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# Chapter 13: Biochemistry

Boards' Topic Wise Multiple Choice Questions Classified Precisely According to the New Examination Techniques of Education Department

*(Knowledge, Understanding, Application, Analytical & Conceptual)*

## 13.1 Carbohydrates

**1. Which of these is a triglyceride? (Knowledge)**
A Carbohydrates B Proteins C Lipids D Vitamins

**2. Which of these does not contain a protein? (Knowledge)**
A Pulses B Potatoes C Beans D Eggs

**3. Which of the following features is not found in monosaccharides? (Knowledge)**
A White crystalline solid B Soluble in water
C Hydrolyzable D Naturally reducing

**4. Which of the following statements about glucose and sucrose is not true? (Knowledge)**
A Water soluble B Naturally occurring C Carbohydrates D Disaccharides

**5. Lactose is a type of sugar that consists of glucose and ____. [LHR-I/II,MTN-I,SGD-I,DGK-I/II,SWL-I/II] (Knowledge)**
A Sucrose B Maltose C Starch D Galactose

**6. Which of the following is a crystalline solid? [GUJ-I/II,MTN-I/II,SGD-I/II,SWL-II] (Knowledge)**
A Glucose B Starch C Cellulose D Glycogen

**7. Maltose is usually found in _____. [SGD-I/II,DGK-II,SWL-II] (Knowledge)**
A Milk B Cereals C Dairy products D Cotton

**8. Glucose is: (Knowledge)**
A Hexahydroxy B Hexahydroxy ketone
C Pentahydroxy D pentahydroxy aldehyde

**9. Which is a reducing sugar? [LHR-II,GUJ-I/II,FSD-I,MTN-I/II,SGD-I/II,DGK-II][LHR-II-23] (Knowledge)**
A Glucose B Maltose C Sucrose D Starch

**10. Glucose is a: [LHR-I/II,FSD-I,DGK-I,SWL-I,MTN-II] (Knowledge)**
A Hexahydroxy aldehyde B Pentahydroxy aldehyde
C Pentahydroxy ketone D Hexahydroxy ketone

**11. The chemical formula of fructose is: [GUJ-I/II,,MTN-I/II,SGD-I/II,DGK-II,SWL-II] (Knowledge)**
A $C_{12}H_{22}O_{11}$ B $C_6H_{12}O_6$ C $C_4H_{10}$ D $C_5H_{12}$

**12. Which of the following is a disaccharides? [DGK-I,MTN-I,SRG-II,BWP-I,GUJ-I] (Knowledge)**
A Glucose B Fructose C Sucrose D Starch

**13. Which of the following is tasteless? [DGK-II,MTN-II,BWP-II][BWP-I-23] (Knowledge)**
A Starch B Glucose C Fructose D Sucrose

**14. The most important oligosaccharide is: [FSD-I,GUJ-I-23] (Knowledge)**
A Sucrose B Glucose C Fructose D Maltose

**15. Is produced by the process of photosynthesis: [FSD-II-23] (Understanding)**
A Starch B Cellulose C Sucrose D Glucose

**16. The combination of glucose and fructose forms: [RWP-II,SGD-I,DGK-I/II-23] (Understanding)**
A Starch B Cellulose C Sucrose D None of these

**17. The general formula for carbohydrates is: [LHR-I/II,MTN-I,SGD-I,DGK-I/II,SWL-I/II] (Analytical)**
A $C_n(H_2O)_n$ B $C_n(H_2O_2)_n$ C $C_n(H_3O)_n$ D $C_n(H_2O_3)_n$

## 13.2 Protein

**18. Organic compounds used to stop bleeding: [LHR-I-23] (Knowledge)**

A Vitamins B Proteins C Lipids D Glycerides

**19. About _____% of the dry cell weight of animals is made up of proteins. (Knowledge)** [FSD-I,DGK-I]

A 25 B 50 C 75 D 100

**20. The number of amino acids in proteins is _____. [GUJ-I,FSD-I,DGK-I,MTN-II] (Knowledge)**

A 1000 B Less than 10,000 C More than 10000 D 2000

## 13.3 Lipids

**21. Fatty acids are the building blocks of _____. [LHR-I/II,MTN-I,SGD-I,DGK-I/II] (Knowledge)**

A Lipids B Proteins C Glucose D Vitamins

**22. Rancid butter has a foul smell because of: [LHR-I/II,GUJ-I/II,FSD-I/II,MTN-I,SGD-I] (Application)**

A Butanoic acid B Nitric acid C Tartaric acid D Sulphuric acid

**23. The formula of stearic acid is: (Analytical)**

A $C_{14}H_{31}COOH$ B $C_{15}H_{31}COOH$ C $C_{16}H_{31}COOH$ D $C_{17}H_{35}COOH$

**24. The formula of palmitic acid is: [LHR-II,GUJ-I/II,FSD-I,MTN-I/II,SGD-I/II,DGK-II,SWL-I] (Analytical)**

A $C_5H_{11}COOH$ B $C_{18}H_{37}COOH$ C $C_{17}H_{35}COOH$ D $C_{15}H_{31}COOH$

## 13.4 Nucleic acids

**25. DNA contains: [LHR-II,GUJ-II,MTN-II,SWL-I] (Knowledge)**

A Ribose B Pentose C Deoxyribose sugar D Phosphate

**26. Which scientist discovered the structure of DNA? (Knowledge)**

A Watson F. Crick B Hopkins C Dalton D Robert Hooke

**27. Watson and Crick discovered the structure of DNA: [MTN-I,GUJ-I,FSD-II] (Knowledge)**

A 1950 AD B 1952 AD C 1953 AD D 1955 AD

**28. Amino acids are linked together: [LHR-I/II,MTN-I,SGD-I,DGK-I/II,SWL-I/II] (Understanding)**

A Hydrogen bond B Ionic bond C Gelatin bond D Peptide bond

**29. Thousands of amino acids polymerize to form: [RWP-II] (Understanding)**

A Carbohydrates B Proteins C Lipids D Vitamins

**30. Amino acids that our body cannot produce: [GUJ-I/II,MTN-I/II,SGD-I/II,DGK-I] (Conceptual)**

A Non-essential B Proteins C Essential D Amino acids

**31. Who transmits genetic information from generation to generation? (Conceptual)** [SGD-I-23]

A Proteins B Nucleic acids C Carbohydrates D Lipids

## 13.5 Vitamins

**32. Which vitamin is fat soluble? [FSD-I,DGK-II,BWP-II,SGD-I][GUJ-II-23] (Knowledge)**

A A B D C K D All of these

**33. Which vitamin is soluble in water? [GUJ-I,FSD-II,DGK-II,RWP-I] (Knowledge)**

A Vitamin A B Vitamin C C Vitamin D D Vitamin E

**34. Vitamin E deficiency causes: (Knowledge)**

A Rickets B Scurvy C Night blindness D Anemia

**35. Which vitamin deficiency causes night blindness? [SWL-II-23] (Knowledge)**

A Vitamin A B Vitamin E C Vitamin C D Vitamin D

## Answers Key

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | C | 2. | B | 3. | C | 4. | D | 5. | D | 6. | A | 7. | B | 8. | D | 9. | A | 10. | B | 11. | B |
| 12. | C | 13. | A | 14. | A | 15. | D | 16. | C | 17. | A | 18. | B | 19. | B | 20. | C | 21. | A | 22. | A |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23. | D | 24. | D | 25. | C | 26. | A | 27. | C | 28. | D | 29. | B | 30. | C | 31. | B | 32. | D | 33. | B |
| 34. | D | 35. | A | | | | | | | | | | | | | | | | |

Boards' Topic Wise OPEN ENDED Questions Classified Precisely According to the New Examination Techniques of Education Department

*(Knowledge, Understanding, Application, Analytical & Conceptual)*

# 13.1 Carbohydrates

**1. Define carbohydrates, write their general formula.** **[LHR-I,DGK-I/II,SGD-I] (Knowledge)**

**Ans. Carbohydrates:** Carbohydrates are macromolecules defined as polyhydroxy aldehyde or Ketones.

**General formula:** They have general formula $C_n(H_2O)_n$

**2. Describe carbohydrate as an energy source.** **[FSD-I/II,MTN-I/II,SGD-I/II] (Understanding)**

**Ans.** Our body uses carbohydrates in the form of glucose. Glucose is the only form of carbohydrates that is used directly by muscles for energy. It is important to note that brain needs glucose as an energy source, because it cannot use fat for this purpose.

**3. What is the basic unit of carbohydrates? How are they made?** **[SGD-II-23]**

**Ans.** Carbohydrates are macromolecules defined as polyhydroxy aldehydes or ketones. They have general formula $C_n(H_2O)_n$. Carbohydrates are synthesized by plants through photosynthesis process from carbon dioxide and water in the presence of sunlight and green pigment chlorophyll.

$$6CO_2 + 6H_2O \xrightarrow[\text{chlorophyll}]{\text{sunlight}} C_6H_{12}O_6 + 6O_2$$

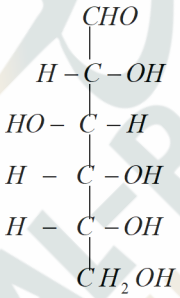
## 13.1.1 Monosaccharides

**4. What are Monosaccharides? Give example.** **[GUJ-I,FSD-I,DGK-I,SWL-I,MTN-II] (Knowledge)**

**Ans. Monosaccharides:** Monosaccharides are the simplest sugars which cannot be hydrolyzed. They consist of 3 to 9 carbon atoms. Therefore, they are classified according to the number of carbon atoms in their molecules as trioses, tetroses, pentoses, hexoses, and so on. The important monosaccharides are hexoses like glucose and fructose.

**5. Write the structural formula of glucose.** **[GUJ-I,SWL-I,LHR-II,DGK-I] (Understanding)**

**Ans. Structural formula of glucose:**




**6. Give the characteristic of monosaccharides.** **[FSD-I-23] (Understanding)**

**Ans. (i)** Monosaccharides are white crystalline solids.

**(ii)** They are soluble in water.

**(iii)** They have sweet taste. **(iv)** They cannot be hydrolyzed.

**(v)** They are reducing in nature therefore they are called reducing sugars.

## 13.1.2 Oligosaccharides

**7. Write the balanced chemical equation for the hydrolysis of sucrose.** **(Understanding)**

**[LHR-I/II,GUJ-I/II,FSD-I/II,MTN-I,SGD-II,DGK-I,SWL-I]**

**Ans.** On hydrolysis, sucrose produces one unit of glucose and one unit of fructose.

$$\underset{\text{Sucrose}}{C_{12}H_{22}O_{11}} + H_2O \xrightarrow[\text{heat}]{\text{Dil.HC}\ell} \underset{\text{glucose}}{C_6H_{12}O_6} + \underset{\text{fructose}}{C_6H_{12}O_6}$$

**8. Describe the sources of sucrose and starch.** [LHR-I/II,MTN-I,SGD-I,DGK-I/II] **(Understanding)**

**Ans.** Sucrose is found in sugar beet, sugar cane and fruits , while starch is found in cereal crops, wheat, barley, maize, rice etc.

**9. How are disaccharides hydrolyzed to monosaccharides?** **(Understanding)**
[LHR-I/II,FSD-I,DGK-I,SWL-I,MTN-II]

**Ans.** The most important oligosaccharides are disaccharides like sucrose.
On hydrolysis, sucrose produces one unit of glucose and one unit of fructose.

$$\underset{\text{sucrose}}{C_{12}H_{22}O_{11}} + H_2O \xrightarrow[\text{heat}]{\text{Dil. HCl}} \underset{\text{glucose}}{C_6H_{12}O_6} + \underset{\text{fructose}}{C_6H_{12}O_6}$$

**10. Give the characteristics of disaccharides (any two).** **(Understanding)**
[BWP-I-23][LHR-I/II,MTN-I,SGD-I,DGK-I/II,SWL-I/II]

**Ans.** **(i)** Disaccharides are sweet in taste. **(ii)** They are easily soluble in water.

**11. Give characteristics of oligosaccharides.** [GUJ-I/II,FSD-I/II,MTN-I,SGD-I] **(Understanding)**

**Ans.** **(i)** Disaccharides are white crystalline solids and sweet in taste .
**(ii)** They are easily soluble in water.
**(iii)** The glucose is further polymerized to form starch and cellulose.

## 13.1.3 Polysaccharides
## 13.1.4 Sources and uses of carbohydrates

**12. Define polysaccharides and give an example.** [GUJ-I,RWP-II,DGK-I/II,BWP-I] **(Application)**

**Ans.** **Polysaccharides:** Polysaccharides are macro- molecular carbohydrates consisting of hundreds to thousands of monosaccharides.
Examples of polysaccharides are starch and cellulose.

**13. Give the characteristics of polysaccharides.** [DGK-I-23,FSD-I/II,DGK-II] **(Understanding)**

**Ans.** **(i)** They are amorphous solids. **(ii)** They are tasteless and insoluble in water.
**(iii)** They are non reducing in nature.

**14. Define drip system.** [SWL-II-23] **(Knowledge)**

**Ans.** A system in which dextrose is injected directly through a patient's vein is called intravenous therapy. This is commonly called a drip system.

## 13.2 Protein

**15. Define proteins and write the name of its basic unit.** [GUJ-I/II,MTN-I/II] **(Knowledge)**

**Ans.** **Proteins:** Proteins are highly complicated nitrogenous compounds made up of amino acids. Amino acids are basic units of proteins.
**Basic unit:** Amino acid is the basic unit of protein. Amino acids are organic compounds consisting of both amino and carboxyl group.

