

Tsi11C

Tenkasi District



Common Quarterly Examination - 2023

25-09-2023

Standard 11

Time Allowed: 3.00 Hours

CHEMISTRY

Maximum Marks: 70

PART - I

Choose the suitable answer:

15×1=15

- Tritium nucleus contains
 - $1p+0n$
 - $1p+2n$
 - $2p+1n$
 - none of these
- Assertion** : Permanent hardness of water is removed by treatment with washing soda.
Reason : Washing soda reacts with soluble calcium and magnesium chlorides and sulphates in hard water to form insoluble carbonates.
 - Assertion is true but reason is false.
 - Both assertion and reasons are true but reason is not the correct explanation of assertion.
 - Both assertion and reasons are true and reason is the correct explanation of assertion.
 - Both assertion and reason are false.
- What would be the IUPAC name for an element with atom number 111?
 - UnUnnilium
 - UnUnUnium
 - UnUnbium
 - UnUntrium
- Which of the following orders of Ionic radii is correct?
 - $H^- > H^+ > H$
 - $Na^+ > F^- > O^{2-}$
 - $F > O^{2-} > Na^+$
 - None of these
- Which of the following pairs of d orbitals will have electron density along the axes?
 - dz^2, dxz
 - dxz, dyz
 - dz^2, dx^2-y^2
 - dxy, dx^2-y^2
- A macroscopic particle of mass 100g and moving at a velocity of 100 cms^{-1} will have a de broglie wavelength of
 - $6.6 \times 10^{-29} \text{ cm}$
 - $6.6 \times 10^{-30} \text{ cm}$
 - $6.6 \times 10^{-32} \text{ cm}$
 - $6.6 \times 10^{-31} \text{ cm}$
- Which of the following compound (s) has / have percentage of carbon same as that in ethylene (C_2H_4)
 - Propane
 - Ethyne
 - Benzene
 - Ethane
- 7.5g of a gas occupies a volume of 5.6L at 0°C and 1 atm pressure. The gas is _____.
 - CO
 - NO
 - CO_2
 - N_2O
- Use of hot airballoon in sports at meterological observation is an application of _____.
 - Boyle's law
 - Newton's law
 - Kelvin's law
 - Brown's law
- If one mole of ammonia and one mole of hydrogen chloride are mixed in a closed container to form ammonium chloride gas, then
 - $\Delta H > \Delta U$
 - $\Delta H - \Delta U = 0$
 - $\Delta H + \Delta U = 0$
 - $\Delta H < \Delta U$
- In a reversible process, the change in entropy of the universe is _____.
 - > 0
 - ≥ 0
 - < 0
 - $= 0$
- $\frac{K_c}{K_p}$ for the reaction $N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)}$ is
 - $\frac{1}{RT}$
 - \sqrt{RT}
 - RT
 - $(RT)^2$
- The IUPAC name of the compound $CH_3-CH=CH-C \equiv CH$ is
 - pent-3-en-1-yne
 - pent-4-yn-2-ene
 - pent-2-en-4-yne
 - pent-1-yn-3-ene
- The Isomar of ethanol is
 - acetaldehyde
 - dimethyl ether
 - acetone
 - methyl carbinol
- Which of the following species does not exert a resonance effect?
 - C_6H_5OH
 - C_6H_5Cl
 - $C_6H_5N_2$
 - $C_6H_5N^+H_3$

Kindly send me your study materials to padasalai.net@gmail.com

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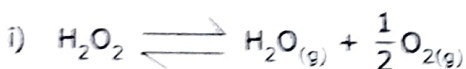
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PART - II**Note: Answer any SIX questions. Question No. 24 is compulsory. 6x2=12**

- 16) What do you understand by the term mole?
- 17) State Pauli exclusion principle.
- 18) How do you convert para hydrogen into ortho hydrogen?
- 19) What is lattice energy?
- 20) State law of mass action.
- 21) What is Joule - Thomson effect?
- 22) How halogens identified by Lassaigne's test? (Any two test)
- 23) What is -I effect? Give two example.
- 24) An unknown gas diffuses at a rate of 0.5 times that of Nitrogen at the same temperature and pressure. Calculate the molar mass of the unknown gas.

PART - III**Note: Answer any SIX questions. Question No. 33 is compulsory. 6x3=18**

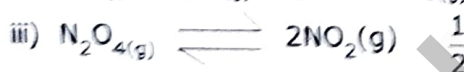
- 25) Mass of one atom of an element is 6.645×10^{-23} g. How many moles of element are there in 0.320 kg.
- 26) Write short notes on Principal Quantum numbers.
- 27) Explain the Pauling method for the determination of Ionic radius.
- 28) Derive Ideal gas equation.
- 29) What are spontaneous reactions? What are the conditions for the spontaneity of a process?
- 30) Write the equilibrium constant K_c for the following reactions:



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- 31) Write a note on homologous series.
- 32) What are electrophiles and nucleophiles? Give suitable examples for each.
- 33) The equilibrium concentrations of NH_3 , N_2 and H_2 are 1.8×10^{-2} M, 1.2×10^{-2} M and 3×10^{-2} M respectively. Calculate the equilibrium constant for the formation of NH_3 from N_2 and H_2 . [Hint : M = mol lit^{-1}]

PART - IV**Note: Answer ALL the questions.****5x5=25**

- 34) a) i) Balance the equation by oxidation number method.
 $\text{KMnO}_4 + \text{Na}_2\text{SO}_3 \rightarrow \text{MnO}_2 + \text{Na}_2\text{SO}_4 + \text{KOH}$
 (OR)
 b) i) How many orbitals are possible for $n=4$? (2)
 ii) State Heisenberg's uncertainty principle. (3)
- 35) a) i) Define modern periodic law. (2)
 ii) Explain the diagonal relationship. (3)
 (OR)
 b) i) What are isotopes? Write the names of isotopes of hydrogen. (3)
 ii) Mention two uses of heavy water. (2)
- 36) a) i) State Graham's Law of Diffusion. (3)
 ii) Distinguish between diffusion and effusion. (2)
 (OR)
 b) State the various statements of second law of Thermodynamics. (5)
- 37) a) Derive the Relation between enthalpy H and Internal energy U. (5)
 (OR)
 Derive K_p and K_c for dissociation of PCl_5 .
- 38) a) How will you estimate sulphur by canus method? (5)
 (OR)
 b) Write short note on: (a) Resonance (b) Hyperconjugation