

Tsi11C

Tenkasi District
First Revision Examination - 2024



18-01-2024.

Time: 3.00 Hours

Standard 11
CHEMISTRY
Part - I

Marks: 70

I. Choose the correct answer.

15x1=15

- 1) Which of the following is not a intensive property?
 - a) Temperature
 - b) Pressure
 - c) Density
 - d) Enthalpy
- 2) The units of Vander Waals constants 'b' and 'a' respectively?
 - a) mol L⁻¹ and L atm² mol⁻¹
 - b) mol L and L atm mol²
 - c) mol⁻¹ L and L² atm mol⁻²
 - d) none of these
- 3) Formula of washing soda is _____
 - a) Na₂CO₃ · 7H₂O
 - b) Na₂CO₃ · H₂O
 - c) Na₂CO₃ · 10H₂O
 - d) Na₂CO₃ · 2H₂O
- 4) Which of the following orders of ionic radii is correct?
 - a) H⁻ > H⁺ > H
 - b) Na⁺ > F⁻ > O²⁻
 - c) F > O²⁻ > Na⁺
 - d) None of these
- 5) Tritium nucleus contains
 - a) 1p + 0n
 - b) 2p + 1n
 - c) 1P + 2n
 - d) None of these
- 6) Splitting of spectra lines in an magnetic field is called
 - a) Zeeman effect
 - b) compton effect
 - c) Stark effect
 - d) Shialding effect
- 7) Which one of the following represents 180 g of water?
 - a) 5 moles of water
 - b) 90 moles of water
 - c) $\frac{6.022 \times 10^{23}}{180}$ molecules of water
 - d) 6.022×10^{24} molecules of water
- 8) The condition for the reaction is in equilibrium state _____
 - a) Q > K_C
 - b) Q < K_C
 - c) Q = K_C
 - d) Q = K_C
- 9) Stomach acid, a dilute solution of HCl can be neutralised by reaction with aluminium hydroxide Al(OH)₃ + 3HCl_(aq) → AlCl₃ + 3H₂O. How many milli litres of 0.1 m Al(OH)₃ solution are needed to neutralise 21 ml of 0.1 m HCl?
 - a) 14 mL
 - b) 7 mL
 - c) 21 mL
 - d) none of these
- 10) According to VSEPR theory, the repulsion between different parts of electron obey the order.
 - a) 1.p - 1.p > b.p - b.p > 1.p - b.p
 - b) b.p - b.p > b.p.1.p > 1.p - b.p
 - c) 1.p - 1.p > b.p - 1.p > b.p - b.p
 - d) b.p - b.p > 1.p - 1.p - 1.p
- 11) Match the following:

A) Alicyclic compound	- (i) azulene
B) Aromatic Heterocyclic Compound	- (ii) phenol
C) Benzanoid Compound	- (iii) THF
D) Non-Benzanoid Compound	- (iv) pyridine
a) A-iii, B-i, C-iv, D-ii	b) A-iii, B-iv, C-ii, D-i
c) A-iv, B-ii, C-iii, D-i	d) A-iv, B-iii, C-ii, D-i
- 12) Which of the following species does not exert a resonance effect?
 - a) C₆H₅OH
 - b) C₆H₅Cl
 - c) C₆H₅NH₂
 - d) C₆H₅NH₃⁺
- 13) cis-2-butane and crans-2-butane are
 - a) conformational isomers
 - b) structural isomers
 - c) configurational isomers
 - d) optical isomers
- 14) Assertion : In mono haloarenes, electroplitic substitution occurs at ortho and para positions
Reason : Halogen atom is a ring deactivator
 - a) If both assertion and reason are true and reason is the correct explanation of assertion
 - b) If both assertion and reason are true but reason is not the correct explanation of assertion
 - c) If assertion is true but reason is false
 - d) If both assertion and reason are false
- 15) Bio chemical oxygen demand value less than 5 ppm indicates a water sample to be
 - a) highly polluted
 - b) poor in dissolved oxygen
 - c) rich in dissolved oxygen
 - d) low COD

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Part - II

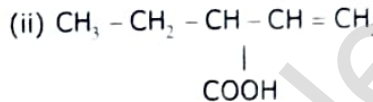
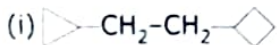
II. Answer any six questions. Q.No. 24 is compulsory.

6x2=12

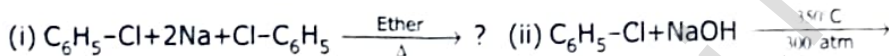
- 16) What do you understand by the term mole?
 17) Define modern periodic law?
 18) Write the exchange reactions of deuterium?
 19) State Hess's Law.
 20) Write a balanced chemical equations for a equilibrium reaction for which the

equilibrium constant is given by expression $K_c = \frac{[\text{NH}_3]^4 [\text{O}_2]^5}{[\text{NO}]^4 [\text{H}_2\text{O}]^6}$

- 21) What is bond length? Give the various technique to determine the bond length?
 22) How is acid rain formed?
 23) Give the IUPAC names of the following compounds:



- 24) Complete the following reactions



Part - III

III. Answer any six questions. Q.No. 33 is compulsory.

6x3=18

- 25) Write a note on decomposition reaction.
 26) Derive de Broglie equation? Give its significance.
 27) Discuss the three types of covalent hydrides.
 28) State Dalton's law of partial pressure.
 29) Explain Fajan's rule.
 30) Describe the reactions involved in the detection of nitrogen in an organic compound by Lassaigne method.
 31) Explain inductive effect with suitable example.
 32) Which is considered to be earth's protective umbrella? Why?
 33) An engine operating between 127°C and 47°C takes some specified amount of heat from a high temperature reservoir. Assuming that there are no frictional losses, calculate the percentage efficiency of an engine.

Part - IV

IV. Answer all the questions:

5x5=25

- 34) a) Enlist the postulates of Bohr's atom model. (OR)
 b) i) What is effective nuclear charge. (2)
 ii) State the trends in the variation of electronegativity in group and periods. (3)
 35) a) i) Write the chemical equations for the reactions involved in solvay process of preparation of sodium carbonate. (3)
 ii) Give the uses of gypsum. (2) (OR)
 b) i) Derive the relation between enthalpy 'H' and internal energy 'U'. (3)
 ii) State the third law of thermodynamics. (2)
 36) a) Derive a general expression for the equilibrium constant K_p and K_c for the reaction $\text{N}_{2(g)} + 3\text{H}_{2(g)} \rightleftharpoons 2\text{NH}_{3(g)}$ (OR)
 b) How will you determine the molar mass of solute from relative lowering of vapour pressure?
 37) a) Explain the bond formation in ethylene. (OR)
 b) Explain various types of constitutional isomerism (structural isomerism) in organic compounds.
 38) a) i) Explain Markovnikov's rule with suitable example. (3)
 ii) Write Swartz reaction. (2) (OR)
 b) i) What is green chemistry? (2)
 ii) Explain how does green house effect cause global warming. (3)