**16. How is gelatin obtained?** [LHR-I,RWP-I-23] **(Understanding)**

**Ans.** Proteins are found in bones. When bones are heated they give gelatin. Gelatin is used to make bakery items.

**17. What do you know about denaturing of protein?** [SWL-II-23] **(Conceptual)**

**Ans.** Protein modification refers to protein precipitation. This occurs by heating or changing the pH, the most common way to change the protein properties is to boil the egg. The white dark liquid in the egg is albumin protein, the albumin solidifies when the egg is boiled for a few minutes.

**18. What is the difference between essential and non-essential amino acids.** **(Analytical)**
[RWP-II,BWP-II-23]

**Ans.**

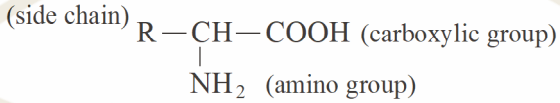
| Essential amino acids | Non-essential amino acids |
|---|---|

| | |
|---|---|
| **(i)** Ten out of twenty amino acids which cannot be synthesized by human body are called essential amino acids . | **(i)** The amino acids which can be synthesized by human body are called non-essential amino acids. They are also ten in numbers. |
| **(ii)** These amino acids are required by human body and must be supplied through diet. | **(ii)** There amino acids are not required by human body and so there is no need to take them through diet. |

## 13.2.1 Amino acids are building blocks of proteins
## 13.2.2 Sources and uses of proteins

**19. What are amino acids?** **[MTN-I-23] (Understanding)**

**Ans. Basic unit:** Amino acid is the basic unit of protein. Amino acids are organic compounds consisting of both amino and carboxyl group.




## 13.3 Lipids

**20. Define lipids.** **[LHR-I/II,MTN-I,SGD-I,DGK-I/II,SWL-I/II] (Knowledge)**

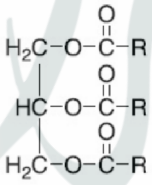
**Ans. Lipids:** Lipids are macromolecules made up of fatty acids. Lipids include oils and fats. Oils and fats are esters of long chain carboxylic (fatty) acids with glycerol. These esters are made of three fatty acids, therefore, they are called triglycerides.

**21. Shortly brief that Plants are source of Oil.** **[FSD-I/II,MTN-I/II,SGD-I/II,DGK-I] (Understanding)**

**Ans.** Plants synthesize oils and store them in seeds, such as sunflower oil, coconut oil, groundnut oil and corn oil. These oils are used as vegetable oils or ghee for cooking and other purposes.

**22. Write the structural formula of triglyceride.** **[GUJ-I/II,FSD-I,MTN-I/II,DGK] (Application)**

**Ans. Structural formula of triglyceride:**




## 13.3.1 Fatty acids
## 13.3.2 Sources and uses of lipids

**23. Write the names of two fatty acids and their formulas.** **[MTN-II,FSD-I] (Application)**

**Ans. (i)** Stearic Acid $C_{17}H_{35}COOH$ **(ii)** Palmitic Acid $C_{15}H_{31}COOH$

**24. Write any two uses of lipids.** **[BWP-II-23] (Application)**

**Ans. (i)** Animal fats are found in adipose tissue cells. Animals secrete milk from which butter and ghee is obtained. Butter and ghee are used for cooking and frying of food, for preparing bakery products and sweets. These acids form esters (oils or fats) with glycerol in the presence of mineral acids.

**(ii)** Animal fats are used in soap industry.

**25. What is the difference between oil and ghee?** **[SGD-II-23] (Analytical)**

**Ans.**

| Oil | Ghee |
|---|---|

| | |
|---|---|
| **(i)** Oils exist in liquid form at room temperature. | **(i)** While Ghee exist in solid form at room temperature. |
| **(ii)** They are triglycerides of unsaturated fatty acids. | **(ii)** They are triglycerides of saturated fatty acids. |

## 13.4 Nucleic acids

### 13.4.1 Deoxyribonucleic acid (DNA)

**26. What is the function of DNA?** **[LHR-II,MTN-II,GUJ-II-23] (Conceptual)**

**Ans.** DNA is the permanent storage place for genetic information in the nucleus of a cell. It carries and stores all genetic informations of the cell. It passes these informations as instructions from generation to generation how to synthesize particular proteins from amino acids. These instructions are 'genetic code of life'. They determine whether an organism is a man or a tree or a donkey and whether a cell is a nerve cell or a muscle cell.

### 13.4.2 Ribonucleic acid (RNA)

**27. What is ribonucleic acid RNA?** **[SGD-II,MTN-I,DGK-I] (Knowledge)**

**Ans. Ribonucleic acid (RNA):** It consist of ribose sugar. It is a single stranded molecule. Its role is like a messenger.

**28. How you justify RNA works like a messenger?** **(Application)**

**Ans.** RNA consists of ribose sugar. It is a single standard molecule. It is responsible for putting the genetic information to work in the cell to build proteins. Its role is like messenger. RNA is synthesized by DNA to transmit the genetic information. RNA is then responsible for directing the synthesis of new protein.

## 13.5 Vitamins

**29. Define vitamin. Give example.** **(Analytical)**

**Ans.** In addition to carbohydrates, proteins and fats there are other substances needed for normal growth of human body. These subtences are called vitamins.

**Example:** Vitamin A, B and C etc.

**30. Why excessive use of vitamin D is harmful.** **[SGD-II,DGK-I,MTN-II,FSD-I/II] (Understanding)**

**Ans.** Accumulation of vitamin D in the body. Cause bone pain and bone like deposits in the kidney.

**31. Justify water soluble vitamins are not injurious to health.** **(Understanding)**

**Ans.** The water soluble vitamins dissolve in water very easily. Due to the solubility of these vitamins into water, they are rapidly excreted from the body and does not accumulate into body to cause disease. Hence these vitamins are non-toxic and not injurious to health even in large quantity.

**32. Write the sources and uses of vitamin A.** **[FSD-II-DGK-I-23] (Understanding)**

**Ans. Sources:** Vitamin A is obtained by dairy products, eggs, oils and fats, fish. It can also be obtained from the beta-carotene found in green vegetables, carrots and liver.

**Uses:** Vitamin A is used to maintain the health of the epithelium and acts on the retina's dark adaption mechanism.

**33. What is the function of vitamin A and vitamin B?** **[SWL-I-23] (Understanding)**

**Ans. Vitamin A:** Vitamin A is used to maintain the health of the epithelium and acts on the retina's dark adaption mechanism.

**Vitamin B:** Vitamin B plays an important role in converting food into energy in the body.

**34. What is meant by accessory growth factors?** **[SWL-II-23] (Understanding)**

**Ans.** Factors that are essential for the normal growth of our body are called accessory growth factors, although these accessory growth factors are taken in very small amounts.

## Exercise

**1. Carbohydrates are synthesized by plants through photosynthesis process which requires the following except:**
A $CO_2$ and water B presence of sunlight
c $O_2$ D chlorophyll

**2. Which of the followings is a disaccharide?**
A glucose B fructose c sucrose D starch

**3. Photosynthesis process produces:**
A starch B cellulose C sucrose d glucose

**4. Which one of the following is tasteless?**
a starch B glucose C fructose D sucrose

**5. When glucose and fructose combine they produce:**
A starch B cellulose c sucrose D none of these

**6. Glucose is:**
A Hexahydroxy aldehyde B Hexahydroxy ketone
c Pentahydroxy aldehyde D Pentahydroxy ketone

**7. Thousand of amino acids polymerize to form:**
A Carbohydrates b Proteins C Lipids D Vitamins

**8. Which one of following is a triglyceride?**
A Carbohydrates B Proteins c Lipids D Vitamins

**9. Enzymes are proteins which have the following properties except:**
A They catalyze reaction b They are highly non-specific
C They are highly efficient D They are produced by living cells

**10. Which one of the following vitamins is water soluble?**
A vitamin A b vitamin C C vitamin D D vitamin E

**11. Which one of the following is a fat soluble vitamin?**
A A B E C K d All of these

**12. Which one of the following is not the characteristics of monosaccharide?**
A White crystalline solids B Soluble in water
c Hydrolysable D Reducing in nature

**13. Which one of the following statements about glucose and sucrose is incorrect?**
A soluble in water B naturally occurring C carbohydrates d disaccharides

**14. Which one of the following is a reducing sugar?**
a glucose B maltose C sucrose D starch

**15. The most important oligosaccharide is:**
a sucrose B glucose C fructose D maltose

**16. Night blindness is because of deficiency of:**
a vitamin A B vitamin E C vitamin C D vitamin D

**17. The organic compounds used as drugs to control bleeding are:**
a vitamins B proteins C lipids D glycerides

**18. Deficiency of Vitamin E causes:**
A rickets B scurvy c anemia in babies D night blindness

**19. Lipids are macromolecules. They have characteristics except one of the followings:**
A They are high energy foods b They are soluble in water
C They are poor conductor of heat D They are esters of fatty acids

**20. Vitamins are Accessory Growth Factors. They play important role in our body like:**
A Provide are high energy food B Insulate our body form electric shock
C Build brain cells d regulate metabolic process

## Long Questions

**1. Describe four uses of carbohydrates.** **[LHR-I,MTN-I,DGK-I,2024]**

2. **Carbohydrates provide various benefits to our body. Please explain.** [GUJ-I,SWL-I,LHR-II,DGK-I]
3. **What is vitamin? Give the importance of vitamins.** [SWL-I,2024]
4. **Write a note on types of vitamins.** [LHR-II,GUJ-I,2024]
5. **Explain that amino acids are the building blocks of proteins.** [BWP-II,2024]
6. **Explain the sources of lipids and their uses.** [GUJ-II,SGD-II,BWP-I,SWL-II,2024]
7. **Explain Oligosaccharides with examples.** [RWP-I,MTN-II,2024]
8. **What are polysaccharides? Write their properties.** [DGK-II,2024]
9. **Describe the sources, uses and deficiency symptoms of fat soluble vitamins.** [RWP-II,2024]
10. **What are amino Acids? Explain how amino acids are building blocks of protein.** [SGD-I,2024]
11. **Explain the sources and uses of proteins.** [FSD-I/II,2024]

## Test Yourself (Solved)

### Test Yourself 13.1

**(i) Define carbohydrates.**

**Ans. Carbohydrates:** Carbohydrates are macromolecules defined as polyhydroxy aldehyde or Ketones.

**General formula:** They have general formula $C_n(H_2O)_n$

**(ii) Give the characteristics of disaccharides.**

**Ans. (i)** Disaccharides are white crystalline solids. **(ii)** They are easily souble in water.
**(iii)** They are sweet in taste. **(iv)** They may be reducing or non-reducing.

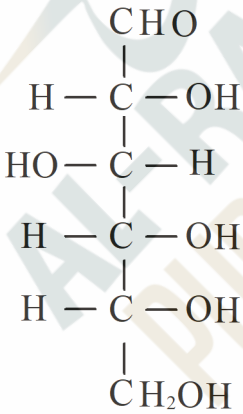
**(iii) Give the balanced equation for the formation of glucose.**

**Ans.** Following is the balanced equation for the formation of glucose:

$$6CO_2 + 6H_2O \xrightarrow[\text{chlorophyll}]{\text{sunlight}} C_6H_{12}O_6 + 6O_2$$

**(iv) Draw the structure of glucose.**

**Ans.** Structure of glucose is given as follows;



Glucose

**(v) Give the balanced equation for the hydrolysis of sucrose.**

**Ans.** On hydrolysis sucrose produces one unit of glucose and one unit of fructose.

$$\underset{\text{sucrose}}{C_{12}H_{22}O_{11}} + H_2O \xrightarrow[\text{heat}]{\text{Dil.HCl}} \underset{\text{glucose}}{C_6H_{12}O_6} + \underset{\text{fructose}}{C_6H_{12}O_6}$$

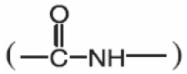
### Test Yourself 13.2

**(i) Which elements are found in proteins?**

**Ans.** Proteins consist of carbon (C), hydrogen (H), oxygen (O), nitrogen (N) and sulphur. They are polymers of amino acids.

**(ii) How amino acids are bonded with each other?**

**Ans.** Amino acids are linked with each other through peptide linkage



**(iii) Give the general formula of amino acid.**

**Ans.** The general formula of amino acids is given as follows :

(side chain) R−CH−COOH (carboxylic group)

|

$NH_2$ (amino group)

**(iv) What do you mean by non-essential amino acids?**

**Ans.** Ten amino acids can be synthesized by human body. These amino acids are called non-essential amino acids.

**Test Yourself 13.3**

**(i) What is difference between ghee and oil.**

**Ans.** Oils are triglycerides of unsaturated fatty acids and they exist in liquid form at room temperature. While ghee (fats) exist in solid form at room temperature and they are triglycerides of saturated fatty acids.

**(ii) Give the characteristics of fats.**

**Ans.** Fats are high energy food. They exist in solid form at room temperature and they are triglycerides of saturated fatty acids.

**(iii) Give the sources and uses of animal fats.**

**Ans.** (i) Animal fats are found in adipose tissue. Animals secrete milk from which butter and ghee is obtained. Butter and ghee are used for cooking and frying of food, for preparing bakery products and sweets.

(ii) Animal fats are used in soap industry.

