

10th Chemistry Guess Paper 2025

These guess papers are prepared according to the new paper pattern 2025 issued by the board and based on SLOs.

Your exam paper will be divided as follows:

- 25% Conceptual
- 75% Knowledge-Based
- 25% Analytical + Application-Based

Sr. No.	Short Questions (Chapter #9 - Chemical Equilibrium)
1	Write down the equilibrium constant expression for the given reaction: $H_2 + I_2 \rightleftharpoons 2HI$
2	Which type of reactions do not go to completion?
3	Give characteristics of a reversible reaction.
4	Make a graph that shows the establishment of the equilibrium state.
5	Write the equilibrium constant expression for the following reaction: $N_2 + 3H_2 \rightleftharpoons 2NH_3$
6	Why do reversible reactions not go to completion?
7	What is the chemical equilibrium state?
8	How is dynamic equilibrium established?
9	A solution of HCl is 10^{-2} M. What is its pH value?
10	Write the equilibrium constant expression for the decomposition of dinitrogen oxide into oxygen and nitrogen.
11	Derive the equilibrium constant expression for the synthesis of ammonia from nitrogen and hydrogen.
12	The solution of HCl is 10M. Find its pH.
13	What do you mean by equilibrium constant?
14	Predict the direction of the chemical reaction when $Q_c > K_c$ and $Q_c = K_c$.
15	What do you mean by the extent of reaction?
16	Prove that K_c has no unit.
17	Define dynamic equilibrium and give an example.
18	How can the direction of a reaction be predicted?
19	If $Q_c < K_c$, then what will happen?
20	What is the difference between active mass and the rate of reaction?
21	What is a reversible reaction? Give an example.
22	Define the Law of Mass Action.
23	Why is the equilibrium state attainable from either way?

S.No	Short Questions (Chapter #10)
1	Define: (a) Normal Salt (b) Basic Salt
2	What is the pH scale?
3	Which acid is present in the following? (a) Vinegar (b) Anti-sting
4	Which type of salts produce SO_2 gas on reacting with acid?

5	Why is a salt neutral? Give an example.
6	What is acute lead poisoning?
7	Define conjugate base.
8	Define Complex Salt with an example.
9	Write the name of acids present in citrus fruit and sour milk.
10	Define Arrhenius concept of acid.
11	Which salts are responsible for the hardness of water?
12	Which salt is used to prepare Plaster of Paris?
13	How can you justify that $(\text{PH}(\text{OH})\text{NO}_3)$ is a basic salt?
14	Name any two salts that are soluble in water.
15	Which acid is present in the following? (a) Vinegar (b) Anti-sting
16	Give a chemical reaction between an acid and a base.
17	Define Bronsted-Lowry concept of base.
18	What are double salts? Give an example.
19	What is soda lime? Where is it used?
20	Write two physical properties of bases.
21	What are amphoteric substances?
22	Why is pure water not a strong electrolyte?
23	Why is the temperature of the upper stratosphere higher?
24	Prove that water is an amphoteric species.
25	Write the formula of ammonium cyanate.
26	What are non-biodegradable detergents?
27	What is autoionization? Write a reaction.
28	What is an indicator?
29	Write the names and chemical formulas of two bases.
30	Define pH. What is the pH of pure water?
31	What is the function of fertilizers?
32	Define amphoteric and give an example.
33	Arrhenius concept of acids and bases has a few limitations. State them.
34	Write uses of sodium carbonate (Na_2CO_3).
35	Write the formula of sodium tetraborate. Describe one use.
36	What is hookworm? How is it harmful?
37	Define salt. Give an example.
38	How can you justify that $\text{PH}(\text{OH})\text{NO}_3$ is an acidic salt?
39	How are insoluble salts prepared?
40	Write two uses of pH.
41	Differentiate between "P" and "pH".
42	What is the difference between essential and non-essential amino acids?
43	Write two properties of salts.
44	What are universal indicators?
45	What are indicators? Give an example.
46	Write two characteristics of disaccharides.
47	How is roasting carried out?

