



Class 12 Chemistry | Solutions

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. A solution contains 0.15 mol solute in 0.50 kg solvent. Its molality is:

- A. 0.15 mol kg⁻¹ B. 3.0 mol kg⁻¹
C. 0.30 mol kg⁻¹ D. 0.075 mol kg⁻¹

2. Which concentration remains unchanged when a closed solution is heated?

- A. Molarity
B. Mass per unit volume
C. Moles per litre
D. Molality

3. For an ideal solution, $p_A^\circ = 80$ kPa and $x_A = 0.25$. The partial pressure p_A is:

- A. 320 kPa B. 80 kPa C. 20 kPa D. 60 kPa

4. An ideal binary mixture has $x_A = 0.40$, $p_A^\circ = 50$ and $p_B^\circ = 100$ kPa. Total pressure is:

- A. 60 kPa B. 70 kPa C. 150 kPa D. 80 kPa

5. At fixed temperature Henry's law is $p = K_H x$. Doubling p makes gas mole fraction:

- A. Unchanged B. Double C. Half D. Four times

6. For equal gas pressure, a larger Henry constant K_H implies:

- A. Lower gas solubility
B. Identical gas solubility
C. Higher gas solubility
D. Complete chemical reaction

7. Which condition characterises ideal mixing?

- A. $\Delta H_{mix} = 0$ and $\Delta V_{mix} = 0$
B. $\Delta H_{mix} > 0$ only
C. Solute-solvent forces vanish
D. $\Delta V_{mix} < 0$ always

8. A solution with weaker unlike interactions than like interactions tends to show:

- A. Positive deviation
B. Ideal behaviour always
C. Negative deviation
D. Zero vapour pressure

9. A maximum-boiling azeotrope is associated with:

- A. Positive deviation
B. Ideal behaviour
C. No intermolecular forces
D. Negative deviation

10. For a nonvolatile solute in an ideal solution, relative lowering of vapour pressure equals:

- A. Solute molarity
B. Solute mole fraction
C. Solvent mole fraction
D. Solvent molality

11. For a nonelectrolyte, $K_b = 0.50$ K kg mol⁻¹ and $m = 0.20$. ΔT_b is:

- A. 0.25 K B. 0.10 K C. 2.50 K D. 0.40 K

12. An aqueous glucose solution has $m = 0.10$ and $K_f = 1.86$. Its freezing point is approximately:

- A. -18.6°C B. -1.86°C
C. +0.186°C D. -0.186°C

13. For complete dissociation, van't Hoff factor of CaCl_2 is:

- A. 3 B. 2 C. 1 D. 4

14. A solute completely dimerises in solution. Its van't Hoff factor is:

- A. 2 B. 1 C. 0.5 D. 4

15. At the same temperature, dilute solutions are isotonic when they have equal:

- A. Solvent masses B. Solute masses
C. Molar masses D. Osmotic pressures

ANSWER KEY — check after completing all 15 questions

1.C 2.D 3.C 4.D 5.B 6.A 7.A 8.A 9.D 10.B 11.B 12.D 13.A 14.C 15.D



Class 12 Chemistry | Electrochemistry

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. In a galvanic cell, oxidation occurs at the:

- A. Cathode
- B. Both electrodes equally
- C. Anode
- D. Salt bridge

2. For $E^\circ(\text{Cu}^{2+}/\text{Cu}) = +0.34 \text{ V}$ and $E^\circ(\text{Zn}^{2+}/\text{Zn}) = -0.76 \text{ V}$, E°_{cell} is:

- A. -1.10 V
- B. -0.42 V
- C. 1.10 V
- D. 0.42 V

3. For a spontaneous cell reaction, ΔG is:

- A. Positive
- B. Negative
- C. Always zero
- D. Independent of cell emf

4. The salt bridge primarily:

- A. Raises electrode mass
- B. Stops ion migration
- C. Supplies electrons through solution
- D. Maintains electrical neutrality

5. At equilibrium the cell emf is:

- A. Always negative
- B. Always 1 V
- C. Equal to E° always
- D. Zero

6. At 298 K , for $n=2$, increasing reaction quotient Q by 100 changes E by:

- A. -0.0591 V
- B. 0 V
- C. $+0.0591 \text{ V}$
- D. -0.1182 V

7. Conductivity of an electrolyte solution usually decreases on dilution because:

- A. All ions become neutral
- B. Electrode area decreases
- C. Ion mobility becomes zero
- D. Ions per unit volume decrease