**(iv) Plants are source of oils, justify.**

**Ans.** Plants synthesize oils and store them in seeds, as sunflower oil, coconut oil, ground nut oil and corn oil. These oils are used as vegetable oils or ghee for cooking and other purposes.

**Test Yourself 13.4**

**(i) What are the disadvantages of fats soluble vitamins?**

**Ans.** The disadvantages of fats soluble vitamins are; if they are taken in large quantity they accumulate in the body and cause diseases. However, their deficiency also cause diseases.

**(ii) What are advantages of water soluble vitamins?**

**Ans.** Water soluble vitamins are rapidly excreted from our body, hence these vitamins are not toxic even if taken in large quantity.

**(iii) Give examples of fats soluble vitamins.**

**Ans.** Vitamin A, vitamin D, vitamin E and vitamin K are the examples of fats soluble vitamins.

**(iv) What are the components of nucleotide?**

**Ans.** Each nucleotide consists of three components, nitrogenous base, a pentose sugar and a phosphate group.

# AL-RAZI

# UP-TO-DATE

# PAPERS

## BOARD PAPERS

## GROUP I-II

## 2024-2025

# Faisalabad (Group-I) 2024

**Roll No. Of Candidate:_____** **Paper Code: 4071**

Date: D D M M Y Y Y Y Morning (M) Evening (E)

**Time: 20 Minutes** **Marks: 12**

| Roll No. | Paper Code |
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## Objective Type

**Note:** You have four choices for each objective types question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number on your answer book. Use marker or pen to fill the circles. Cutting or filling of two or more circles will result in zero mark in that question.

**1. Formula of copper glance is:**

A $CuFeS_2$ B $CuS$ C $CuS_2$ D $Cu_2S$

**2. Bond angle in $H_2O$ molecule is:**

A $105.5^o$ B $109.5^o$ C $104.5^o$ D $107.5^o$

**3. The maximum density of water at $4^oC$ is:**

A $1g\ cm^{-3}$ B $1g\ dm^{-3}$ C $0.97g\ cm^{-3}$ D $1.2g\ dm^{-3}$

**4. Formula of ozone is:**

A $O_2$ B $O_3$ C $CO_2$ D $CO$

**5. Ozone layer lies in:**

A Troposphere B Stratosphere C Mesophere D Thermosphere

**6. Formula of palmitic acid is:**

A $C_{15}H_{31}COOH$ B $C_{15}H_{30}COOH$ C $C_{17}H_{33}COOH$ D $C_{17}H_{35}COOH$

**7. A bond formed between two amino acids is:**

A Covalent bond B Peptide linkage

C Hydrogen bond D Ionic bond

**8. The catalyst required for hydrogenation of ethene ($CH_2$=$CH_2$) is:**

A Na B Ni C Mg D NO

**9. Which scientist prepared urea in laboratory?**

A Wholer B Rutherford C Berzellius D Dalton

**10. Stearic acid is found in:**

A Urine B Fats C Apple D Grapes

**11. Which one base is used in alkaline batteries?**

A NaOH B $A\ell(OH)_3$ C $KOH$ D $MG(OH)_2$

**12. Guldberg and Waage put forward law of mass action in:**

A 1866 B 1867 C 1868 D 1869

| Time Allowed:1:45 Hours | (SUBJECTIVE TYPE) | Total Marks: 48 |
|---|---|---|

## Section - I

**2. Write short answers of any FIVE parts from the following. 2×5=10**

**(i)** How is the active mass represented?

**(ii)** If a reaction has large value of $K_c$, will it go to completion and why?

**(iii)** Name the gases which are found in coal gas.

**(iv)** How is the basic unit of carbohydrates synthesized?

**(v)** Differentiate between ketones and aldehyeds.

**(vi)** What is the importance of natural gas?

**(vii)** Why are the alkanes called paraffins?

**(viii)** Give the physical properties of alkenes.

**3. Write short answers of any FIVE parts from the following. 2×6=12**

**(i)** Name the acids present in vinegar and citrus fruit.

**(ii)** How are the insoluble salts prepared?

**(iii)** $Na_2SO_4$ is a neutral salt while $NaHSO_4$ is an acidic salt, justify.

**(iv)** How do plants synthesize carbohydrates?

**(v)** Justify that water soluble vitamins are not injurious to health.

**(vi)** How does water dissolve sugar and alcohol?

**(vii)** What are the causes of hardness in water?

**(viii)** Differentiate between soft and hard watar.

**4. Write short answers of any FIVE parts from the following. 2×6=12**

**(i)** How are sulphur containing compounds emitted naturally?

**(ii)** Why are the floods risks increasing?

**(iii)** Why does acid rain damage the buildings?

**(iv)** Justify ozone is benefical for humans.

**(v)** What is principle of frcational distillation?

**(vi)** What is the difference between slag and matte?

**(vii)** Why anode is eaten up in electro refining process?

**(viii)** What role is played by pine oil in forth flotation process?

## Section - II

☆ **Attempt any TWO questions. 9X2=18**

**5. (a) Describe five chemical properties of acids. 5**

**(b) State the law of Mass Action and derive the expression for equilibrium constant for a general reaction. 4**

**6. (a) How permanent hardness of water is removed by sodium zeolite? Explain. 5**

**(b) Explain the sources and uses of proteins. 4**

**7. (a) What is the principle of Solvya's process? Explain first four steps for the preparation of $Na_2CO_3$ by Solvay's process. 5**

**(b) Write any four uses of ethylene. 4**

# Faisalabad (Group-II) 2024

**Roll No. Of Candidate:_____** **Paper Code: 4072**

**Time: 20 Minutes** **Marks: 12**

Date: D D M M Y Y Y Y Morning (M) Evening (E)

| Roll No. | Paper Code |
|---|---|
| | |

## Objective Type

**Note:** You have four choices for each objective types question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number on your answer book. Use marker or pen to fill the circles. Cutting or filling of two or more circles will result in zero mark in that question.

**1. When $NaHCO_3$ is heated, it forms:**

A $CaCO_3$ B $Ca(OH)_2$ C $CO_2$ D $CaO$

**2. Which disease causes liver inflammation?**

A Typhoid B Jaundice C Cholera D Hepatitis

**3. Specific heat capacity of water is:**

A $4.2kJg^{-1}K^{-1}$ B $4.2JgK^{1}$ C $4.2Jg^{-1}K^{-1}$ D $4.2JgK^{-1}$

**4. Which one is a secondary pollutant?**

A Ammonia B Ozone

C Methane D Oxides of carbon

**5. About 99% atmosphere's mass lies within:**

A 11 kilometer B 15 kilometer C 30 kilometer D 35 kilometer

**6. The sources of galactose is:**

A Fruits B Rice C Cotton D Cellulose

**7. Which one is a triglyceride?**

A Carbohydrated B Proteins C Lipids D Vitamins

**8. The formula of chloro methane is:**

A $CH_3C\ell$ B $CH_2C\ell_2$ C $CHC\ell_3$ D $CC\ell_4$

**9. Which scientist prepared urea in laboratory?**

A Wholer B Rutherford C Berzellius D Dalton

**10. To dry a gas, which salt would you use?**

A $CaC\ell_2$ B $NaCl$ C $CaO$ D $Na_2SiO_3$

**11. The conjugate base of HS is:**

A $H_2S$ B $S^{-2}$ C $H^+$ D $S^2$

**12. Molar concentration is expressed as:**

A { } B ( ) C [ ] D $\phi$

| Time Allowed:1:45 Hours | (SUBJECTIVE TYPE) | Total Marks: 48 |
|---|---|---|

## Section - I

**2. Write short answers of any FIVE parts from the following. 2×5=10**

**(i)** Write names of two major gases of atmosphere.

**(ii)** What are irrversible reactions? Give one example.

**(iii)** What is carbonization?

**(iv)** Write types of formulae of organics compounds.

**(v)** What is vital force theory?

**(vi)** Write dot and cross formula of propane.

**(vii)** Write any two uses of ethene.

**(viii)** Write the formulae of chloroform and carbon tetrachloide.

**3. Write short answers of any FIVE parts from the following. 2×5=10**

**(i)** Why water is called an amphoteric compound? Prove with two reactions.

**(ii)** Differentiate between Lewis acid and Lewis base.

**(iii)** Write neutralization reaction between $H^+$ and $NH_3$.

**(iv)** Justify that water soluble vitamins are not injurious to health.

**(v)** Draw general formula of lipids.

**(vi)** What do you know about leaching process?

**(vii)** Why is the use of detergents increasing day by day.

**(viii)** Write two reasons for the spreading of water borne diseases.

**4. Write short answers of any FIVE parts from the following. 2×5=10**

**(i)** How is Ozone layer formed in stratosphere.

**(ii)** Explain the phenomenon of decreasing temperature in troposphere.

**(iii)** What is meant by pollutants? Explain briefly.

**(iv)** $CO_2$ is responsible for heating up atmosphere. Justify.

**(v)** Write the raw materials required for Solvay's process.

**(vi)** What is refining of metals? Explain breifly.

**(vii)** What is calcination in Solvay's process?

**(viii)** Define fractional distillation of petroleum.

## Section - II

☆ **Attempt any TWO questions. 9X2=18**

**5. (a) Explain the Arrhenius concept of acids and basis with the help of examples.5**

**(b) What is the importance of equilibrium constant? Explain how will you prdict extent of a reaction with the help of equilibrium constan? 4**

**6. (a) Define temporary hardness. Write two methods for the removal of temporary hardness. 5**

**(b) Write the sources and uses of proteins. 4**

**7. (a) Draw a flow sheet diagram of manufacturing of urea. 5**

**(b) Write chemical properties of alkanes. 4**

# AL-RAZI

# UP-TO DATE PAPERS

## BOARD PAPERS

## GROUP I-II SOLVE

## 2024-2025

# Answers (2024)

## Lahore Board (G-I)

### Objective Type

**1.** A Starch **2.** D $CaSO_4$
**3.** C Anthracite **4.** D Aluminium
**5.** C 400°C **6.** C $mol^{-1}\ dm^3$
**7.** C Sucrose **8.** C $H_2PO_4^-$
**9.** A 30 kilometer **10.** A $CH_4$
**11.** B Sodium Chloride
**12.** B $4.2Jg^{-1}K^{-1}$

## Lahore Board (G-II)

### Objective Type

**1.** B Lignite **2.** B $C\ell_2$
**3.** B Proteins **4.** B $HNO_3$
**5.** C 0.93% **6.** A $CO_2$
**7.** C Coordinate covlanet bond
**8.** B $C_nH_{2n}$ **9.** A Fruits
**10.** A Fluorosis **11.** A Left to right
**12.** A $CO_2$ and $H_2O$

## Gujranwala Board (G-I)

### Objective Type

**1.** C $C_8H_{18}$ **2.** A glucose
**3.** B Vitamin C
**4.** D hydrogen bonding
**5.** A $CO_2$ **6.** D phosphate salts
**7.** A flavouring food
**8.** C carbon black **9.** A 30
**10.** D active mass means total mass of substance
**11.** D co-ordinate covalent **12.** C coal tar

## Gujranwala Board (G-II)

### Objective Type

**1.** B pentahydroxy aldehyde
**2.** D $C_nH_{2n+1}$ **3.** A $NH_2CONH_2$
**4.** B fluorosis
**5.** D accept a pair of electrons
**6.** D 30 kilometre **7.** C $O_3$
**8.** A dehydration **9.** A rickets
**10.** C $mol^{-1}\ dm^3$ **11.** C $H_2PO_4^-$
**12.** A $Ca(HCO_3)_2$

## Rawalpindi Board (G-I)

### Objective Type

**1.** D Pyridine **2.** C Ethane glycol
**3.** A Glucose **4.** C Proteins
**5.** D Troposphere **6.** C 0.93
**7.** A Sodium Zeolite **8.** A 1g $cm^{-3}$
**9.** C $C_8H_{18}$ **10.** A Left to right
**11.** B 7 **12.** B 1.397

## Rawalpindi Board (G-II)

### Objective Type

**1.** D Anthracite **2.** B Glycol
**3.** A Starch **4.** C Lipids
**5.** B Absorbs ultraviolent radiations
**6.** A $O_3$ **7.** D $CaSO_4$
**8.** B Ion-dipole forces **9.** D $NH_2CONH_2$
**10.** C The speed of the forward and reverse reactions is equal
**11.** D Hydrogen **12.** C CaO

## Faisalabad Board (G-I)

### Objective Type

**1.** C $CuS_2$ **2.** C 104.5°
**3.** A $1g\ cm^{-3}$ **4.** B $O_3$
**5.** B Stratosphere **6.** A $C_{15}H_{31}COOH$
**7.** B Peptide linkage **8.** B Ni
**9.** A Wholer **10.** B Fats
**11.** C $KOH$ **12.** D 1869

## Faisalabad Board (G-II)

### Objective Type

**1.** C $CO_2$ **2.** D Hepatitis
**3.** C $4.2Jg^{-1}K^{-1}$ **4.** B Ozone
**5.** C 30 kilometer **6.** A Fruits
**7.** C Lipids **8.** C $CHC\ell_3$
**9.** A Wholer **10.** C CaO
**11.** B $S^{-2}$ **12.** C [ ]

# Gujranwala (Group-I) 2025

**Roll No. Of Candidate:_____** **Paper Code: 7485**

**Time: 15 Minutes** **Marks: 12**

Date: D D M M Y Y Y Y Morning (M) Evening (E)

| Roll No. | Paper Code |
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| 0 0 0 0 0 0 | 0 0 0 0 |
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| 3 3 3 3 3 3 | 3 3 3 3 |
| 4 4 4 4 4 4 | 4 4 4 4 |
| 5 5 5 5 5 5 | 5 5 5 5 |
| 6 6 6 6 6 6 | 6 6 6 6 |
| 7 7 7 7 7 7 | 7 7 7 7 |
| 8 8 8 8 8 8 | 8 8 8 8 |
| 9 9 9 9 9 9 | 9 9 9 9 |

## Objective Type

**Note:** You have four choices for each objective types question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number on your answer book. Use marker or pen to fill the circles. Cutting or filling of two or more circles will result in zero mark in that question.

