

UNIT TEST -1
(METALLURGY)

CLASS : XII

TIME : 1.00 HRS

SUBJECT : CHEMISTRY

MARKS : 30

PART – I

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. What is the role of limestone in the extraction of iron from its oxide Fe_2O_3 ?
2. Which type of ores can be concentrated by froth flotation method give two examples ?
3. Give the limitation of Ellingham diagram ?
4. What is Liquefaction ?
5. Explain the following terms with suitable examples
I) Gangue II) slag
6. Write a note on gravity separation method ?
7. What is auto-reduction ? Give an example
8. Write a short note on concentration by magnetic separation with a diagram ?

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

9. Describe the Mond process for refining nickel
10. Explain the principle of electrolytic refining with an example
11. Explain the froth flotation process
12. What are the differences between minerals and ores
13. Explain acid leaching with an example
14. Explain zone refining process with an example
15. What are the differences between calcination and roasting
16. Explain the refining of titanium by the van-Arkel method

UNIT TEST -2
(p-Block Elements –I)

CLASS : XII

TIME : 1.00 HRS

SUBJECT : CHEMISTRY

MARKS : 30

PART – I

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. i) Give one example for each of the following
a) chalcogens b) tetragen c) pnictogen d) chalcogen
ii) How will you convert boric acid to boron nitride ?
2. Give the uses of borax
3. What are the uses of boric acid ?
4. i) Write a short note on hydroboration ?
ii) Write a note on Fisher tropesch synthesis ?
5. i) How will you identify borate radical ?
ii) How do you prepare $AlCl_3$ by Me-Afee process ?
6. Give the uses of silicones ?
7. What are the factors responsible for the anomalous behaviour of first element of the p-block ?
8. What is inert pair effect ?

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

9. Describe the structure of diborane
10. What is catenation ? describe briefly the catenation property of carbon
11. Difference between diamond and graphite
12. What is the action of heat on boric acid ?
13. How is potash alum prepared ? and give uses
14. i) How will you prepare inorganic benzene ?
ii) Draw the structure of CO and CO_2
15. Write a note on zeolites. write its general formula ?
16. How will silicate classified ? Give an example for each type of silicate ?

UNIT TEST -3
(p-Block Elements –II)

CLASS : XII

TIME : 1.00 HRS

SUBJECT : CHEMISTRY

MARKS : 30

PART – I

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. Give the uses of helium
2. i) How is bleaching powder prepared ? ii) Give the uses of argon
3. What are the hybridisation of ion in IF_7 ? Give its structure
4. Write a short note on Holmes signal
5. Sulphuric acid dibasic acid prove it
6. Write the molecular formula and draw the structure of sulphurous acid and marshals acid
7. Complete the following reaction ?
 - i) $NH_3(\text{excess}) + Cl_2 \rightarrow ?$
 - ii) $NH_3 + Cl_2(\text{excess}) \rightarrow ?$
8. i) How is pure phosphine prepared ?
ii) why fluorine always exhibit an oxidation state of -1 ?

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

9. Write the balanced equation for the overall reaction of chlorine with cold NaOH and hot NaOH
10. explain the Deacons's process for manufacture of chlorine
11. Explain the dehydrating property of sulphuric acid with suitable example
12. explain the structure of ammonia
13. What are inter halogen compounds ? mention their properties
14. Write the difference between red phosphorus and white phosphorus
15. i) What is royal water ? or Aquaregia what is its uses ?
ii) HF can't be stored in glass bottle why ?
16. Write the reason for the anomalous behaviour of nitrogen

UNIT TEST -4**(Transition and Inner Transition Elements)****CLASS : XII****TIME : 1.00 HRS****SUBJECT : CHEMISTRY****MARKS : 30****PART – I****ANSWER THE FOLLOWING ANY SIX QUESTIONS****6 X 2 = 12**

1. Write chromyl chloride test
2. What are interstitial compounds
3. Which is more stable Fe^{2+} and Fe^{3+} ? why ?
4. Write a note on zeigler –Natta catalysis .Give its use
5. why d block elements exhibit variable oxidation state?
6. Out of $\text{Lu}(\text{OH})_3$ and $\text{La}(\text{OH})_3$ which is more basic and why ?
7. Why transition elements form complexes ?
8. Transition metals show high melting points why?