8. Molar conductivity of a weak electrolyte rises sharply on dilution because:

- A. Ionisation increases
- B. The solvent becomes metallic
- C. Ions gain mass
- D. Molar mass decreases

9. The SI unit of conductivity is:

- A. $\text{S m}^2 \text{ mol}^{-1}$
- B. $\Omega^{-1} \text{ mol}^{-1}$
- C. S m^{-1}
- D. $\Omega \text{ m}$

10. A cell has resistance 50Ω and cell constant 1 cm^{-1} . Conductivity is:

- A. 0.50 S cm^{-1}
- B. 0.020 S cm^{-1}
- C. 50 S cm^{-1}
- D. 2 S cm^{-1}

11. How many faradays deposit 1 mol Al from Al^{3+} ?

- A. 2
- B. 6
- C. 3
- D. 1

12. A current deposits 0.10 mol Ag from Ag^+ . Charge passed is:

- A. 0.05 F
- B. 0.10 F
- C. 1.0 F
- D. 0.20 F

13. Which combination gives $\Delta_m^\circ(\text{CH}_3\text{COOH})$?

- A. $\Delta^\circ(\text{HCl}) + \Delta^\circ(\text{CH}_3\text{COONa}) - \Delta^\circ(\text{NaCl})$
- B. $\Delta^\circ(\text{HCl}) + \Delta^\circ(\text{NaCl})$
- C. $\Delta^\circ(\text{HCl}) - \Delta^\circ(\text{CH}_3\text{COONa}) + \Delta^\circ(\text{NaCl})$
- D. $\Delta^\circ(\text{CH}_3\text{COONa}) - \Delta^\circ(\text{HCl})$

14. During discharge of a lead storage battery, H_2SO_4 concentration:

- A. Stays constant
- B. Increases
- C. Decreases
- D. Immediately becomes zero

15. A hydrogen-oxygen fuel cell produces mainly:

- A. Methane
- B. Carbon dioxide
- C. Hydrogen peroxide only
- D. Water

ANSWER KEY — check after completing all 15 questions

1.C 2.C 3.B 4.D 5.D 6.A 7.D 8.A 9.C 10.B 11.C 12.B 13.A 14.C 15.D



Class 12 Chemistry | Chemical Kinetics

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. For rate = $k[A]^2[B]$, the overall reaction order is:

- A. 3 B. 1 C. 2 D. 0

2. If rate = $k[A]^2$, doubling $[A]$ changes rate by a factor:

- A. 8 B. 1 C. 2 D. 4

3. For a first-order reaction, the unit of k is:

- A. $L\ mol^{-1}\ s^{-1}$ B. s^{-1}
C. $mol\ L^{-1}\ s^{-1}$ D. $L^2\ mol^{-2}\ s^{-1}$

4. For a zero-order reaction, the unit of k is:

- A. $mol\ L^{-1}\ s^{-1}$ B. $mol^{-1}\ s^{-1}$ C. $L\ mol^{-1}\ s^{-1}$ D. s^{-1}

5. A first-order reaction has $k = 0.0231\ min^{-1}$. Its half-life is:

- A. 15 min B. 60 min C. 3 min D. 30 min

6. After three half-lives of a first-order reaction, the fraction remaining is:

- A. $1/8$ B. $1/6$ C. $1/3$ D. $3/8$

7. A first-order half-life is independent of:

- A. Temperature
B. Activation energy indirectly
C. Initial concentration
D. Rate constant

8. For zero-order kinetics, a straight-line plot is:

- A. $\ln[A]$ versus t B. $[A]$ versus t
C. Rate versus $1/t$ D. $1/[A]$ versus t

9. Slope of $\ln[A]$ versus time for first-order kinetics is:

- A. $1/k$ B. $+k$ C. $-k/2.303$ D. $-k$

10. In $A \rightarrow \text{products}$, $[A]$ falls from 0.50 to 0.30 M in 20 s. Average disappearance rate is:

- A. $0.004\ M\ s^{-1}$ B. $0.020\ M\ s^{-1}$
C. $0.010\ M\ s^{-1}$ D. $0.040\ M\ s^{-1}$