**1. The reduction of alkyl halides takes place in the presence of:**

A Na / HCl B Zn / HCl C Mg / HCl D Zn / $HNO_3$

**2. _____ is conjugate base of $HS^-$.**

A $S^{2-}$ B $H_2S$ C $H^+$ D $S^{+2}$

**3. Each nucleotide consists of compounds:**

A 5 B 2 C 3 D 4

**4. Bond angle in $H_2O$ molecule is:**

A 102.5° B 108.5° C 109.5° D 104.5°

**5. Fatty acids are long chain of saturated or unsaturated compounds:**

A Carbohydrates B Vitamins C Proteins D Carboxylic acid

**6. Blister copper contains pure copper:**

A 9.8% B 9.6% C 98% D 96%

**7. $K_c$ is always equal to:**

A $R_f/R_r$ B $R_r/R_f$ C $K_f/K_r$ D $K_r/K_f$

**8. _____ gas protects the earth's surface from ultraviolet radiations.**

A $O_3$ B $O_2$ C $N_2$ D $CO_2$

**9. The disease that causes bones and teeth damage:**

A Hepatitis B Fluorosis C Cholera D Jaundice

**10. Colour of Ferric Hydroxide [$Fe(OH)_3$] precipitate is:**

A Brown B White C Blue D Dirty green

**11. Units of molar concentration are:**

A $mol\,dm^3$ B $mol\,dm^{-3}$ C $mol^{-1}\,dm^3$ D $mol^{-1}\,dm^{-3}$

**12. Molecular formula of butane is:**

A $C_4H_6$ B $C_4H_6$ C $C_3H_6$ D $C_4H_{10}$

| Time Allowed:1:45 Hours | (SUBJECTIVE TYPE) | Maximum Marks: 48 |
|---|---|---|

## Section - I

**Q2. Write short answers to any FIVE (5) questions. 2×5=10**

**(i)** How can you know that is reaction has achieved an equilibrium state?

**(ii)** How is the active mass represented?

**(iii)** What are irreversible reactions? Give example.

**(iv)** Write down names of the acids present in sour milk and vinegar.

**(v)** Why $H^+$ ion acts as a Lewis Acid?

**(vi)** Define pH. Write down its expression.

**(vii)** Write down two chemical properties of alkenes.

**(viii)** Define saturated hydrocarbons and write down an example.

**Q3. Write short answers to any FIVE (5) questions. 2×5=10**

**(i)** Describe the significance of Wohler's work?

**(ii)** Carbon shows catenation whereas Silicon does not. Describe reason.

**(iii)** What are Heterocyclic compounds? Write down an example.

**(iv)** Write down general formula of Triglycerides.

**(v)** Explain briefly DNA model proposed by Watson and Crick.

**(vi)** Explain why Carbon Monoxide (CO) is highly poisonous gas?

**(vii)** What is Greenhouse Effect?

**(viii)** Define secondary pollutants? Also give two examples.

**Q4. Write short answers to any FIVE (5) questions. 2×5=10**

**(i)** Write down any two effects of water pollution.

**(ii)** Write down any two disadvantages of hard water.

**(iii)** What is industrial effluent?

**(iv)** What is difference between biodegradable and non-biodegradable substances?

**(v)** Define Metallurgy.

**(vi)** What is meant by granulation of urea?

**(vii)** How is ammonia prepared for the synthesis of urea?

**(viii)** Which components are present in brown and blond hairs?

## Section - II

**Note: Attempt TWO question in all. 9 × 2 = 18**

**5. (a) Explain with examples how soluble salts are prepared? 5**

**(b) Describe four urea of organic compounds. 4**

**6. (a) What are hydrocarbons? Differentiate between saturated and unsaturated hydrocarbons with examples. 5**

**(b) Write down four sources and uses of lipids. 4**

**7. (a) Write down five advantages of Solvay's Process. 5**

**(b) What is Ozone layer? How is it produced in stratosphere? How is it depleting? 4**

# Gujranwala (Group-II) 2025

**Roll No. Of Candidate:_____** **Paper Code: 7482**

**Time: 15 Minutes** **Marks: 12**

Date: D D M M Y Y Y Y Morning (M) Evening (E)

| Roll No. | Paper Code |
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| 7 7 7 7 7 7 | 7 7 7 7 |
| 8 8 8 8 8 8 | 8 8 8 8 |
| 9 9 9 9 9 9 | 9 9 9 9 |

## Objective Type

**Note:** You have four choices for each objective types question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number on your answer book. Use marker or pen to fill the circles. Cutting or filling of two or more circles will result in zero mark in that question.

**1. For the reaction 2A + B = 3C, the expression for the equilibrium constant is:**

A $\frac{[2A][B]}{[3C]}$ B $\frac{[A]^2[B]}{[C]^3}$ C $\frac{[3C]}{[2A][B]}$ D $\frac{[C]^3}{[A]^2[B]}$

**2. $K_c$ is always equal to:**

A $R_r/R_f$ B $K_f/K_r$ C $R_f/R_r$ D $K_r/K_f$

**3. Which one is not amphoteric?**

A $H_2O$ B $NH_3$ C $HCO_3^-$ D $SO_4^{2-}$

**4. The range of pH scale is:**

A 0 – 14 B 10 – 14 C 1 – 14 D 7 – 14

**5. General formula of alkyl radical is:**

A $C_nH_{2n+2}$ B $C_nH_{2n-2}$ C $C_nH_{2n+1}$ D $C_nH_{2n}$

**6. _____ is a saturated Hydrocarbon.**

A $C_2H_4$ B $C_3H_6$ C $C_4H_8$ D $C_5H_{12}$

**7. Night blindness is due to deficiency of:**

A Vitamin A B Vitamin E C Vitamin C D Vitamin D

**8. Gelatin is used in:**

A Bakery items B Plastic C Glass items D Germs

**9. _____ gas protects the earth's surface from ultraviolet radiations.**

A $CO_2$ B CO C $N_2$ D $O_3$

**10. The disease that causes bones and teeth damage is:**

A Fluorosis B Hepatitis C Cholera D Jaundice

**11. _____ is a universal solvent.**

A Water B Alcohol C Ether D Petrol

**12. Crude oil is heated in the furnace up to:**

A 300°C B 400°C C 350°C D 450°C

| Time Allowed:1:45 Hours | (SUBJECTIVE TYPE) | Maximum Marks: 48 |
|---|---|---|

## Section - I

**Q2. Write short answers to any FIVE (5) questions. 2×5=10**

**(i)** Define chemical equilibrium state and draw graph.

**(ii)** What is a static equilibrium? Explain with an example.

**(iii)** Differentiate between forward and reverse reaction.

**(iv)** Give reaction of Aluminium (Al) with HCl).

**(v)** Define Lewis Acid and Base.

**(vi)** Write down any two methods for prevention of hyperacidity?

**(vii)** What are Alphatic hydrocarbons? Give two examples.

**(viii)** How can we to reduction of Alkyl Helides? Give its reaction.

**Q3. Write short answers to any FIVE (5) questions. 2×5=10**

**(i)** What is molecular formula? Write down its example.

**(ii)** How was Vital Force Theory rejected?

**(iii)** Define aromatic compounds and also give an example.

**(iv)** How vegetable ghee is formed by hydrogenation of vegetable oil? Also write down an equation.

**(v)** How is gelatin obtained?

**(vi)** How does acid rain damage the buildings?

**(vii)** Ozone Layer is beneficial for life on the earth. Describe its reason.

**(viii)** What is meant by secondary pollutants?

**Q4. Write short answers to any FIVE (5) questions. 2×5=10**

**(i)** Which properties make water an excellent solvent?

**(ii)** Sugar is an organic covalent compound. Why is it soluble in water?

**(iii)** Write down the occurrence of water.

**(iv)** What is fluorosis?

**(v)** Define mineral.

**(vi)** What is anode mud?

**(vii)** How is petroleum extracted?

**(viii)** Write down the names of various metallurgical operations.

## Section - II

**Note: Attempt TWO question in all. 9 × 2 = 18**

**5. (a) Write down uses of five different Bases in daily life. 5**

**(b) Explain any four general characteristics of organic compounds. 4**

**6. (a) Write down five uses of Acetylene. 5**

**(b) Explain any four sources and uses of proteins. 4**

**7. (a) What is concentration of ore? Describe two methods for the concentration of ore. 5**

**(b) What is stratosphere? Why does temperature increases upward in this sphere? How is ozone formed in it? 4**

**(viii) What role is played by pine oil in the froth flotation process?**

**Ans.** In froth flotation process, oil is mixed with ore as the ore particles are preferentially wetted by oil. Oil coated ore particles being lighter come to the surface in the form of a froth that can be skimmed.

## Gujranwala Board (G-I)

### Objective Type

| | | | | | |
|---|---|---|---|---|---|
| **1.** | B | Zn / HCl | **2.** | A | $S^{2-}$ |
| **3.** | C | 3 | **4.** | D | 104.5° |
| **5.** | D | Carboxylic acid | **6.** | C | 98% |
| **7.** | C | $K_f / K_r$ | **8.** | A | $O_3$ |
| **9.** | B | Fluorosis | **10.** | A | Brown |
| **11.** | B | mol $dm^{-3}$ | **12.** | D | $C_4H_{10}$ |

### Subjective Type (Section-I)

**Q2. Write short answers to any FIVE (5) questions.**

**(i) How can you know that is reaction has achieved an equilibrium state?**

**Ans.** If $Q_c = K_c$, it indicates that forward and reverse reactions are taking place at equal rates. i.e. equilibrium has been achieved.

**(ii) How is the active mass represented?**

**Ans.** Active mass is considered as molar concentration having units of mol $dm^{-3}$, expressed as square bracket [ ].

**(iii) What are irreversible reactions? Give example.**

**Ans.** Reactions in which the products do not recombine to form reactants, are called irreversible reactions. They are supposed to complete. They are represented by putting a single arrow ($\longrightarrow$) between the reactants and products.

**Example:** $2H_{2(g)} + O_{2(g)} \xrightarrow[\text{Heat}]{\text{Pt}} 2H_2O_{(l)}$

**(iv) Write down names of the acids present in sour milk and vinegar.**

**Ans. Sour Milk:** Lactic Acid

**Vinegar:** Acetic Acid

**(v) Why $H^+$ ion acts as a Lewis Acid?**

**Ans.** According to Lewis, acid is a substance which can accept a pair of electron. $H^+$ can accept a pair of electrons therefore it acts as Lewis acid.

**(vi) Define pH. Write down its expression.**

**Ans.** 'pH' is the negative logarithm of molar concentration of the hydrogen ions.

$pH = -\log[H^+]$

The 'pH' value of pure water is 7.

**(vii) Write down two chemical properties of alkenes.**

**Ans. 1.** Hydrogenation means addition of molecular hydrogen to an unsaturated hydrocarbon in the presence of a catalyst (Ni, Pt) to form saturated compound.

$$H_2C = CH_2 + H_2 \xrightarrow[250-300°C]{Ni} H_3C - CH_3$$

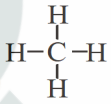
**2.** Dry gaseous hydrogen halides (Hi, HBr and HCl) react with alkenes to produce alkyl halides.

$$H_2C = CH_2 + HBr \longrightarrow H_3C - CH_2Br$$

**(viii) Define saturated hydrocarbons and write down an example.**

**Ans.** The hydrocarbons in which all the four valencies of carbon atoms are fully satisfied by single bonds with other carbon atoms and hydrogen atoms are called saturated hydrocarbons. These are called alkanes with general formula $C_nH_{2n+2}$

**Example:**



**Q3. Write short answers to any FIVE (5) questions.**

**(i) Describe the significance of Wohler's work?**

**Ans.** Vital force theory was rejected by Wohler in 1828 when he synthesized the first organic compound urea from inorganic substance by heating ammonium cyanate ($NH_4CNO$).

$$NH_4CNO \xrightarrow[\text{Rearrangement}]{\Delta} \underset{\text{urea}}{H_2NCONH_2}$$

**(ii) Carbon shows catenation whereas Silicon does not. Describe reason.**

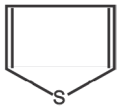
**Ans.** Both silicon and carbon have similar electronic configurations but carbon shows catenation whereas silicon does not. It is mainly due to the reason that C-C bonds are much stronger (355 kJ $mol^{-1}$) than Si-Si (200 kJ $mol^{-}$) bonds. On the other hand, Si-O bonds are much stronger (452 kJ $mol^{-1}$) than C-O bonds (351 kJ $mol^{-1}$). Hence, silicon occurs in the form of silica and silicates in nature.

So, carbon show catenation but silicon does not.

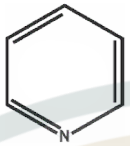
**(iii) What are Heterocyclic compounds? Write down an example.**

**Ans.** Cyclic compounds that contain one or more atoms other than that of carbon atoms in their rings are called heterocyclic compounds.