PART-II**ANSWER THE FOLLOWING ANY SIX QUESTIONS****6 X 3 = 18**

9. Compare the properties of lanthanides and actinides
10. What are the properties of interstitial compounds ?
11. Describe the preparation of KMnO_4
12. What is lanthanide or lanthanoide contraction explain its consequences
13. Explain Hume -rotheryrule for formation of alloys?
14. Just be the position of lanthanide and actinide in the periodic table
15. i) What are inner transition elements? Give example
ii) What is meant by transition elements ?
16. Calculate the number of unpaired electrons in Ti^{3+} , Mn^{2+} and calculate the spin only magnetic moments?

UNIT TEST -5
(Coordination Chemistry)

CLASS : XII

TIME : 1.00 HRS

SUBJECT : CHEMISTRY

MARKS : 30

PART – I

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. i) Define Coordination number
ii) what is strong field ligand ?
2. what is central metal atom in coordination complex ?
3. In an octahedral crystal field draw the figure to show splitting of d orbitals
4. what are the limitation of VB theory ?
5. What is crystal fielding splitting energy ?
6. What is crystal field stabilization energy ?
7. In an tetrahedral crystal field draw the figure to show splitting of d orbitals
8. Write the IUPAC ligand name for the following
 - a) $C_2O_4^{2-}$
 - b) H_2O
 - c) Cl^-

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

9. based on the VB theory ,explain why $[Ni(CN)_4]^{2-}$ it is diamagnetic.
10. Calculate the magnetic moment and magnetic property of $[CoF_6]^{3-}$
11. write the postulates of werner's theory ?
12. Give the difference between double salt and coordination compound
13. Write any two medicinal uses of co-ordination compounds
14. Explain the bonding nature in metal carbonyl
15. $[Fe(CN)_6]^{3-}$ paramagnetic , explain using VB theory
16. $K_4[Mn(CN)_6]$ Identify the oxidation number of central metal ion , co-ordination number , nature of the ligand

UNIT TEST -6
(Solid State)

CLASS : XII

TIME : 1.00 HRS

SUBJECT : CHEMISTRY

MARKS : 30

PART – I

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. Define unit cell and Define crystal lattice
2. What is mean by term coordination number? What is the coordination number of atom in a BCC structure?
3. calculate the number of atoms present crystal-FCC , BCC- and SC ?
4. Define covalent solids
5. Why ionic crystal are hard and brittle ?
6. What are the characteristics of Ionic solids?
7. Classify the following into Covalent molecular ionic and metallic solids
 - i) Diamond ii) brass iii) NaCl iv) Naphthalene v) glucose
 - vi) SiO₂ vii) P₄ viii) Brass ix) Iodine
8. How are point defect classified ?

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

9. Explain Schottky defect ?
10. Distinguish between isotropy and anisotropy in solids
11. differentiate between crystalline solid and amorphous solid
12. Distinguish between hexagonal close packing and cubic close packing
13. Write a note on frenkel defect ?
14. Write the short note on the metal deficiency defect and metal excess defect with example
15. Write any three difference between tetrahedral and Octahedral voids
16. calculate the percentage efficiency of packing in case of body centered cubic crystal

UNIT TEST -7
(Chemical Kinetics)

CLASS : XII
SUBJECT : CHEMISTRY

TIME : 1.00 HRS
MARKS : 30

PART – I

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. Define half life period of reaction
2. Write Arrhenius equation and explain the terms involved ?
3. Give two examples for zero order reaction
4. Give two examples for the first order reactions
5. The rate constant for a first order reaction is $1.54 \times 10^{-3} \text{ s}^{-1}$. calculate its half life time
6. Define average rate and instantaneous rate
7. Define rate law and rate constant
8. Identify the order for the following reactions.
 - i) rusting of iron
 - ii) radioactive disintegration of ${}_{92}\text{U}^{238}$
 - iii) $2\text{A} + 3\text{B} \rightarrow \text{products}$; $\text{K} [\text{A}]^{1/2} [\text{B}]^2$