48	Write two physical properties of acids.
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S.No	Chapter # 11-Organic Chemistry
1	Draw structural formulas for two heterocyclic compounds.
2	Write down two characteristics of the homologous series.
3	How are alkyl radicals formed? Give an example.
4	Justify that organic compounds are used as food.
5	What is the ester functional group? Write its general formula.
6	How is mustard gas prepared? Where may it be used?
7	CNG stands for what?
8	Explain different radicals of propane.
9	How is temporary hardness removed by boiling?
10	Define isomerism with an example.
11	Why are the melting and boiling points of organic compounds low?
12	Define the ketonic functional group with its general formula.
13	Write two uses of natural gas.
14	What is the importance of natural gas?
15	Define Homologous Series.
16	Define molecular formula of an organic compound.
17	Define catenation. Give an example.
18	Define pitch and coke.
19	Indicate the color of bromine after performing the bromine water test.
20	What is an ester group? Write down the formula of Ethyl Acetate.
21	How can you prevent yourself from hyperacidity?
22	Write two uses of Nitric acid in daily life.
23	Why H ⁺ ion works as a Lewis acid?
24	Why are the melting and boiling points of organic compounds low?
25	Name the gases found in coal gas.
26	Define adduct with an example.
27	How is coal formed?
28	Name an acid used in the preservation of food.
29	Define carbonization.
30	What is the difference between aldehydes and ketones?
31	Differentiate between reversible reactions and irreversible reactions.
32	Is coal tar a compound? What is the importance of coal tar?
33	What is the functional group of an ester?
34	Define direct displacement method.
35	Why are organic compounds poor conductors of electricity?
36	What is peat? Write its use.
37	Write two uses of gasoline.
38	Write down dot and cross formula of propane and normal butane.
39	Define electronic formula. Give an example.
40	Define vital force theory.

S.No	Chapter # 12
1	Give two characteristics of polysaccharides.
2	Describe the formation of petroleum.
3	Write two physical properties of alkanes.
4	Why are the alkanes used as fuel?
5	What do you know about hydrogenation of alkenes?
6	Differentiate between n-propyl and isopropyl.
7	Define functional group with two examples.
8	What is the difference between straight chain and branched chain hydrocarbons?
9	Define saturated hydrocarbons. Give an example.
10	Write two uses of petroleum ether.
11	Write molecular formula of methane and butane.
12	How are alkyl halides reduced?
13	Differentiate between saturated and unsaturated hydrocarbons.
14	Why are the alkanes called "Paraffins"?
15	Write down general formula of alkanes and alkenes.
16	Why are alkenes called olefins?
17	Why are bananas stored away from the rest of the fruits?
18	What is the difference between n-propyl and Isopropyl Radicals with structure?
19	Define unsaturated hydrocarbons with examples.
20	Give the general formulae of saturated and unsaturated hydrocarbons.
21	Define petroleum.
22	How does combustion of methane take place?
23	Write molecular formulae of methane and pentane.
24	Describe the hydrogenation of ethene and ethyne.
25	Write two uses of ethylene.
	Write one important use of Ethene and Chloroform.

S.No	Chapter # 13
1	What is the function of vitamin A and D?
2	What do you mean by non-essential amino acids?
3	How many industrial units were present in India and Pakistan in 1947?
4	Write uses of sodium chloride.
5	What are amino acids?
6	What are the sources and uses of vitamin A?
7	How are proteins formed?
8	Where are the proteins found?
9	What is the function of DNA?
10	How is gelatin obtained?
11	What do you know about anthracite?
12	Write the balanced chemical equation for the formation of glucose.
13	Why is excessive use of vitamin D harmful?
14	Who prepared acetic acid in the laboratory? Also write the year in which he prepared it.

15	Write any two uses of lipids.
16	What is the difference between glucose and fructose?
17	What do you know about denaturing of protein?
18	What is the difference between ghee and oil?
19	What is the significance of vitamins?
20	Write down two types of vitamins.
21	Lactose is a disaccharide. Which monosaccharides are present in it?
22	Write the characteristics of monosaccharides.
23	Write the general formula of Amino Acid.
24	Differentiate between essential and non-essential amino acids.