**Example:**



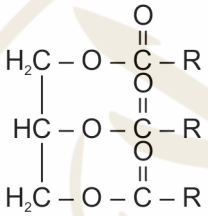

Thiphene




Pyridine

**(iv) Write down general formula of Triglycerides.**

**Ans.** General formula of triglycerides is as under:



Where R' is long chain alkyl radical.

**(v) Explain briefly DNA model proposed by Watson and Crick.**

**Ans.** DNA consists of deoxyribose sugar. Its structure was discovered by J. Watson and F. Crick in 1953. It is long double stranded molecule consisting of two chains. Each chain is made up of sugar, phosphate and a base. The chains are wrapped around each other in double helix form.

**(vi) Explain why Carbon Monoxide (CO) is highly poisonous gas?**

**Ans.** When CO inhaled, it binds with the haemoglobin most strongly than that of oxygen. Thus, hindering the supply of oxygen in body. Exposure to higher concentration of CO causes headache and fatigue. If inhaled for a longer time it results in breathing difficulties and ultimately death. It is the reason burning is not allowed in closed place. It is advised to switch off coal or gas heaters, cooking range, etc. before going to sleep.

**(vii) What is Greenhouse Effect?**

**Ans.** In the atmosphere $CO_2$ acts like a glass wall of a green house. Although increased concentration of $CO_2$ allows ultraviolet radiations of heat energy of sum to pass through it but it absorbs the infrared radiations emitted by the Earth's surface. Hence $CO_2$ layer prevents heat energy escaping form the atmosphere. This process is called green house effect.

**(viii) Define secondary pollutants? Also give two examples.**

**Ans.** Secondary pollutants are produced by various reactions of primary pollutants. These are sulphuric acid, carbonic acid, nitric acid, hydrofluoric acid, ozone and peroxy acetyl nitrate (PAN).

**Q4. Write short answers to any FIVE (5) questions.**

**(i) Write down any two effects of water pollution.**

**Ans. 1.** it is hazardous to human health. Drinking polluted water can cause cholera, typhoid and diarrhea.

**2.** The uses of polluted water is not only devastating for people but also for animals and birds.

**3.** It causes rapid growth of algae. Death and decomposition of algae causes deficiency of oxygen in water that affects living organisms in water.

**(ii) Write down any two disadvantages of hard water.**

**Ans. 1.** Hard water consumes large amount of soap in washing purposes.

**2.** Drinking hard water causes stomach disorders.

**(iii) What is industrial effluent?**

**Ans.** Discharge of wastes (chemicals and solid materials) either to open ground or to water channels is called industrial effluent. The industrial effluents may be highly toxic organic chemicals, inorganic salts, heavy metals, mineral acids , oil and greases etc.

**(iv) What is difference between biodegradable and non-biodegradable substances?**

**Ans. Biodegradable Substances:** The substances which can be decomposed by microorganisms like bacteria are called biodegradable substances.

**Example:** Soap, Decaying plants and animals.

**Non-Biodegradable Substances:** The substances which cannot be decomposed by microorganisms like bacteria are

called non-biodegradable substances.
**Example:** Detergents

**(v) Define Metallurgy.**

**Ans.** The process of extraction of a metal in a pure state on a large scale from its ore by physical or chemical means is called metallurgy.

**(vi) What is meant by granulation of urea?**

**Ans.** After urea formation, the liquid urea is evaporated to form granules. When liquid urea is sprayed from top of a tower under pressure and a hot current of air is introduced from the base, it evaporates to form granules. Then this is stored to be marketed.

**(vii) How is ammonia prepared for the synthesis of urea?**

**Ans.** Ammonia is prepared by the "Haber's process". One volume of nitrogen (from air) and three volumes of hydrogen (obtained by passing methane and steam over heated nickel catalyst) is passed over iron catalyst at 450°C and 200 atm pressure.

**Equation:** $N_{2(g)} + 3H_{2(g)} \xrightarrow[200\,atm]{450^\circ C} 2NH_{3(g)}$

**(viii) Which components are present in brown and blond hairs?**

**Ans.** Brown hairs are due to iron or copper compounds, while golden hairs consist of titanium compounds.

## Gujranwala Board (G-II)

### Objective Type

| | | | | | |
|---|---|---|---|---|---|
| **1.** | D | $\frac{[C]^3}{[A]^2[B]}$ | **2.** | B | $K_f / K_r$ |
| **3.** | D | $SO_4^{2-}$ | **4.** | A | 0 – 14 |
| **5.** | C | $C_nH_{2n+1}$ | **6.** | D | $C_5H_{12}$ |
| **7.** | A | Vitamin A | **8.** | A | Bakery items |
| **9.** | D | $O_3$ | **10.** | A | Fluorosis |
| **11.** | A | Water | **12.** | B | 400°C |

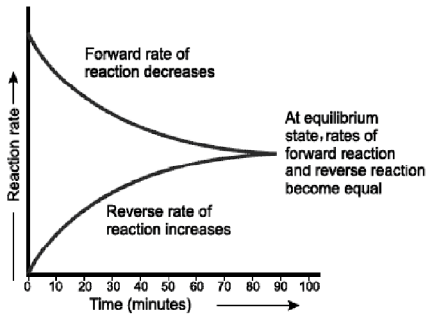
### Subjective Type (Section-I)

**Q2. Write short answers to any FIVE (5) questions.**

**(i) Define chemical equilibrium state and draw graph.**

**Ans.** When the rate of forward reaction takes place at the rate of reverse reaction, the composition of reaction mixture remains constants, it is called chemical equilibrium state.

**Graph:**




**(ii) What is a static equilibrium? Explain with an example.**

**Ans.** When reaction ceases to proceed, it is called static equilibrium. This happens mostly in physical phenomena. For example, a building remains standing rather than falling down because all the forces acting on it are balanced. This is an example of static equilibrium.

**(iii) Differentiate between forward and reverse reaction.**

**Ans.**

| Forward Reaction | Reverse Reaction |
|---|---|
| It is a reaction in which reactants react. It is reaction in which reactants react to form products. | It is reaction in which products react to produce reactants. |
| It takes place from left to right. | It takes place from right to left. |
| At initial stage the rate of forward reaction is very fast. | In the beginning the rate of reverse reaction is negligible. |
| it slows down gradually. | It speeds up gradually. |

**(iv) Give reaction of Aluminium (Al) with HCl).**

**Ans.** $2Al + 6HCl \longrightarrow 2AlCl_3 + 3H_2$

**(v) Define Lewis Acid and Base.**

**Ans. Lewis Acid:** An acid is a substance which can accept a pair of electron e.g. $H^+$, $BF_3$ are acids.

**Lewis Base:** A base is a substance which can donate a pair of electrons e.g. $OH^-$, $NH_3$ are bases.

**(vi) Write down any two methods for prevention of hyperacidity?**

**Ans.** Hyperacidity can be prevented:

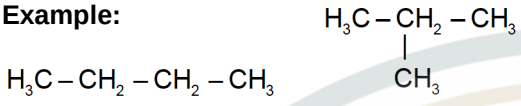
**1.** By avoiding over-eating and staying away from fatty acids and spicy foods.

**2.** By simple and regular eating, remaining in an upright position for about 45 minutes after taking a meal.

**(vii) What are Alphatic hydrocarbons? Give two examples.**

**Ans.** These are compounds in which the first and the last carbon are not directly joined to each other. The open chains of carbon may be straight or branched.

**Example:**



Straight chain (n-butane) | Branched chain (isobutane)

**(viii) How can we to reduction of Alkyl Helides? Give its reaction.**

**Ans.** Reduction means addition of nascent hydrogen. In fact, it is a replacement of halogen atom with a hydrogen atom. This reaction takes place in the presence of Zn metal and HCl.

$$CH_3Br + 2[H] \xrightarrow{Zn/dil.HCl} CH_4 + HBr$$

$$CH_3CH_2Br + 2[H] \xrightarrow{Zn/dil.HCl} CH_3 - CH_3 + HBr$$

**Q3. Write short answers to any FIVE (5) questions.**

**(i) What is molecular formula? Write down its example.**

**Ans.** The formula which represents the actual number of atoms in one molecule of the organic compound is called the molecular formula. For example, molecular formula of butane is $C_4H_{10}$.

**(ii) How was Vital Force Theory rejected?**

**Ans.** Vital force theory was rejected by Wohler in 1828 when he synthesized the first organic compound urea from inorganic substance by heating ammonium cyanate ($NH_4CNO$).

$$NH_4CNO \xrightarrow[\text{Re arrangement}]{\Delta} \underset{\text{urea}}{H_2NCONH_2}$$

**(iii) Define aromatic compounds and also give an example.**

**Ans.** Organic compounds that contain at least one benzene ring are called aromatic compounds. In addition, benzene ring is made up six carbon atoms with three alternating double bonds.

**benzene**

**(iv) How vegetable ghee is formed by hydrogenation of vegetable oil? Also write down an equation.**

**Ans.** Vegetable oils are trimester of glycerol and fatty acids of unsaturated long chains. These oils are hydrogenated in the presence of nickel catalyst at 250 to 300°C to form vegetable ghee.

$$\text{Vegetable oil} + H_2 \xrightarrow[250°C]{Ni} \text{Vegetable ghee}$$

**(v) How is gelatin obtained?**

**Ans.** Proteins are found in bones. When bones are heated they give gelatin. Gelatin is used to make bakery items.

**(vi) How does acid rain damage the buildings?**

**Ans.** Acid rain attacks the calcium carbonate present in the marble and limestone of buildings and monuments. Thus, these buildings are getting dull and eroded day by day.

**(vii) Ozone Layer is beneficial for life on the earth. Describe its reason.**

**Ans.** Ozone is present throughout the atmosphere. This layer surrounds the globe and protects Earth like a shield from harmful ultraviolet radiations of sunlight. Ultraviolet radiations would cause skin cancer. Thus ozone layer in stratosphere is beneficial for life on the Earth.

**(viii) What is meant by secondary pollutants?**

**Ans.** Secondary pollutants are produced by various reactions of primary pollutants. These are sulphuric acid, carbonic acid, nitric acid, hydrofluoric acid, ozone and peroxy acetyl nitrate (PAN).

**Q4. Write short answers to any FIVE (5) questions.**

**(i) Which properties make water an excellent solvent?**

**Ans.** Following properties of water that make it an excellent solvent:

1. Polarity of water molecule
2. Exceptional hydrogen bonding ability.

**(ii) Sugar is an organic covalent compound. Why is it soluble in water?**

**Ans.** Sugar and alcohols have hydroxyl group (OH) having polar ends. These substances are soluble in water due to hydrogen bonding which is possible due to the polar ($O^{\delta-}$ and $H^{\delta+}$) ends of water.

**(iii) Write down the occurrence of water.**

**Ans.** The oceans contain about 97% of world's water. The rest of the water is in the form of glaciers, ice caps, groundwater and inland water (rivers, lakes, streams). It is also present in atmosphere in the form of water vapours. Sea water is unfit for drinking and agricultural purposes due to high percentage of dissolved salts.

Only 0.2% of the total water on the Earth is potable, i.e. fit for drinking purposes.

**(iv) What is fluorosis?**

**Ans.** Fluorosis is a disease caused by the consumption of excess fluoride. Fluorosis can cause bones and teeth damage.

**(v) Define mineral.**

**Ans.** The solid natural materials found beneath the Earth's surface which contains compounds of metals in the combined state along with earthly impurities, are called minerals.

**(vi) What is anode mud?**

**Ans.** During refining of copper (electrolysis) impurities like gold and silver settle down as anode mud. They are called anode mud.

**(vii) How is petroleum extracted?**

**Ans.** Petroleum is extracted by drilling holes (oil wells) into Earth's crust where the oil is found. When a well is drilled through the rocks natural gas comes first with a great pressure. After some time crude oil also comes out by itself due to gas pressure. When gas pressure subsides, then crude oil is pumped out.

**(viii) Write down the names of various metallurgical operations.**

**Ans.** **1.** Concentration of ore
**2.** Extraction of metal
**3.** Refining of the metal

## Rawalpindi Board (G-I)

### Objective Type

**1.** A Nitrogen & oxygen **2.** A $Ca(HCO_3)_2$
**3.** A Fluorosis **4.** C $Cu_2S$ & FeS
**5.** D The amount of products is negligible
**6.** C $CO_2$ escapes continuously
**7.** A Salt & water
**8.** A Which can donate a proton
**9.** C Biogas **10.** C $H_2SO_4$
**11.** A Starch
**12.** D Regulate metabolic process

### Subjective Type (Section-I)

**Q2. Write short answers to any FIVE (5) questions.**

**(i) What is static equilibrium? Give an example.**

**Ans.** When reaction ceases to proceed, it is called static equilibrium. This happens mostly in physical phenomena. For example, a building remains standing rather than falling down because all the forces acting on it are balanced. This is an example of static equilibrium.

**(ii) Differentiate between reversible and irreversible reaction.**

**Ans.** **Reversible Reaction:** Reactions in which the products can recombine to form reactants are called reversible reactions. These reactions never go to completion. They are represented by a double arrow ( ⇌ ) between reactants and products.

**Irreversible Reaction:** Reactions in which the products do not recombine to form reactants, are called irreversible reactions. They are supposed to complete. They are represented by putting a single arrow ( $\longrightarrow$ ) between the reactants and products.

