

Ts11C

Tenkasi District

First Mid Term Test - 2023



11-08-2023

Standard 11

CHEMISTRY

Time: 1.30 Hours

Marks: 35

## PART - I

## I. Choose the correct answer.

7x1=7

- The equivalent mass of potassium permanganate in alkaline medium is  
( $\text{MnO}_4^- + 2\text{H}_2\text{O} + 3\text{e}^- \rightarrow \text{MnO}_2 + 4\text{OH}^-$ )  
a) 31.6                      b) 52.7                      c) 79                      d) None of these
- The empirical formula for Fructose ( $\text{C}_6\text{H}_{12}\text{O}_6$ ) is  
a)  $\text{CH}_2\text{O}_2$                       b)  $\text{CH}_2\text{O}$                       c) CHO                      d)  $\text{C}_3\text{H}_6\text{O}_2$
- What is the maximum numbers of electrons that can be associated with the following set of quantum numbers?  $n = 3$   $l = 1$   $m = -1$   
a) 4                      b) 6                      c) 2                      d) 10
- Electron density in the YZ plane of  $3d_{xy}$  orbital is .....  
a) zero                      b) 0.50                      e) 0.75                      d) 0.90
- Maximum deviation from ideal gas is expected from  
a)  $\text{CH}_4(\text{g})$                       b)  $\text{NH}_3(\text{g})$                       c)  $\text{H}_2(\text{g})$                       d)  $\text{N}_2(\text{g})$
- Change in internal energy, when 4KJ of work is done on the system and 1 KJ of heat is given out by the system is  
a) +1 KJ                      b) -5 KJ                      c) +3 KJ                      d) -3 KJ
- Molar heat of vapourisation of a liquid is  $4.8 \text{ KJ mol}^{-1}$ . If the entropy change is  $16 \text{ J Mol}^{-1}\text{K}^{-1}$ , the boiling point of the liquid is .....  
a) 323 K                      b)  $27^\circ\text{C}$                       c) 164 K                      d) 0.3 K

## PART - II

## II. Answer any two questions.

2x2=4

- Distinguish between oxidation and Reduction.
- Give the electronic configuration of Chromium and Copper.
- State - Gay - Lussac's Law?
- Define Hass's law of constant heat summation?

## PART - III

## III. Answer any three questions. Q.No. 16 is compulsory.

3x3=9

- How many moles of hydrogen is required to produce 10 moles of ammonia?  
 $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$
- Describe the Aufbau principle.
- Aerated water bottles are kept under water during summer. Why?
- List the characteristics of internal energy?
- For each of the following, give the sub level designation, the allowable m values and the number of orbitals.  
i)  $n = 4, l = 2$ , (ii)  $n = 5, l = 3$

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## PART - IV

## IV. Answer all questions.

3×5=15

- 17) Calculate the empirical and molecular formula of a compound containing 76.6% Carbon, 6.38% hydrogen and rest oxygen its vapour density is 47.

(OR)

Explain

- (i) Magnetic quantum number  
(ii) Spin quantum number.

- 18) Write a note on (i) Decomposition reaction  
(ii) Disproportionation reaction.

(OR)

Explain the assumptions of Bohr atom model?

- 19) Derive the values of critical constant in terms of vander Waals constant?

(OR)

Suggest and explain an indirect method to calculate the lattice enthalpy of sodium chloride Crystal.

SIVAKUMAR . M, Sri Ram Matric HSS, Vallam  
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