S.No	Chapter # 14
1	Why is CO ₂ called a greenhouse gas?
2	Where is the ozone layer found?
3	Write any two sources of oxides of carbon.
4	What is Ozone and Ozone hole?
5	Write the chemical reaction of ammoniacal brine carbonization.
6	Why are flood risks increasing day by day?
7	Define pitch and coke.
8	Justify Ozone is beneficial for humankind.
9	How is Ozone Layer formed in the Stratosphere?
10	How is the temperature of the atmosphere maintained?
11	Describe the effects of SO ₂ on the environment.
12	Differentiate between ore and mineral.
13	Explain the process of granulation of urea.
14	Write effects of SO ₂ .
15	How is Ozone Layer being depleted by chlorofluorocarbons?
16	Differentiate between pollutants and contaminants.
17	Write two effects of global warming.
18	Write two effects of acid rain.
19	Write the major sources of CO and CO ₂ emission.
20	Write down composition of dry air.
21	Write down the reaction occurring in the mid-stratosphere.
22	What is global warming?
23	How and where is ozone formed?
24	What do you mean by the genetic code of life?
25	How does acid rain increase the acidity of soil?
26	What is the difference between atmosphere and environment?
27	What is meant by atmosphere?
28	Differentiate between primary and secondary air pollutants.
29	Write down two sources of oxides of carbon.
30	Define secondary pollutants and give an example.
31	Why is ozone not formed in the lower stratosphere?
32	Give two different uses of Calcium oxide (CaO).

33	Why does 75% of the atmospheric mass lie within the troposphere?
34	Identify as primary or secondary air pollutants: SO ₂ , HNO ₃ , NH ₃ , H ₂ SO ₄ .
35	CO ₂ is responsible for heating up the atmosphere, how?
36	Write down the names of two primary air pollutants.
37	Why are plants dying day by day? Comment.
38	Why is CO ₂ called a greenhouse gas?
39	Give harmful effects of SO ₂ .
40	How is aquatic life affected by acid rain?
41	Define the greenhouse effect.
42	What do you mean by atmosphere?
43	Point out two serious effects of ozone depletion.
44	Write down two effects of acid rain.
45	State the major sources of CO and CO ₂ emission.
46	What is the greenhouse effect?
47	What is the function of a pivot?
48	Why does 75% of the atmospheric mass lie within the troposphere?
49	How is acid rain formed?
50	Write two harmful effects of CO (Carbon monoxide).
51	What are Secondary Pollutants? Give an example.
52	Name the major constituents of the troposphere.

S.No	Chapter # 15
1	How does water rise in plants?
2	What is acute cadmium poisoning?
3	Differentiate between temporary hardness and permanent hardness.
4	Why are pesticides used?
5	Give a balanced chemical equation for Clark's method.
6	Mention the disadvantages of detergents.
7	Point out two properties of water that make it an excellent solvent.
8	Write the difference between temporary and permanent hardness of water.
9	Briefly discuss the disease fluorosis.
10	What are the effects of temporary hardness in water?
11	How does Sodium Zeolite soften water?
12	Define boiler scales. How are they removed?
13	How do pesticides cause water pollution?
14	What is Fluorosis?
15	Briefly describe the disease Hepatitis.
16	How is temporary hardness removed by boiling the water?
17	What are the reasons for waterborne diseases?
18	What is the difference between biodegradable and non-biodegradable substances?
19	Describe the chemistry of removing the temporary hardness by boiling water.
20	How is gelatin obtained?
21	What is meant by accessory growth factors?
22	Write a short note on dysentery.

23	Define drip system.
24	What is Scum?
25	Where is potassium nitrate (KNO ₃) used?
26	Give a brief account of disease cholera.
27	Why is water called a universal solvent?
28	Describe the sources and uses of vitamin A.
29	Draw the structural formula of fructose.
30	Differentiate between soft water and hard water.
31	How Water Borne Diseases can be prevented?
32	How does scum form?
33	What is the difference between biodegradable and non-biodegradable substances?
34	State the method of swimming pool cleaning.
35	Which bacteria causes cholera?
36	What is Leaching process?
37	Why is water molecule polar?
38	What is Hepatitis?
39	Define industrial effluents.
40	Which forces are responsible for dissolving polar substances in water?
41	Define water borne diseases.
42	State the main cause of rapidly spreading water borne diseases.
43	Define scum and Leaching process.
44	What is the boiling point of water?
45	Explain how non-polar compounds are soluble in water?
46	Write two properties of water that make it an excellent solvent.
47	Write causes of hardness in water.
48	Do you know about mineral acids? Write names.
49	Why hydrocarbons are soluble in organic solvents?
50	Why are non-polar compounds insoluble in water?
51	What is the cause of Temporary Hardness?

