

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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(2)

9. State enthalpy of combustion.

If heat of formation of  $\text{CO}_2$ ,  $\text{H}_2\text{O}$  and  $\text{C}_6\text{H}_{12}\text{O}_6$  are  $-395 \text{ KJ mol}^{-1}$ ,  $-269.4 \text{ KJ mol}^{-1}$  and  $1169 \text{ KJ mol}^{-1}$  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 <sup>-1</sup>	[B] mol L <sup>-1</sup>	initial rate of formation of C mol L <sup>-1</sup> S <sup>-1</sup>
1	0.1	0.1	$6.0 \times 10^{-3}$
2	0.3	0.2	$7.2 \times 10^{-2}$
3	0.3	0.4	$2.88 \times 10^{-4}$
4	0.4	0.1	$2.4 \times 10^{-2}$

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