**Example:** $2H_{2(g)} + O_{2(g)} \xrightarrow[\text{Heat}]{\text{Pt}} 2H_2O_{(l)}$

**(iii) Why is equilibrium state attainable from either way?**

**Ans.** Equilibrium can be attained from either way i.e. Starting from reactants or from products. An equilibrium state can be disturbed and again achieved under the given conditions of concentration, pressure and temperature.

**(iv) Define the Lewis acid and Lewis base.**

**Ans.** **Lewis Acid:** An acid is a substance which can accept a pair of electron e.g. $H^+$ , $BF_3$ are acids.

**Lewis Base:** A base is a substance which can donate a pair of electrons e.g. $OH^-$, $NH_3$ are bases.

**(v) How insoluble salts are prepared? Give an example.**

**Ans.** In this method, usually solutions of soluble salts are mixed. During the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## OBJECTIVE TYPE
### (Multiple Choice Questions)

1. **A reaction in which products are converted into reactants is called:**
   a reversible reaction
   B irreversible reaction
   C forward reaction
   D backward reaction
2. **When $CaCO_3$ is heated in an open flask,it decomposes to form calcium oxide (CaO) and _____.**
   A $O_2$ B CO
   c $CO_2$ D $CO_3$
3. **Kc value depends on:**
   A pressure B temperature
   c volume
   D none of these
4. **When the number of moles on both sides of the reaction is equal, the unit of $K_c$ will be:**
   A $mol^{-2}dm$ B $mol\ dm^3$
   C $mol^{-2}dm^6$ d no Unit
5. **A reversible reaction is expressed as:**
   A ⟶ B ⟶
   C ⟵ d ⇌
6. **_____ possibilities are their at equilibrium state:**
   A 1 b 2 C 3 D 4
7. **The color of iodine is:**
   A red B black
   c purple D colorless
8. **The substances present on product sides are called:**
   a numerator
   B denominator
   C reactants D products
9. **The molar concentration is expressed as:**
   A { } B ( ) c [ ] D ϕ
10. **A reaction attains a state of equilibrium when:**
    A Qc > Kc B Qc < Kc
    c Qc = Kc D $Q_C = 0$
11. **If Qc > Kc the reaction will be:**
    A dynamic B static
    C forward d reverse
12. **Guldberg and Waage put forward Law of Mass Action in:**
    A 1859 b 1869
    C 1879 D 1889
13. **In the beginning the rate of reverse reaction is:**
    a negligible B moderate
    C very fast D slow
14. **Which base is more corrosive?**
    A $NH_4OH$ b NaOH
    C $Ca(OH)_2$ D $Al(OH)_3$
15. **The conjugate acid of $HPO_4^{2-}$ is:**
    A $PO_4^{3-}$ B $H_2PO_4^{2-}$
    c $H_2PO_4^-$ D $H_2PO_4$
16. **In Lewis Acids and base reaction, which bond is present?**
    A Ionic B Covalent
    C Metallic
    d Co-ordinate co-valent bond
17. **Which acid causes the acidity of stomach:**
    A Sulphuric acid
    b Hydrochloric acid
    C Nitric acid D Oxalic acid
18. **The compound used to make soap is:**
    a NaOH B $Ca(OH)_2$
    C $Al(OH)_3$ D $NH_4OH$
19. **In strong alkaline solution the colour of litmus become:**
    a Red B Blue
    C Yellow D Colorless
20. **What is the pOH of a 0.02M $Ca(OH)_2$?**
    A 1.698 b 1.397
    C 12.31 D 12.61
21. **The water of crystallization is responsible for the:**
    A Melting points of crystals
    B Boiling points of crystals
    c Shapes of crystals
    D Transition point of crystals
22. **The reaction between an acid and a base forms:**
    a Salt and water
    B Salt and gas
    C Salt and acid
    D Salt and base
23. **Which of the given acids is not a mineral acid?**
    A HCI B $H_2SO_4$
    C $HNO_3$ d $H_2CO_3$
24. **The conjugate acid of $CH_3–NH_2$ is:**
    A $CH_3NH^+$ B $CH_3NH^-$
    c $CH_3NH_3^+$ D $CH_3NH_3^-$
25. **Which of the following compounds is not a Lewis acid?**
    A $H^+$ B $BF_3$
    C $AlCl_3$ d $NH_3$
26. **Which acid is found in apples?**
    A Uric acid B Formic acid
    C Stearic acid d Malic acid
27. **All known organic compounds have been broadly divided into categories depending upon their carbon skeleton:**
    A 1 b 2 C 3 D 4
28. **Cyclobutane is an example of:**
    a Alicyclic
    B Heterocyclic
    C Aromatic compounds
    D Covalent
29. **The ability of carbon to form a chain is called:**
    A Isomerism b Catenation
    C Resonance
    D Condensation
30. **The coal gas is a mixture of:**
    A $CO,CH_4$
    B $CO_2,CH_4,CO$
    c $CO,CH_4,H_2$
    D $CO\ CH_4,CO_2$
31. **Petroleum is refined by:**
    A destructive distillation
    b fractional distillation
    C simple distillation
    D dry distillation

**66. About 99% atmosphere's mass lies within:**
a 35 kilometer
B 30 kilometer
C 15 kilometer
D 11 kilometer

**67. At the height 85-120 km for earth's surface is:**
A Troposphere
B Mesosphere
C Stratosphere
d Thermosphere

**68. Which sphere is just above the earth's surface?**
A Mesosphere
B Stratosphere
C Thermosphere
d Troposphere

**69. One of these is a secondary pollutant:**
A Methane
B Sulfur trioxide
C Sulfur dioxide
d Nitric acid

**70. Earth's atmosphere is getting warmer due to an increase in the concentration of a gas:**
A CO b $CO_2$
C $O_3$ D $SO_2$

**71. Which pollutant is not found in car exhaust?**
A CO b $O_3$
C $NO_2$ D $SO_2$

**72. Ozone is found in:**
A Troposphere
b Stratosphere
C Mesosphere
D Thermosphere

**73. Ozone is useful because it absorbs _____.**
A Infrared radiations
b Ultraviolet radiations
C Chlorofluorocarbons
D Air pollution

**74. Height of stratosphere from earth's surface is:**
A 30km B 40km
c 50km D 60km

**75. Waste material that pollutes air, water and soil is termed as:**
A Pollution b Pollutant
C Solvent D Solution

**76. Which gas protects the earth's surface from ultraviolet radiations:**
A $CO_2$ B CO
c $O_3$ D $N_2$

**77. Iron and steel structure are damaged by:**
A Carbon monoxide
b Sulphur dioxide
C Methane
D Carbon dioxide

**78. Water molecules contain:**
A Oxygen and Helium
b Oxygen and Hydrogen
C Hydrogen and Helium
D Oxygen and Nitrogen

**79. Temporary hardness is removed by adding which salt?**
A CaO B $Na_2CO_3$
c $Ca(OH)_2$ D $CaCO_3$

**80. A disease transmitted by protozoa is:**
A Dysentery B Cholera
c Cryptosporidium
D Hepatitis

**81. Gas is used to kill harmful bacteria in water:**
A Iodine b Chlorine
C Fluorine D Bromine

**82. Typhoid is a disease caused by _____.**
A Viruses B Algae
C Fungi d Bacteria

**83. Compounds that protect teeth from disease:**
a Fluorine B Chlorine
C Phosphorus D Sodium

**84. The procedure for removing temporary hardness is:**
A By freezing
B By filtration
c By boiling D By aeration

**85. The removal of $Mg^{+2}$ and $Ca^{+2}$ ions which are responsible for the hardness of water is called:**
A temporary hardness
B permanent hardness
c water softening
D hydrogen bonding

**86. Why can water dissolve non-ionic compounds?**
A Ion-ion forces
B Ion-dipole forces
C Dipole-dipole forces
d Hydrogen bonding

**87. The density of water at 4°C is _____.**
A $4gcm^{-3}$ B $3gcm^{-3}$
C $2gcm^{-3}$ d $1gcm^{-3}$

**88. Hardness of water is determined by Clark's method:**
A $Ca(HCO_3)_2$ B Ca zeolite
c $Ca(OH)_2$ D $Na_2$zeolite

**89. The chemical formula of Chalcopyrite is:**
A $Cu_2S$ b $CuFeS_2$
C CuS D FeS

**90. What is the formula of urea?**
A $NH_2COONH_4$
B $NH_2COONH_2$
C $NH_2CONH_4$
d $NH_2CONH_2$

**91. Fuel oil contains carbon:**
A $C_7 - C_{10}$ B $C_{10} - C_{12}$
c $C_{15} - C_{18}$ D All of these

**92. Which one is used as jet fuel?**
A Fuel oil
b Kerosene oil
C Diesel oil
D Lubricant oil

**93. The crude oil is heated in a furnace up to temperature:**
A 300°C b 400°C
C 500°C D 600°C

**94. In Haber's process the catalyst used is:**
A Nickel B Platinum
C Cadmium d Iron

**95. When $CO_2$ is passed through the ammonical brine, the only salt that precipitate is:**
a $NaHCO_3$ B $NH_4HCO_3$
C $Na_2CO_3$ D $(NH_4)_2CO_3$

**96. What is chalcopyrite?**
a Copper B Silver
C Iron D Aluminum

**97. Froth flotation process is used to concentrate the ore on:**
A Density basis
B Concentration basis
c Wetting basis
D Magnetic basis

**98. In Solvay's process slaked lime is used to:**
A Prepare $CO_2$
B Prepare quick lime
c Recover ammonia
D Form $Na_2CO_3$

**99. The percentage of nitrogen in urea is:**
A 76.6% B 66.6%
C 56.6% d 46.6%

**100. The impurities associated with the minerals are knows as:**
A Metallurgy B Ores
c Gangue D Compounds

## (Short Questions)

1. **What types of reactions never go to completion?**
2. **Write any two characteristics of forward reaction.**

3. Define chemical equilibrium state.
4. Make a graph that shows the establishment of equilibrium state.
5. What is active mass? Also write its units.
6. Define the law of Mass Action.
7. Write down the expression of $K_C$ for a General Reversible Reaction.
8. What is the difference between active mass and reaction rate?
9. What are numerator and denominator?
10. Prove that Kc has no units.
11. What is meant by reaction limit?
12. If $Q_c > K_c$ and $Q_c = K_c$ for a reaction, predict the direction of action.
13. What happens if $Q_c < K_c$?
14. Write the formula of an acid and a base.
15. Write two physical properties of Acids.
16. What is conjugate acid? Define it.
17. Prove that water is an amphoteric specie.
18. Define adduct with example.
19. Which acids are found in urine and lemon?
20. Name an acid used in preservation of food.
21. Write the names of acids found in citrus fruits and Sour milk.
22. Give two uses of Acetic acid.
23. Write two uses of nitric acid in daily life.
24. Write any two chemical properties of bases.
25. Write uses of Sodium Hydroxide and Potassium Hydroxide.
26. Define pH scale. Write its range.
27. Explain vital force theory.
28. Define the molecular formula and write the formula of hexane.
29. Write the condensed and dot and cross formulas of ethyne.
30. Define benzene.
31. Define Pitch and Coke.
32. Write the names of the gases found in coal gas.
33. Define petroleum.
34. Write two uses of natural gas.
35. Prove that organic compounds are used as a food.
36. What is an ether group? Write the formula of dimethyl ether.
37. Give formulae of Formaldehyde and Acetaldehyde.
38. How are alkyl radicals formed? Explain with example.
39. Is coal tar a compound? What is its importance?
40. Write the names of any two unsaturated hydrocarbons.
41. What are addition reactions? Explain with example.
42. What do you know about halogenation of Alkanes?
43. Define the process of hydrogenation and give an example.
44. Write two uses of ethane.
45. Why are alkenes reactive?
46. Write two uses of ethene.
47. Why are alkynes called acetylenes?
48. Prepare acetylene from tetrachloroethane.
49. Write the formulas of oxalic acid and carbon tetrachloride.
50. Identify propane and prop ene by a chemical test.
51. Write the physical properties of alkenes.
52. Give the preparation of Alkynes by Dehydrohalogenation of vicinal dihalides.
53. Describe carbohydrate as an energy source.
54. What is called reducing sugar? Give an example.
55. Give the characteristic of monosaccharides.
56. Describe the sources of sucrose and starch.
57. Give characteristics of oligosaccharides.
58. Define polysaccharides and give an example.
59. Define drip system.
60. How are proteins formed?
61. What do you know about denaturing of protein?
62. What are amino acids?
63. Shortly brief that Plants are source of Oil.
64. What is meant by genetic code of life?
65. Why excessive use of vitamin D is harmful.
66. What is the difference between Atmosphere and Environment?
67. Write the names of atmosphar's regions.
68. Why is the temperature of upper stratosphere is higher?
69. Define pollutants and air pollutants.
70. Write the names of the two primary pollutants of air.
71. State the major sources of CO and $CO_2$emissions.
72. Give two effects of global warming.
73. Why are the flood risks increasing?
74. How is acid rain produced?
75. What is Ozone and the Ozone Hole?
76. How ozone layer is being depleted by chlorofluorocarbons?
77. Give two serious effects of Ozone depletion.
78. State any four properties of water.
79. Write a short note on dysentery.
80. Briefly discuss the disease fluorosis.
81. Write about cryptosporidium.
82. Why pesticides are used?
83. What is the difference between Biodegradable and Non-Biodegradable Substances?
84. Define industrial effluents.
85. Write two disadvantages of hard water.
86. How sodium zeolite softens water?
87. Write the formula for slaked lime.
88. Write the role of capillary action in plants.
89. Define minerals.
90. Name the various metallurgical operations.
91. Write a short note on gravity separation in metallurgy.
92. What is meant by smelting?
93. How is slag formed in the smelting process?
94. What is the principle of solvay's process?
95. How ammonia is recovered in the Solvay's process?
96. What is the function of fertilizers?
97. Describe the formation of petroleum.
98. Give uses of kerosene oil.
99. What role is played by pine oil in the froth flotation process?
100. What is meant by a gangue?