S.No	Chapter # 16
1	How is CO ₂ prepared in Solvay's process?
2	Write any two raw materials for Solvay's process.
3	How is ammonia prepared for the synthesis of urea?
4	Name the raw materials used in Solvay process.
5	Write the formula of slaked lime.
6	Define the Natural Fertilizer.
7	Write raw materials for manufacturing of urea.
8	How many urea manufacturing units are in Pakistan? Name two urea manufacturing units.
9	Write down gravity separation process.
10	Define Froth flotation process.
11	Write down the uses of Diesel Oil and Fuel Oil.
12	Define Fractional Distillation.

13	What is the difference between Crude oil and residual oil?
14	What role is played by pine oil in the froth flotation process?
15	Describe the difference between diesel oil and fuel oil.
16	Write the names of four major fertilizer plants in Pakistan.
17	Define metallurgy.
18	How is sealing made in the smelting process?
19	Define refining.
20	What is the principle of fractional distillation?
21	How NaHCO_3 is converted to Na_2CO_3 ? Give reaction.
22	A compound consisting of four Carbon Atoms has a triple bond in it. How many hydrogen atoms are present in it?
23	How is Ammonia prepared for Synthesis of Urea?
24	How is Ammonia recovered in Solvay's Process?
25	Write two uses of petroleum ether.
26	Define Bessemerization.
27	What is the principle of Solvay's process?
28	Why is the anode eaten up in the electron refining process?
29	What is electromagnetic separation?
30	Name important processes involved in metallurgy for extraction of metal in a pure state.
31	What is blister copper?
32	Write two points for the importance of urea.
33	Write down two uses of Kerosene oil.
34	Write the names of two chemicals that are used in our daily life.
35	Describe the formation of petroleum.
36	What is granulation of urea?
37	Write the raw materials used in manufacturing urea.
38	What do you mean by anode mud?
39	Draw the flowsheet diagram of the manufacture of urea.
40	Define aromatic compounds. Give an example.
41	What is ammonical liquor? Give its use.
42	Name the various metallurgical operations.
43	What is lignite? Write its use.
44	What is Ether Group? Write the formula of Dimethyl Ether.
45	Write two isomers of Butane.
46	What is mode mud?
47	Define Pitch. Write its use.
48	How is ammonical brine carbonated? Give the reaction.
49	Define Ores and what is the formula of copper glance?
50	How is ammonia recovered in the Solvay's process?
51	Write any two advantages of Solvay's process.
52	Define petroleum.
53	Define ores.
54	Write down formulae of two copper ores.
55	Differentiate between ores and minerals.
56	What are the reasons for the formation of millions of organic compounds?

57	Give the structural formula of isopentane and isobutane.
58	Why are Alkenes reactive?
59	Define Benzene.
60	Write the molecular and structural formula of ethyne.
61	Write uses of five different acids.
62	What is the basic unit of carbohydrates and how is it synthesized?
63	What is meant by "genetic code of life"?
64	Write two uses of Acetylene.

"MOST IMPORTANT LONG QUESTIONS"

S.No	Chapter # 10 (Long Questions)
1	Define the pH. Describe the methods of measuring pH.
2	Give uses of five different acids.
3	Define Salt, and give the characteristic properties of salts.
4	Define an acid and base according to Bronsted-Lowry concept and justify with examples that water is an amphoteric compound.
5	Give uses of five different bases in daily life.
6	Find out the pH and pOH of 0.001 M solution of KOH.
7	Write name and formulas for any five salts.
8	Illustrate two concepts of acids and bases with examples.
9	Define a salt. Explain with examples how soluble salts are prepared.
10	Describe five chemical properties of acids.
11	Write down the five uses of acids.
12	State precipitation of hydroxides.
13	Describe the reactions of dil. H_2SO_4 in the form of chemical equations with FeS and NaHCO_3 .
14	Give the uses of following acids (Two each). (i) H_2SO_4 (ii) HNO_3 (iii) HCl (iv) CH_3COOH .
15	Give sources of five different naturally occurring acids.
16	Describe Lewis Theory for acids and bases with two examples each.
17	Explain Arrhenius concept of Acid and Base. Also, describe the limitation of Arrhenius concept.
S.No	Chapter # 11 (Long Questions)
1	Give sources of five different naturally occurring acids.
2	Describe the functional group of an alcohol. How are alcoholic groups identified?
3	What is catenation? Give examples.
4	Write the four properties of organic compounds of same homologous series.
5	What are alcohols? Draw structural formulae of primary, secondary and tertiary alcohols.
	Write down six characteristic properties of organic compounds.
7	Explain homologous series.
8	Give some uses of organic compounds in our daily life.
9	What are alkyl radicals? Explain the radicals of propane and butane.
10	Explain different radicals of butyl radical.
11	Define Isomerism. Give isomers of pentane.