11. For $2A \rightarrow B$, $d[B]/dt = 0.020\ M\ s^{-1}$. $-d[A]/dt$ is:

- A. $0.010\ M\ s^{-1}$ B. $0.080\ M\ s^{-1}$
C. $0.020\ M\ s^{-1}$ D. $0.040\ M\ s^{-1}$

12. A catalyst increases rate mainly by:

- A. Lowering activation energy
B. Changing equilibrium constant
C. Increasing reaction enthalpy
D. Increasing product energy

13. In an Arrhenius plot of $\ln k$ against $1/T$, slope is:

- A. $-R/E_a$ B. E_a/R C. E_a D. $-E_a/R$

14. Molecularity of an elementary reaction must be:

- A. Always two
B. A positive integer
C. Zero or fractional
D. Always equal to overall order

15. Hydrolysis of an ester in a large excess of water may show:

- A. Negative molecularity
B. Pseudo-first-order kinetics
C. No concentration dependence at all
D. Zero activation energy

ANSWER KEY — check after completing all 15 questions

1.A 2.D 3.B 4.A 5.D 6.A 7.C 8.B 9.D 10.C 11.D 12.A 13.D 14.B 15.B



Class 12 Chemistry | The D- And F-Block Elements

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. Which atom has ground-state configuration $[\text{Ar}]3d^54s^1$?

A. Mn B. Cr C. Cu D. Fe

2. Which ion is colourless due to a d^0 configuration?

A. V^{3+} B. Ti^{3+} C. Sc^{3+} D. Cr^{3+}

3. Which ion has a d^{10} configuration?

A. Fe^{2+} B. Zn^{2+} C. Co^{2+} D. Mn^{2+}

4. Why is Zn not a transition element by the usual definition?

A. It has no d electrons
B. It belongs to the p block
C. Atom and common ion have full d shells
D. It is not metallic

5. The most common oxidation state of lanthanoids is:

A. +6 B. +1 C. +3 D. +2

6. Lanthanoid contraction mainly results from:

A. Excellent shielding by 4f electrons
B. Decreasing nuclear charge
C. Removal of all f electrons
D. Poor shielding by 4f electrons

7. Similarity of Zr and Hf radii is mainly due to:

A. Lanthanoid contraction
B. Hydrogen bonding
C. Same atomic mass
D. Same neutron number

8. Number of unpaired electrons in high-spin Mn^{2+} is:

A. 4 B. 3 C. 0 D. 5

9. Spin-only magnetic moment for two unpaired electrons is approximately:

A. 4.90 BM B. 1.73 BM C. 2.83 BM D. 3.87 BM

10. Transition metals show variable oxidation states because:

A. Their nuclei change
B. Only s electrons can bond
C. ns and (n-1)d energies are similar
D. All d orbitals are filled

11. In acid, MnO_4^- is reduced mainly to:

A. MnO_4^{2-} B. MnO_2 C. Mn^{2+} D. Mn metal

12. Colour of aqueous dichromate is:

A. Colourless B. Green C. Purple D. Orange

13. Adding alkali to dichromate shifts equilibrium toward:

A. Yellow chromate
B. Green Cr^{3+} directly
C. Colourless chromium metal
D. Purple permanganate

14. Interstitial compounds are formed when small atoms occupy:

A. Nuclei of metal atoms
B. Only surface vacancies
C. Only outer s orbitals
D. Voids in metal lattices

15. Actinoids show more variable oxidation states than lanthanoids mainly because:

A. Only 7s electrons exist
B. All 5f orbitals are empty
C. 5f, 6d, 7s energies are comparable
D. They have no shielding

ANSWER KEY — check after completing all 15 questions

1.B 2.C 3.B 4.C 5.C 6.D 7.A 8.D 9.C 10.C 11.C 12.D 13.A 14.D 15.C

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Class 12 Chemistry | Coordination Compounds

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. Oxidation state of Co in $[\text{Co}(\text{NH}_3)_6]\text{Cl}_3$ is:

A. +3 B. +6 C. +2 D. 0

2. Coordination number of Co in $[\text{Co}(\text{en})_3]^{3+}$ is:

A. 3 B. 6 C. 2 D. 9

3. Which ligand is bidentate?

A. Cl^- B. Ethane-1,2-diamine C. NH_3 D. H_2O

4. Which ligand can show linkage isomerism?

A. NH_3 B. NO_2^- C. Cl^- D. H_2O

5. $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$ exhibits:

A. No isomerism
B. Geometrical isomerism
C. Linkage isomerism only
D. Ionisation isomerism only

6. The coordination sphere in $[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{Cl}_2$ is:

A. Only five NH_3 ligands
B. Two external Cl^- ions
C. Only Co^{3+}
D. $[\text{Co}(\text{NH}_3)_5\text{Cl}]^{2+}$

7. Moles of AgCl formed from one mole $[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{Cl}_2$ with excess AgNO_3 are:

A. 5 B. 2 C. 1 D. 3

8. Oxidation state of Fe in $[\text{Fe}(\text{CN})_6]^{4-}$ is:

A. +6 B. +3 C. +2 D. +4

9. Which ligand is strongest field among these?

A. I^- B. CN^- C. Cl^- D. Br^-

10. $[\text{Ni}(\text{CN})_4]^{2-}$ is usually:

A. Octahedral and paramagnetic
B. Square planar and paramagnetic
C. Square planar and diamagnetic
D. Tetrahedral and diamagnetic

11. $[\text{NiCl}_4]^{2-}$ is usually:

A. Tetrahedral and paramagnetic
B. Square planar and diamagnetic
C. Linear and diamagnetic
D. Octahedral and diamagnetic

12. In octahedral splitting, the lower-energy d set is:

A. eg B. All five equally C. t_{2g} D. Only d_{z^2}

13. A low-spin octahedral d^6 complex has how many unpaired electrons?

A. 4 B. 6 C. 2 D. 0

14. Which pair illustrates ionisation isomerism?

A. $[\text{Co}(\text{NH}_3)_5\text{Br}]\text{SO}_4$ and $[\text{Co}(\text{NH}_3)_5\text{SO}_4]\text{Br}$
B. Two mirror forms of $[\text{Co}(\text{en})_3]^{3+}$
C. N-bound/O-bound nitrito complexes
D. cis/trans $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$

15. EDTA^{4-} commonly acts as a:

A. Monodentate ligand B. Tridentate ligand
C. Hexadentate ligand D. Bidentate ligand

ANSWER KEY — check after completing all 15 questions

1.A 2.B 3.B 4.B 5.B 6.D 7.B 8.C 9.B 10.C 11.A 12.C 13.D 14.A 15.C

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Class 12 Chemistry | Haloalkanes And Haloarenes

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. Aqueous KOH converts bromoethane mainly into:

- A. Ethanal B. Ethane C. Ethanol D. Ethene

2. Hot alcoholic KOH converts bromoethane mainly into:

- A. Ethane B. Ethanoic acid C. Ethanol D. Ethene

3. Which substrate undergoes SN1 most readily under comparable conditions?

- A. $(\text{CH}_3)_3\text{CBr}$ B. $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$
C. $\text{CH}_3\text{CH}_2\text{Br}$ D. CH_3Br

4. Which substrate undergoes SN2 fastest with the same nucleophile?

- A. $\text{CH}_3\text{CH}_2\text{Br}$ B. $(\text{CH}_3)_2\text{CHBr}$
C. CH_3Br D. $(\text{CH}_3)_3\text{CBr}$

5. An SN2 reaction at a chiral carbon normally gives:

- A. Complete retention
B. Only racemisation
C. Inversion of configuration
D. No stereochemical change possible

6. Chlorobenzene is less reactive than chloroethane toward ordinary nucleophilic substitution due to:

- A. An sp^3 ring carbon
B. Partial C-Cl double-bond character
C. Absence of chlorine lone pairs
D. Pure ionic C-Cl bond

7. Which is an allylic halide?

- A. $\text{C}_6\text{H}_5\text{Cl}$ B. $\text{CH}_2=\text{CHCl}$
C. $\text{CH}_3\text{CH}_2\text{Cl}$ D. $\text{CH}_2=\text{CHCH}_2\text{Cl}$