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

9. Derive integrated rate law for a zero order reaction $\text{A} \rightarrow \text{product}$.
10. Derive integrated rate law for a first order reaction $\text{A} \rightarrow \text{product}$
11. what is an elementary reaction ? Give the difference between order and molecularity of a reaction
12. What is pseudo first order reaction? Give an example
13. write the difference between rate and rate constant of a reaction
14. A first order reaction takes 8 hours for 90 % completion calculate the time required for 80 % completion.
15. Show that in case of first order reaction , the time required for 99.9% completion is Nearly ten times the time required for half completion of the reaction
16. Explain the effect of catalyst on reaction rate with an example.

UNIT TEST -8
(Ionic Equilibrium)

CLASS : XII

TIME : 1.00 HRS

SUBJECT : CHEMISTRY

MARKS : 30

PART – I

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. Define ionic product of water .Give its value at room temperature
2. What are the limitations of Arrhenius concept ?
3. Define pH
4. What is buffer solution ? give example
5. Define buffer action
6. What is buffer capacity ? what is buffer index(β) ?
7. Write the relation between ionic product and solubility product
8. Write the expression for the solubility product of Hg_2Cl_2 and $\text{Ca}_3(\text{PO}_4)_2$

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

9. Derive henderson equation
10. Define common ion effect with example
11. Derive an expression for ostwald dilution law
12. find the pH of buffer solution containing 0.20 mole per litre sodium acetate and 0.18 mole per litre acetic acid . K_a for acetic acid is 1.8×10^{-5} .
13. what are Lewis acid and bases give one example for each
14. Derive the Relation between P^H and P^{OH}
15. calculate the P^H of 1.5×10^{-3} M solution of $\text{Ba}(\text{OH})_2$.
16. Derive an expression for the hydrolysis constant and degree of hydrolysis of Salt of strong acid and base

UNIT TEST -9
(Electro Chemistry)

CLASS : XII

TIME : 1.00 HRS

SUBJECT : CHEMISTRY

MARKS : 30

PART – I

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. Define equivalent conductance
2. A solution of silver nitrate is electrolysed for 30 minutes with a current of 2 amperes.
Calculate the mass of silver deposited at the cathode
3. how are metals protected from corrosion by cathodic protection method
4. Define anode and cathode
- 5.i) what is electrochemical equivalent ? ii) What is electrochemical series ?
6. What is intercalation ?
7. What are the conversion used Galvanic cell notation ?
8. Define molar conductance and specific conductance

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

- 9.State Kohlrausch law and explain any two of the application
10. What are the factors that affect electrolytic conductance ?
11. State Faraday's law of electrolysis ?
12. Derive an expression for Nernst equation
13. how are metals protected from corrosion ?
14. Write a note on Standard Hydrogen Electrode(SHE)
- 15.explain mercury button cell.
16. Ionic conductance at infinite dilution of Al^{3+} and SO_4^{2-} 189 and 160 mho cm^2
equivalent calculate the equivalent and molar conductance of the electrolyte
 $\text{Al}_2(\text{SO}_4)_3$ at infinite dilution

UNIT TEST -10
(surface chemistry)

CLASS : XII

TIME : 1.00 HRS

SUBJECT : CHEMISTRY

MARKS : 30

PART – I

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. What do you mean by helmholtz electrical double layer?
- 2.i) What is homogeneous catalysis ? Give example
ii) What is heterogenous catalysis ? Give example
3. Write about lyophilic and lyophobic colloids. Give any one example for each Colloid ? which colloid is more stable ? why ?
4. Write short note on i) catalytic poison ii) peptisation
5. Write a note on tyndall effect
6. Mention the medicinal uses of colloids
7. write any three factors affecting adsorption
8. What is mean by electro osmosis?

