + 3e^- \rightarrow Al$ (atomic mass of Al = 27). 2
 4. For a reaction, $2N_2O_5 \rightarrow 4NO_2 + O_2$, The rate of disappearance of N_2O_5 is $4 \times 10^{-6} \text{ mol L}^{-1}\text{S}^{-1}$, what will be the rate of formation of NO_2 ? 2
 5. Write the action of heat on blue vitriol. 2
 6. Write an example of each of the following 1+1
 - i) Aldol Condensation
 - ii) Rosenmund's reduction
 7. Write down the structure of a primary amine and a secondary amine from C_3H_9N and give their IUPAC name. 1+1

Group 'B'

- Attempt any **two** questions. 2x5=10
8. Define the terms:
 - i) titration error
 - ii) unknown solutionWhat volume of 10 M HCl and 3 M HCl should be mixed to obtain one litre of 6 M HCl solution. 1+1+3

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9. State enthalpy of combustion.

If heat of formation of CO_2 , H_2O and $\text{C}_6\text{H}_{12}\text{O}_6$ are -395 KJ mol^{-1} , $-269.4 \text{ KJ mol}^{-1}$ and 1169 KJ mol^{-1} respectively. Calculate the heat of combustion of glucose. 1+4

10. Give chemical reaction for the preparation of ethanoic acid from

i) 1, 1, 1-trichloro ethane ii) Methyl magnesium iodide iii) ethane nitril.

How is ethanoic acid converted into methanoic acid? 3+2**Group 'C'**Attempt any **one** question.1x10=1011. Write down a structural formula and its IUPAC name of $\text{C}_4\text{H}_{10}\text{O}$. How would you apply Victor Mayer's method for the distinction of propan-1-ol from propan-2-ol? Write an example of the following reactions.

i) oxo-process ii) Baeyer's test

Convert propan-2-ol into propan-1-ol.

2+4+2+2

12. Define: i) rate law equation

ii) Half life period for a reaction

How is order of a reaction differed from molecularity of reaction?

The following rate data were obtained for the reaction $2\text{A} + \text{B} \rightarrow \text{C}$

ExptNo.	[A] mol L ⁻¹	[B] mol L ⁻¹	initial rate of formation of C mol L ⁻¹ S ⁻¹
1	0.1	0.1	6.0×10^{-3}
2	0.3	0.2	7.2×10^{-2}
3	0.3	0.4	2.88×10^{-4}
4	0.4	0.1	2.4×10^{-2}

Calculate the rate of formation of C when $[\text{A}] = 0.5 \text{ mol L}^{-1}$ and $[\text{B}] = 0.2 \text{ mol L}^{-1}$. 2+4+4