8. Which is a vinylic halide?

- A. $\text{CH}_2=\text{CHCH}_2\text{Cl}$ B. $\text{CH}_2=\text{CHCl}$
C. $\text{C}_6\text{H}_5\text{CH}_2\text{Cl}$ D. CH_3Cl

9. Bromoethane with Mg in dry ether forms:

- A. $\text{C}_2\text{H}_5\text{MgBr}$ B. C_2H_6 C. C_2H_4 D. $\text{C}_2\text{H}_5\text{OH}$

10. Why must Grignard preparation exclude water?

- A. Water forms extra C-C bonds
B. Water increases boiling point
C. Water prevents Mg oxidation only
D. Water destroys the reagent

11. CH_3Br with NaI in dry acetone is an example of:

- A. Friedel-Crafts reaction
B. Wurtz reaction
C. Sandmeyer reaction
D. Finkelstein reaction

12. Two molecules of CH_3Br with sodium in dry ether mainly give:

- A. Methane B. Ethane C. Propane D. Ethene

13. The SN1 rate law for a suitable alkyl halide RX is:

- A. $\text{Rate} = k[\text{RX}]^2$ B. $\text{Rate} = k[\text{RX}][\text{OH}^-]$
C. $\text{Rate} = k[\text{RX}]$ D. $\text{Rate} = k[\text{OH}^-]^2$

14. Among alkyl halides with identical R, the best leaving group is usually:

- A. Cl^- B. I^- C. F^- D. Br^-

15. Which molecule has a chiral carbon?

- A. 2-Bromopropane B. Bromomethane
C. 1-Bromobutane D. 2-Bromobutane

ANSWER KEY — check after completing all 15 questions

1.C 2.D 3.A 4.C 5.C 6.B 7.D 8.B 9.A 10.D 11.D 12.B 13.C 14.B 15.D

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Class 12 Chemistry | Alcohols, Phenols And Ethers

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. Which alcohol is secondary?

- A. Propan-2-ol B. Methanol
C. Propan-1-ol D. 2-Methylpropan-2-ol

2. Controlled oxidation of ethanol with PCC gives:

- A. Ethoxyethane
B. Ethene
C. Ethanal
D. Ethanoic acid directly

3. Oxidation of propan-2-ol gives:

- A. Propanal B. Propanoic acid
C. Ethanal D. Propanone

4. Ethanol heated with conc. H_2SO_4 at 443 K gives mainly:

- A. Ethanal B. Ethoxyethane
C. Ethene D. Ethane

5. Ethanol and sodium metal liberate:

- A. Oxygen B. Hydrogen
C. Carbon dioxide D. Chlorine

6. Phenol is more acidic than ethanol because:

- A. Phenoxide has no charge
B. Ethanol is aromatic
C. Phenoxide is resonance-stabilised
D. Phenol has more hydrogen atoms

7. Which is most acidic?

- A. p-Nitrophenol B. p-Cresol
C. Ethanol D. Phenol

8. Phenol with bromine water gives:

- A. Only 3-bromophenol
B. 2,4,6-Tribromophenol
C. Bromobenzene
D. Benzoic acid

9. Phenol gives a violet colour with:

- A. Benedict reagent B. Tollens reagent
C. Neutral FeCl_3 D. NaCl solution

10. Sodium phenoxide with CO_2 under pressure, then acidification, mainly gives:

- A. Salicylic acid B. Benzoic acid
C. Benzaldehyde D. Anisole

11. Phenol with $\text{CHCl}_3/\text{NaOH}$, then acidification, mainly gives:

- A. Anisole
B. Cyclohexanol
C. Benzoic acid
D. 2-Hydroxybenzaldehyde

12. Best Williamson route to methoxyethane is:

- A. Methanol + ethane
B. Sodium methoxide + chlorobenzene
C. Sodium ethoxide + methyl iodide
D. Ethanol + methane

13. Anisole heated with excess HI yields mainly:

- A. Iodobenzene and methanol
B. Phenyl iodide and methane
C. Phenol and methyl iodide
D. Benzene and methanol