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

9. Write any five characters of catalysts ?
10. describe adsorption theory of catalysis
11. give the difference between chemisorption and physisorption
12. Explain intermediate compound formation theory of catalysis with an example
13. Write briefly about the preparation of colloids by condensation methods ?
14. Write a note on Electrophoresis ?
15. Write short note on i) promoters ii) autocatalyst
16. what is difference between SOL and gel ?

UNIT TEST -11
(Hydroxy Compounds and Ethers)

CLASS : XII

TIME : 1.00 HRS

SUBJECT : CHEMISTRY

MARKS : 30

PART – I

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. How to differentiate phenol and alcohol ?
- 2.i) Explain auto oxidation of ethers
ii) Give the coupling reaction of phenol
3. Write any one method of preparation of diethyl ether ?
4. What are the uses of glycerol ?
5. Why is C-O-C bond angle in ether slightly greater than the bond angle ?
6. Give the uses of diethyl ether
7. How are the following conversion effected?
i) ethylene glycol \rightarrow acetaldehyde ii) glycerol \rightarrow acrolein
8. How is ethylene glycol converted into 1,4 dioxane ?

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

9. Differentiate primary secondary and tertiary alcohols using Lucas test ?
10. How to distinguish 1^o, 2^o, and 3^o alcohol by Victor Meyer test ?
11. What is Baeyer's reagent ? how it is useful to convert ethene to ethane 1,2 diol ?
12. Write the following reaction i) Kolbe reaction ii) Schotten-Baumann reaction ?
13. How is phenolphthalein prepared ?
14. How are the following conversion effected?
i) phenol \rightarrow picric acid
ii) phenol \rightarrow salicylaldehyde
15. Write notes on i) Dow's process ii) Williamson synthesis of ether ?
16. Write notes on i) saponification reaction ii) glycerol \rightarrow TNG

UNIT TEST -12**(Carbonyl Compounds and Carboxylic Acids)****CLASS : XII****TIME : 1.00 HRS****SUBJECT : CHEMISTRY****MARKS : 30****PART – I****ANSWER THE FOLLOWING ANY SIX QUESTIONS****6 X 2 = 12**

1. What is formalin ? what is its use
2. Give the test for carboxylic acid group
3. What is urotropine ? how it is prepared ?
4. Write note on benzoin condensation ?
5. Write the haloform reaction with an example
6. Write note on Trans esterification reaction
- 7.i) write about knoevenagal reaction ii) write about perkin's reaction
8. write a short note on popoff's rule

PART-II**ANSWER THE FOLLOWING ANY SIX QUESTIONS****6 X 3 = 18**

9. Formic acid reduces tollen's reagent whereas acetic acid does not reduce give reason
10. Write two test for aldehyde ?
11. Write the mechanism of aldol condensation reaction
12. how will you convert benzaldehyde into the following compounds?
i) benzoin ii) cinnamic acid iii) malachite green
13. name the catalyst used in rosenmund reduction and state its importance
14. Explain the mechanism of cannizaro reaction?
15. How does ammonia react with the following compounds
i) formaldehyde ii) acetone iii) benzaldehyde
16. i) Write clemmenson reduction ?
ii) Write Wolfkishner reduction ?

UNIT TEST -13
(Organic Nitrogen Compounds)