12	Describe tests to identify carboxylic group.
13	Write down characteristics of homologous series.
14	Write down the composition and uses of different types of coal.
15	Define functional group. Explain any two functional groups.
16	Describe tests of functional groups for unsaturation.

S.No	Chapter # 12 (Long Questions)
1	Write two methods for the preparation of Alkenes.
2	State Law of Mass Action. Derive equilibrium constant expression for a general reaction: $aA + bB \rightleftharpoons cC + dD$.
3	Write any four uses of ethane.
4	Describe any two chemical reactions of alkanes.
5	Write two methods for the preparation of alkanes.
6	Describe uses of acetylene.
7	Explain the various types of Hydrocarbons.
8	Why methane is called marsh gas? Give three uses of methane and ethane.
9	Explain the oxidation of Acetylene.
10	Describe four physical properties of Alkanes.
11	Write down any four uses of Ethane.
12	Write a note on halogenation of Alkanes.
13	Explain the oxidation of Acetylene.
14	Write a note on the sources and uses of Carbohydrates.

S.No	Chapter # 13 (Long Questions)
1	Write a note on types of vitamins.
2	Carbohydrates provide different usage to our body. Explain.
3	What are essential and non-essential amino acids? Explain that amino acids are building blocks of proteins.
4	Explain the sources and uses of lipids.
5	What are oligosaccharides? Give their properties.
6	What are carbohydrates? How are monosaccharides prepared? Give their characteristics.
7	Name types of vitamins. Give the importance of vitamins.
8	Describe the sources, uses, and deficiency symptoms of fat-soluble vitamins.
9	Explain the role of carbohydrates in our bodies.
10	Who proposed the name "Vitamins"? Discuss the importance of Vitamins.
11	Explain the sources and uses of Lipids.
12	Write sources and uses of Proteins.
13	Define water-soluble vitamins. Write a note on the importance of vitamins.

S.No	Chapter # 14 (Long Questions)
1	Describe three methods to control pollution.
2	State the role of government in controlling pollution.

3	How compounds of Sulphur are air pollutants? State two of their effects.
4	State sources of air pollutants.
5	Describe the composition of the atmosphere.
6	Give three sources of oxides of carbon.
7	What are primary and secondary pollutants? Explain with examples.
8	Write three effects of ozone depletion.
9	Write down any three major effects of Global Warming.
10	Write a note on the troposphere.
11	What is the greenhouse effect? Explain it.
12	How does carbon act as a pollutant? Explain it.
13	Write the sources of oxides of Nitrogen.
14	CO ₂ is necessary for plants but its increasing concentration is alarming for us. Why?
15	What is Ozone? Write the effects of Ozone depletion.
16	What are agricultural effluents? What are their dual effects?

S.No	Chapter # 16 (Long Questions)
1	Explain the process of Bessemerization with reference to Copper.
2	What is petroleum? Describe any three fractions of petroleum.
3	Explain the following steps of the Solvay's process with the help of equations: (a) Carbonation (b) Calcination (c) Ammonia Recovery.
4	What is the percentage of Nitrogen in Urea? Write down the importance of Urea.
5	Describe the purification of metal by electrolysis.
6	Explain the process of smelting with reference to copper.
7	Write uses of five different bases in daily life.
8	How is urea manufactured? Explain showing the flow sheet diagram.
9	Write a note on Froth floatation process and Electromagnetic separation.
10	Write the advantages of Solvay's process.
11	Give importance and status of urea in daily life.
12	What is Petroleum? Explain the composition and uses of petrol and petroleum ether.
13	How is crude oil refined? Explain two important fractions of petroleum along with their usage and names.
14	Write down raw materials and the process of manufacturing of Urea.
15	Prepare Alkenes by dehydration of Alcohols.
16	Write a note on five important fractions of Petroleum.