14. Which alcohol gives immediate Lucas-test turbidity at room temperature?

- A. 2-Methylpropan-2-ol B. Methanol
C. Propan-1-ol D. Ethanol

15. Phenol reacts with NaOH but not NaHCO_3 because it is:

- A. Stronger than carbonic acid
B. A strong mineral acid
C. Weaker than carbonic acid
D. A neutral hydrocarbon

ANSWER KEY — check after completing all 15 questions

1.A 2.C 3.D 4.C 5.B 6.C 7.A 8.B 9.C 10.A 11.D 12.C 13.C 14.A 15.C



Class 12 Chemistry | Aldehydes, Ketones And Carboxylic Acids

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. IUPAC name of $\text{CH}_3\text{CH}_2\text{CHO}$ is:

- A. Propanal B. Propanoic acid
C. Propanone D. Propanol

2. Carbonyl carbon is usually:

- A. sp and neutral B. sp^3 and nucleophilic
C. sp^3 and nonpolar D. sp^2 and electrophilic

3. Which is most reactive toward nucleophilic addition?

- A. Methanal B. Propanone
C. Ethanal D. Butanone

4. Tollens' reagent gives a silver mirror with:

- A. Ethanal B. Propanone
C. Ethoxyethane D. Ethanol

5. Which compound gives the iodoform test?

- A. Benzaldehyde B. Propanone
C. Propanal D. Methanal

6. Which aldehyde undergoes Cannizzaro reaction?

- A. Benzaldehyde B. Propanal
C. Butanal D. Ethanal

7. Ethanal with dilute NaOH initially gives:

- A. Ethanoic acid B. Ethanol only
C. Butanone D. 3-Hydroxybutanal

8. Clemmensen reduction uses:

- A. Tollens reagent B. Zn(Hg)/conc. HCl
C. PCC D. NaBH_4 only

9. Wolff-Kishner reduction uses:

- A. $\text{NH}_2\text{NH}_2/\text{KOH}$, heat B. H_2O_2
C. Br_2/water D. Zn/HCl only

10. NaBH_4 reduction of propanone gives:

- A. Propan-2-ol B. Propan-1-ol
C. Propanoic acid D. Propane

11. Which reagent distinguishes ethanoic acid from ethanol by effervescence?

- A. FeSO_4 B. NaCl C. Br_2 in CCl_4 D. NaHCO_3

12. Which acid is strongest?

- A. $(\text{CH}_3)_2\text{CHCOOH}$ B. CH_3COOH
C. $\text{C}_2\text{H}_5\text{COOH}$ D. ClCH_2COOH

13. Sodium ethanoate heated with soda lime yields:

- A. Methanol B. Ethene C. Methane D. Ethane

14. Esterification of ethanoic acid with ethanol gives:

- A. Ethyl methanoate B. Ethyl ethanoate
C. Ethanal D. Methyl ethanoate

15. Which compound gives an orange/yellow precipitate with 2,4-DNP reagent?

- A. Ethoxyethane B. Propanone
C. Ethanoic acid D. Ethanol

ANSWER KEY — check after completing all 15 questions

1.A 2.D 3.A 4.A 5.B 6.A 7.D 8.B 9.A 10.A 11.D 12.D 13.C 14.B 15.B

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Class 12 Chemistry | Amines

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. Which is a secondary amine?

A. $(\text{CH}_3)_3\text{N}$ B. CH_3NH_2 C. NH_3 D. $(\text{CH}_3)_2\text{NH}$

2. Aniline is less basic than methylamine mainly because:

A. Its N is positively charged initially
B. It contains no lone pair
C. Its N lone pair is delocalised
D. Methylamine is aromatic