CLASS : XII

TIME : 1.00 HRS

SUBJECT : CHEMISTRY

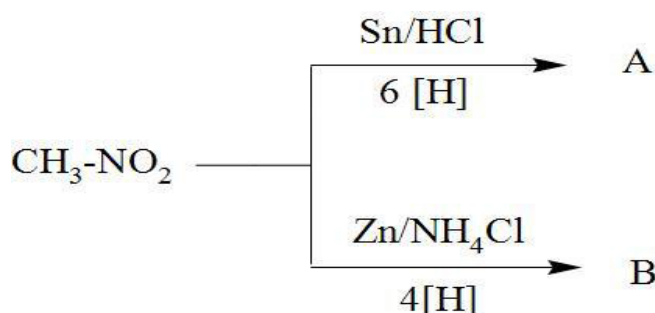
MARKS : 30

PART - I

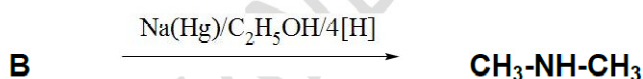
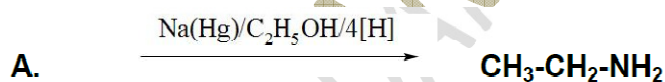
ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. what is gomberg reaction ?
2. Write a note on Mustard oil reaction
3. complete the following reactions



4. write a short on sand meyer reaction
5. How is chloropicrin prepared ?
6. Identify A and B



7. Aniline does not undergo friedel crafts reaction give reason
8. Diazonium salts of aromatic amines are more stable than those of aliphatic amines.

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

9. Write short notes on the following
 - i) diazotiation reaction
 - ii) Schotten -baumann reaction
10. name the reducing agent used in the reduction of nitrobenzene to the following compounds

A) Aniline	B) phenyl hydroxylamine	C) Nitroso benzene
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11. write short note on Gabriel phthalimide synthesis

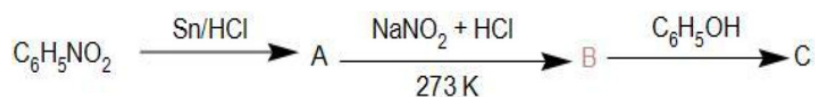
12. Write a note thropo nitrile condensation?

13. Write a note on

i) Bromination of aniline

ii) carbylamine reaction

14. Identify compounds A, B and C for the following



15. Nitrous acid react with primary and secondary amine and tertiary amine

16. How will you distinguish between primary, secondary and tertiary aliphatic amines

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UNIT TEST -14
(Biomolecules)**CLASS : XII****TIME : 1.00 HRS****SUBJECT : CHEMISTRY****MARKS : 30****PART – I****ANSWER THE FOLLOWING ANY SIX QUESTIONS****6 X 2 = 12**

1. i) Write the zwitter ion structure ?
ii) Draw the structure of α -D(+) glucopyranose
2. What are reducing and non-reducing sugars ?
3. What are epimers ? give example
4. How are vitamins classified ?
5. Why carbohydrates are generally optically active
6. Write a short note on peptide bond ?
7. i) How are RNA molecules classified ?
ii) Mention the importance of carbohydrates
8. Distinguish nucleoside from nucleotides?

PART-II**ANSWER THE FOLLOWING ANY SIX QUESTIONS****6 X 3 = 18**

9. Explain the structure of glucose
10. Give any three differences between DNA and RNA
11. Write a note on denaturation of proteins?
12. Explain the structure of fructose
13. Explain primary, secondary and tertiary structure of proteins
14. Mention the biological importance of lipids
15. Give three differences between hormones and vitamins?
16. Mention any three importance of protein in biological process

UNIT TEST -15
(Chemistry in Everyday Life)

CLASS : XII

TIME : 1.00 HRS

SUBJECT : CHEMISTRY

MARKS : 30

PART – I

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 2 = 12

1. What are antibiotics ?
2. What are drugs ? How are they classified ?
3. What is TFM? How TFM used?
4. What are food additives ? give example
5. What are bio degradable polymers? Give examples
6. Give a brief account antioxidants
7. What is therapeutic index ? How is it related to the safety of the drug ?
8. what are anaesthetics ? Give example

PART-II

ANSWER THE FOLLOWING ANY SIX QUESTIONS

6 X 3 = 18

9. How is terylene prepared ?
10. Write briefly on vulcanization of rubber
11. what are narcotic and non-narcotic drugs. give examples
12. How do you prepare of Nylon-2 , Nylon-6 ?
13. How to antiseptics differ from disinfectants ?
14. Write the preparation of Buna-N, Buna-S, ?
15. State any three advantage of food additives
16. Differentiate thermoplastic and thermosetting