3. Which is most basic in aqueous solution among these methylamines?

A. CH_3NH_2 B. $(\text{CH}_3)_3\text{N}$ C. $(\text{CH}_3)_2\text{NH}$ D. NH_3

4. Reduction of nitrobenzene with Sn/HCl followed by base gives:

A. Benzamide B. Aniline
C. Benzonitrile D. Benzene

5. Reduction of CH_3CN with LiAlH_4 gives:

A. Ethylamide B. Dimethylamine
C. Ethylamine D. Methylamine

6. Hofmann bromamide degradation of CH_3CONH_2 gives:

A. CH_3NH_2 B. $(\text{CH}_3)_2\text{NH}$ C. $\text{C}_2\text{H}_5\text{NH}_2$ D. CH_3CN

7. The carbylamine test is given by:

A. Primary amines
B. Only tertiary amines
C. All amines equally
D. Only secondary amines

8. Which gives a positive carbylamine test?

A. Trimethylamine B. Acetamide
C. Dimethylamine D. Aniline

9. Aniline with bromine water gives:

A. Only bromobenzene
B. Benzyl bromide
C. 3-Bromoaniline only
D. 2,4,6-Tribromoaniline

10. Diazotisation of aniline is carried out at:

A. 273-278 K B. Below 100 K
C. 473-478 K D. 373-378 K

11. The reagent combination for diazotisation is:

A. $\text{NaNO}_3/\text{NaOH}$ B. $\text{NaCl}/\text{H}_2\text{O}$
C. $\text{NH}_3/\text{H}_2\text{SO}_4$ D. NaNO_2/HCl

12. Benzenediazonium chloride with CuCl/HCl gives:

A. Benzamide B. Phenol
C. Chlorobenzene D. Aniline

13. Benzenediazonium chloride warmed with water gives:

A. Aniline B. Nitrobenzene
C. Phenol D. Benzene

14. Gabriel synthesis is unsuitable for preparing:

A. Butylamine B. Aniline
C. Ethylamine D. Propylamine

15. Aniline is acetylated before controlled bromination mainly to:

A. Reduce excessive ring activation
B. Remove all nitrogen
C. Make the ring ionic
D. Replace nitrogen with oxygen

ANSWER KEY — check after completing all 15 questions

1.D 2.C 3.C 4.B 5.C 6.A 7.A 8.D 9.D 10.A 11.D 12.C 13.C 14.B 15.A



Class 12 Chemistry | Biomolecules

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. Glucose is classified as an:

- A. Disaccharide B. Aldopentose
C. Aldohexose D. Ketohexose

2. Fructose is classified as a:

- A. Polysaccharide B. Ketopentose
C. Ketohexose D. Aldohexose

3. Hydrolysis of sucrose produces:

- A. Two glucose molecules
B. Glucose and fructose
C. Glucose and galactose
D. Two fructose molecules

4. Which is a nonreducing sugar?

- A. Sucrose B. Glucose C. Lactose D. Maltose

5. Hydrolysis of lactose gives:

- A. Two fructose molecules
B. Glucose and fructose
C. Two ribose molecules
D. Glucose and galactose

6. The main storage polysaccharide in animals is:

- A. Cellulose B. Sucrose C. Glycogen D. Starch

7. Cellulose consists of repeating units of:

- A. β -D-Glucose B. α -D-Fructose
C. β -D-Ribose D. α -D-Galactose

8. The linkage joining amino acids in a protein is:

- A. Peptide bond B. Glycosidic bond
C. Phosphodiester bond D. Ionic bond only

9. An amino acid in a zwitterionic form contains:

- A. Only negative charge
B. No charged groups
C. Only positive charge
D. Both positive and negative charges

10. Protein primary structure specifies:

- A. Number of folded subunits only
B. Only β -sheets
C. Amino-acid sequence
D. Only α -helices

11. α -Helix structure is stabilised chiefly by:

- A. Glycosidic bonds
B. Hydrogen bonds
C. Peptide-bond cleavage
D. Phosphodiester bonds

12. Protein denaturation generally leaves which level intact?

- A. Primary structure
B. Quaternary structure always
C. Secondary structure
D. Tertiary structure

13. Which vitamin is water-soluble?

- A. Vitamin K B. Vitamin C
C. Vitamin D D. Vitamin A

14. Which base is present in RNA but not DNA?

- A. Uracil B. Guanine C. Adenine D. Thymine

15. A nucleotide contains a base, sugar and:

- A. Fatty acid B. Peptide group
C. Phosphate group D. Amino acid

ANSWER KEY — check after completing all 15 questions

1.C 2.C 3.B 4.A 5.D 6.C 7.A 8.A 9.D 10.C 11.B 12.A 13.B 14.A 15.C

Original exam-style practice • Reference notes: www.physics.guru/cbse-practice-papers/ • Not an official paper