# AL-RAZI

# UP-TO-DATE PAPERS

# CLASS TEST

| Class Test # 5 | Chemistry -10 | Syllabus: Chapter No. 13 | Objective Type | Time: 10 Min. | Marks: 8 |
|---|---|---|---|---|---|

**Q.1: Choose the correct option.**

**1- Which of these does not contain a protein?**

A Pulses B Potatoes C Beans D Eggs

**2- Maltose is usually found in _____.**

A Milk B Cereals C Dairy products D Cotton

**3- The chemical formula of fructose is:**

A $C_{12}H_{22}O_{11}$ B $C_6H_{12}O_6$ C $C_4H_{10}$ D $C_5H_{12}$

**4- The general formula for carbohydrates is:**

A $C_n(H_2O)_n$ B $C_n(H_2O_2)_n$ C $C_n(H_3O)_n$ D $C_n(H_2O_3)_n$

**5- Fatty acids are the building blocks of _____.**

A Lipids B Proteins C Glucose D Vitamins

**6- Amino acids are linked together:**

A Hydrogen bond B Ionic bond C Gelatin bond D Peptide bond

**7- Which vitamin is soluble in water?**

A Vitamin A B Vitamin C C Vitamin D D Vitamin E

**8- Deficiency of Vitamin D causes:**

A Rickets B Scurvy C Anemia in babies D Night blindness

PTO

| Class Test # 6 | Chemistry -10 | Syllabus: Chapter No. 14 | Objective Type | Time: 10 Min. | Marks: 8 |
|---|---|---|---|---|---|

**Q.1: Choose the correct option.**

**1- About 99% atmosphere's mass lies within:**

A 35 kilometer B 30 kilometer C 15 kilometer D 11 kilometer

**2- The temperature range in the stratosphere is:**

A 17°C– –50°C B –58°C –2°C C 2°C– –93°C D > –93°C

**3- One of these is a secondary pollutant:**

A Methane B Sulfur trioxide C Sulfur dioxide D Nitric acid

**4- Infrared radiation emitted by the earth is absorbed by what?**

A $CO_2$ & $H_2O$ B $N_2$ & $O_2$ C $CO_2$ & $N_2$ D $O_2$ & $CO_2$

**5- Rain water is generally less acidic due to which gas?**

A $SO_3$ Gas B $CO_2$ Gas C $SO_2$ Gas D $NO_2$ Gas

**6- Ozone is found in:**

A Troposphere B Stratosphere C Mesosphere D Thermosphere

**7- Which gas protects the earth's surface from ultraviolet radiations:**

A $CO_2$ B CO C $O_3$ D $N_2$

**8- Which gas is called greenhouse gas?**

A $CO_2$ B CO C $N_2$ D $O_3$

| Class Test # 5 | Chemistry -10 | Syllabus: Chapter No. 13 | Subjective Type | Time: 35 Min. | Marks: 30 |
|---|---|---|---|---|---|

**Q.2: Write short answers to the following questions.** **10 × 2 = 20**

**(i)** Describe carbohydrate as an energy source.

**(ii)** What are Monosaccharides? Give example.

**(iii)** What is the difference between glucose and fructose?

**(iv)** Describe the sources of sucrose and starch.

**(v)** Define drip system.

**(vi)** What do you know about denaturing of protein?

**(vii)** Shortly brief that Plants are source of Oil.

**(viii)** What is meant by genetic code of life?

**(ix)** Write the sources and uses of vitamin A.

**(x)** What is meant by accessory growth factors?

**Q.3: Answer the following questions.** **1 × 10 = 10**

**(i) Carbohydrates provide various benefits to our body. Please explain.**

✂----------→

| Class Test # 6 | Chemistry -10 | Syllabus: Chapter No. 14 | Subjective Type | Time: 35 Min. | Marks: 30 |
|---|---|---|---|---|---|

**Q.2: Write short answers to the following questions.** **10 × 2 = 20**

**(i)** What is the difference between Atmosphere and Environment?

**(ii)** What is the temperature range of stratosphere and mesosphere?

**(iii)** Define pollutants and air pollutants.

**(iv)** Write two harmful effects of CO.

**(v)** Why are the flood risks increasing?

**(vi)** Why are plants dying day by day? Comment.

**(vii)** How is aquatic life affected by acid rain?

**(viii)** Give two serious effects of Ozone depletion.

**(ix)** Where and how is ozone formed?

**(x)** How acid rain increases the acidity of soil?

**Q.3: Answer the following questions.** **1 × 10 = 10**

**(i) Write the properties of troposphere. Why does the temperature in this sphere decrease towards the top?**

# AL-RAZI

# UP-TO-DATE PAPERS

## ASSESSMENT TEST

## CHAPTER WISE

| Assessment Chapterwise Test 7 | Syllabus: Chapter 15 | Objective Type | Time: 15 Min. | Marks: 12 |
|---|---|---|---|---|

**Q1. Choose the correct option.**

**1. Which percentage of the total water on the earth is potable?**

A 0.1 B 0.2 C 0.3 D 0.4

**2. Specific heat capacity of water is:**

A $4.2kJg^{-1}K^{-1}$ B $4.2Jg^{-1}K^{-1}$ C $2.4kJg^{-1}K^{-1}$ D $2.4Jg^{-1}K^{-1}$

**3. The structure of a water molecule is:**

A Ionic B Non-polar C Tetrahydral D Polar

**4. Vigorous reaction of water with_____shatter (glass wear) into small pieces:**

A Sodium B Caesium C Strontium D Silicon

**5. Salts that makes water permanently hard:**

A $Na_2CO_3$ B $NaHCO_3$ C $Ca(HCO_3)_2$ D $CaSO_4$

**6. Permanent Hardness is removed by what?**

A Sodium zeolite B Soda lime

C Lime water D Quick lime

**7. How is a swimming pool disinfected?**

A Hydrogenation B Bromination

C Chlorination D Nitration

**8. Which disease causes decay of bones and teeth?**

A Fluorosis B Hepatitis C Cholera D Jaundice

**9. A disease that causes diarrhea and can be fatal:**

A Jaundice B Dysentery C Cholera D Typhoid

**10. The process of removing temporary hardness of water is:**

A Clark's method B Washig soda method

C Sodium zeolite D Filteration method

**11. Rapid growth of algae in water bodies is because of detergent having.**

A Carbonate salts B Sulphonic acid salts

C Sulphate salts D Phosphate salts

**12. Type of hepatitis caused by polluted water:**

A E B C C D D B

| Assessment Chapterwise Test 7 | Syllabus: Chapter 15 | Subjective Type | Time: 1:45 Min. | Marks: 48 |
|---|---|---|---|---|

**(Section - I)**

**Q2. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** What do you know about the occurrence of water?
**(ii)** How water rises in plants?
**(iii)** Why are non-polar compounds soluble in water?
**(iv)** Why the water molecule is polar?
**(v)** How is temporary hardness removed by Boiling of water?
**(vi)** How is scum formed?
**(vii)** What is acute cadmium poisoning?
**(viii)** Write notes on cholera disease.

**Q3. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** What is meant by water pollution?
**(ii)** How sodium zeolite softens water?
**(iii)** What is jaundice? Give its symptoms.
**(iv)** Describe briefly the two types of Hardness of Water.
**(v)** State any four properties of water.
**(vi)** What are the forces that cause polar compounds to dissolve in water?
**(vii)** What is the leaching process?
**(viii)** How waterborne diseases can be prevented?

**Q4. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** Explain the chemistry of removing hardness of water by Clark's method.
**(ii)** What is acute lead poisoning?
**(iii)** Briefly discuss the disease fluorosis.
**(iv)** What are waterborne diseases?
**(v)** Write a balanced equation for Clark's method.
**(vi)** Write about cryptosporidium.
**(vii)** Write two disadvantages of hard water.
**(viii)** State two properties of water that make it an excellent solvent.

**(Section - II)**

**Note: Attempt TWO question in all.**

**Q5. (a) Explain the reason, why water is considered a universal solvent? 4**
**(b) How polarity of water molecule plays its role to dissolve the substances? 5**

**Q6. (a) What is the difference between soft and hard water? Write the disadvantages of hard water. 4**
**(b) Write the methods for removing permanent hardness. 5**

**Q7. (a) Explain any five waterborne diseases. 4**
**(b) State five properties of water. 5**

# AL-RAZI

# UP-TO-DATE PAPERS

## ASSESSMENT TEST

## 1ST HALF

| Assessment Test 9 (1st Half) | Syllabus: Chapter 9 to 12 | Objective Type | Time: 15 Min. | Marks: 12 |
|---|---|---|---|---|

**Q1. Choose the correct option.**

**1. A reversible reaction is expressed as:**

A ⟶ B ⟶ C ⟵ D

**2. Open chain compounds are those in which the end carbon atoms are ____:**

A Joined B One line C Two line D not joined

**3. Which one is a saturated hydrocarbon?**

A $C_2H_4$ B $C_3H_6$ C $C_4H_8$ D $C_5H_{12}$

**4. Which acid is called the king of chemicals?**

A Sulphuric acid B Nitric acid
C Hydrochloric acid D Acetic acid

**5. The color of HI is:**

A orange B purple C red D colorless

**6. The Coal having 60% Carbon is called:**

A Lignite B Peat C Bituminous D Anthracite

**7. Which of the following compounds is not formed by halogenation of methane?**

A Carbon tetrachloride B Chloroform
C Carbon black D Chloromethane

**8. Arrhenius concept is applicable on:**

A Non-aqueous medium B Aqueous medium
C Alcoholic medium D Basic medium

**9. Active mass generally refers to:**

A molar concentration B reaction coefficient
C reaction rate D $K_c$ Expression

**10. Which gas is the main component of natural gas?**

A Methane B Propane C Butane D Propyne

**11. It is formed by oxidation of alkenes:**

A Glyoxal B Oxalic acid C Glycol D Formic acid

**12. Litmus in a strongly basic solution becomes:**

A Pink B Yellow C Blue D Red

| Assessment Test 9 (1st Half) | Syllabus: Chapter 9 to 12 | Subjective Type | Time: 1:45 Min. | Marks: 48 |
|---|---|---|---|---|

**(Section - I)**

**Q2. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** Write the equilibrium constant expression for the following reaction:

$$2NO_2 \rightleftharpoons N_2O_4$$

**(ii)** Write the molecular formula of methane and butane.

**(iii)** Complete and balance the given reactions.

**(iv)** Define acid and base according to Arrhenius concept.

**(v)** Write the molecular, structural and dot-cross formula of ethyne.

**(vi)** How does the combustion of methane take place?

**(vii)** Define and give an example of dynamic equilibrium.

**(viii)** What do you mean by Conjugate Bases? Give one example.

**Q3. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** Define adduct with example.

**(ii)** Define the law of Mass Action.

**(iii)** What is the difference between a straight and branched chain hydrocarbons?

**(iv)** Write two uses of ethane.

**(v)** Write the names of the acids present in vinegar and citrus fruits.

**(vi)** Write down the expression of $K_C$ for a General Reversible Reaction.

**(vii)** Write down two properties of naphthalene.

**(viii)** Justify that alkanes give substitution reactions.

**Q4. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** Describe two occurances of Alkenes.

**(ii)** Name an acid used in preservation of food.

**(iii)** Prove that Kc has no units.

**(iv)** What is meant by destructive distillation?

**(v)** Write the molecular and structural formula of ethyne.

**(vi)** Write two uses of nitric acid in daily life.

**(vii)** Write the use of coal gas.

**(viii)** What happens if $Q_c < K_c$?

**(Section - II)**

**Note: Attempt TWO question in all.**

**Q5. (a) What is the equilibrium constant? How does the equilibrium constant help predict the extent of a reaction? 4**

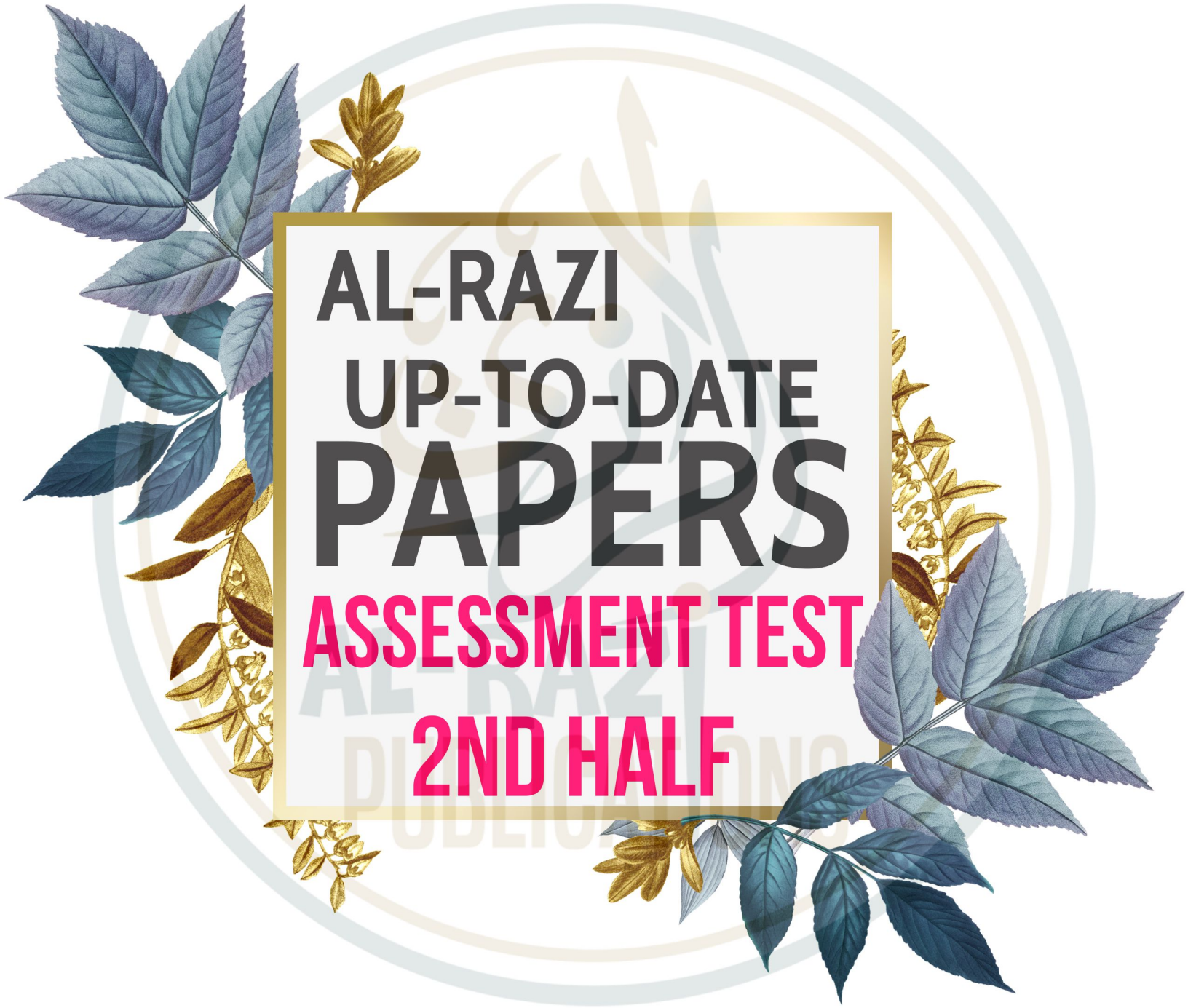
**(b) Explain the Lewis theory of acids and bases. 5**

**Q6. (a) Define functional group of alcohol How are alcoholic groups identified? 4**

**(b) Write the macroscopic properties of dynamic equilibrium? 5**

**Q7. (a) Compare the aldehydic and cationic functional groups, and how are the two identified? 4**

**(b) Explain the oxidation of acetylene. 5**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ASSESSMENT TEST
2ND HALF

| Assessment Test 10 (2nd Half) | Syllabus: Chapter 13 to 16 | Objective Type | Time: 15 Min. | Marks: 12 |
|---|---|---|---|---|

**Q1. Choose the correct option.**

**1. Which of the following statements about glucose and sucrose is not true?**

A Water soluble B Naturally occurring
C Carbohydrates D Disaccharides

**2. When $CO_2$ is passed through the ammonical brine, the only salt that precipitate is:**

A $NaHCO_3$ B $NH_4HCO_3$ C $Na_2CO_3$ D $(NH_4)_2CO_3$

**3. On the basis of change in temperature the atmosphere is divided into:**

A One region B Two regions C Three regions D Four regions

**4. Temporary hardness caused by:**

A $Ca(HCO_3)_2$ B $HNO_3$ C $MgCO_3$ D $MgSO_4$

**5. Which of the following is tasteless?**

A Starch B Glucose C Fructose D Sucrose

**6. What is the formula of urea?**

A $NH_2COONH_4$ B $NH_2COONH_2$
C $NH_2CONH_4$ D $NH_2CONH_2$

**7. The life gas for plants is:**

A CO B $CO_2$ C $CH_4$ D $O_2$

**8. Vibrios Cholerae bacteria cause the disease:**

A Typhoid B hepatitis C Dysentery D Cholera

**9. Which scientist discovered the structure of DNA?**

A Watson F. Crick B Hopkins
C Dalton D Robert Hooke

**10. Fuel oil contains carbon:**

A $C_7 - C_{10}$ B $C_{10} - C_{12}$ C $C_{15} - C_{18}$ D All of these

**11. Building are being damaged by acid rain due to attack of:**

A Calcium sulphate B Calcium nitrate
C Calcium carbonate D Calcium oxalate

**12. Typhoid is a disease caused by _____.**

A Viruses B Algae C Fungi D Bacteria

| Assessment Test 10 (2nd Half) | Syllabus: Chapter 13 to 16 | Subjective Type | Time:1:45Min | Marks: 48 |
|---|---|---|---|---|

**(Section - I)**

**Q2. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** Why are the flood risks increasing?
**(ii)** Why is water considered a universal solvent?
**(iii)** What is the basic unit of carbohydrates? How are they made?
**(iv)** What is meant by a gangue?
**(v)** How acid rain increases the acidity of soil?
**(vi)** Which forces are responsible for dissolving polar substances in water?
**(vii)** Give the characteristics of polysaccharides.
**(viii)** What is electromagnetic separation?

**Q3. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** Differentiate between temporary hardness and permanent hardness.
**(ii)** How is gelatin obtained?
**(iii)** Why a small amount of coke is used in smelting process?
**(iv)** Where and how is ozone formed?
**(v)** What do you mean by boiler scales? How are they removed?
**(vi)** Define lipids.
**(vii)** Which raw materials are required in Solvay's process?
**(viii)** Why are plants dying day by day? Comment.

**Q4. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** What is the difference between Biodegradable and Non-Biodegradable Substances?
**(ii)** Write two points for the importance of urea.
**(iii)** How is aquatic life affected by acid rain?
**(iv)** Write any two uses of lipids.
**(v)** What is hookworm? How is it harmful?
**(vi)** How ammonical brine is carbonated? Give reaction.
**(vii)** How ozone layer is being depleted by chlorofluorocarbons?
**(viii)** Write the structural formula of glucose.

**(Section - II)**

**Note: Attempt TWO question in all.**

**Q5. (a) Define oligosaccharides. 4**

**(b) Oxides of nitrogen cause air pollution Explain the sources of these compounds. 5**

**Q6. (a) How does the polarity of water molecules play a role in solvating substances? 4**

**(b) What is water pollution? Describe the effects of using polluted water. 5**

**Q7. (a) Explain in detail the various processes involved in the concentration of water. Explain your answer with the help of a figure. 4**

**(b) How is crude oil refined? Name the two main fractions of petroleum and explain their uses? 5**

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## ASSESSMENT TEST

## FULL BOOK

| Assessment Test 11 (Full Book) | Syllabus: Chapter 9 to 16 | Objective Type | Time: 15 Min. | Marks: 12 |
|---|---|---|---|---|

**Q1. Choose the correct option.**

**1. In a chemical reaction the substances react with each other, are called:**

A product B reactants C mass D material

**2. Acid is a substance that gives Hydrogen ion in aqueous solution.**

A Davy B Bronsted Lowery

C Arrhenius D Lewis

**3. Global warming causes rising of the sea level. The cause of global warming is:**

A $CO_2$ gas B $SO_2$ gas C $NO_x$ gases D $O_3$ gas

**4. Homocyclic compounds are further divided into _____ classes.**

A 2 B 4 C 6 D 8

**5. If $Q_c < K_c$ the reaction will be:**

A forward B reverse C balanced D none

**6. A catalyst is required for the hydrogenation of:**

A Ni B Na C Mg D Ca

**7. Uric acid is found in:**

A Urine B Fats C Apples D Grapes

**8. Which one of the following ions is the cause of hardness of water?**

A $Al^{3+}$ B $Mg^{2+}$ C $Fe^{2+}$ D $Na^{+}$

**9. Lactose is a type of sugar that consists of glucose and ____.**

A Sucrose B Maltose C Starch D Galactose

**10. Acid rain effect the aquatic life by clogging fish gills because of:**

A Lead metal B Chromium metal

C Mercury metal D Aluminium metal

**11. Which of the following hydrocarbon is unsaturated?**

A $CH_4$ B $C_2H_6$ C $C_2H_4$ D $C_3H_8$ $C_3H_8$

**12. The composition of carbon in diesel oil is:**

A $C_7$ to $C_{10}$ B $C_{10}$ to $C_{12}$ C $C_{13}$ to $C_{15}$ D $C_{15}$ to $C_{18}$

| Assessment Full Book Test 11 | Syllabus: Chapter 9 to 16 | Subjective Type | Time: 1:45 Min. | Marks: 48 |
|---|---|---|---|---|

**(Section - I)**

**Q2. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** Define the molecular formula of an organic compound.

**(ii)** Write any two characteristics (properties) of bases.

**(iii)** Define ores and write the formula of copper glance?

**(iv)** What is the difference between essential and non-essential amino acids.

**(v)** Why is equilibrium state is attainable from either way?

**(vi)** Complete the following reactions. **1.** $\longrightarrow CFCl_3$ **2.** $\longrightarrow N_2 + O_2$

**(vii)** Write the physical properties of alkenes.

**(viii)** How detergents make the water unfit for aquatic life?

**Q3. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** How is acid rain produced?

**(ii)** Define structural formula. Write the structural formula of normal butane and isobutane.

**(iii)** Give importance of equilibrium constant.

**(iv)** What are the reason of waterborne diseases?

**(v)** Write two uses of Hydrochloric acid.

**(vi)** What is the significance of vitamins?

**(vii)** Prepare acetylene from tetrachloroethane.

**(viii)** What is the difference between mineral and ore?

**Q4. Write short answers to any FIVE (5) questions. (5 × 2 = 10)**

**(i)** Write the formulas of oxalic acid and carbon tetrachloride.

**(ii)** Write two possibilities of chemical equilibrium state.

**(iii)** Write two uses of petroleum ether.

**(iv)** Why excessive use of vitamin D is harmful.

**(v)** What is hepatitis?

**(vi)** Write formula of Calcium Hydroxide. Also describe its one use.

**(vii)** Write the general formula of Alkanes and Alkenes.

**(viii)** Write the names of the two primary pollutants of air.

**(Section - II)**

**Note: Attempt TWO question in all.**

**Q5. (a) State the importance and place of urea in daily life. 4**

**(b) What is meant by water pollution? Write the effects of water pollution. 5**

**Q6. (a) How does acidrin increase the acidity of the soil? 4**

**(b) Explain the role that carbohydrates play in our body. 5**

**Q7. (a) Write two methods of preparation of alkanes. 4**

**(b) Write any four uses of ethene. 5**

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## ANSWERS KEY

# ANSWERS – ASSESSMENT TESTS

## Assessment Chapterwise Test 1

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **1.** | A | $\longrightarrow$ | **2.** | A | negligible | **3.** | D | static equilibrium |
| **4.** | B | 2 | **5.** | C | purple | **6.** | A | numerator |
| **7.** | C | mole $dm^{-3}$ | **8.** | D | reverse | **9.** | A | no unit |
| **10.** | A | $K_c = \frac{[HI]^2}{[H_2][I_2]}$ | **11.** | A | $K_f$ | **12.** | D | irreversible |

**Note:** Answers of subjective questions are given in Learning Material.

## Assessment Chapterwise Test 2

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **1.** | D | Sour | **2.** | A | 1787 AD | **3.** | A | $H_2O$ |
| **4.** | C | In 1923 | **5.** | C | $CO_2$ | **6.** | D | All of the above |
| **7.** | A | Mixed salt | **8.** | A | 14 | **9.** | C | Acid |
| **10.** | D | Hydrogen | **11.** | A | KCl | **12.** | C | CaO |

**Note:** Answers of subjective questions are given in Learning Material.

## Assessment Chapterwise Test 3

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **1.** | A | Acyclic | **2.** | C | Biogas | **3.** | A | 40% |
| **4.** | D | anthracite | **5.** | C | $C_8H_{18}$ | **6.** | C | $CH_3CHO$ |
| **7.** | C | Bromine test | **8.** | B | 2 | **9.** | D | Pyridine |
| **10.** | B | Catenation | **11.** | B | Coal tar | **12.** | B | $-\overset{\overset{O}{\|\|}}{C}-OH$ |

**Note:** Answers of subjective questions are given in Learning Material.

## Assessment Chapterwise Test 4

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **1.** | B | $C_4H_{10}$ | **2.** | B | Paraffins | **3.** | A | $Zn / HCl$ |
| **4.** | C | dry cleaning | **5.** | A | Water | **6.** | A | HI > HBr |
| **7.** | B | Ethene | **8.** | D | Acetylenes | **9.** | C | Ethylene Glycol |
| **10.** | B | alcoholic KOH | **11.** | C | Dehydration | **12.** | B | Ni |

**Note:** Answers of subjective questions are given in Learning Material.

## Assessment Chapterwise Test 5

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **1.** | C | Lipids | **2.** | A | Glucose | **3.** | C | Sucrose |
| **4.** | C | Sucrose | **5.** | C | Deoxyribose sugar | **6.** | C | Essential |
| **7.** | B | Vitamin C | **8.** | D | Anemia | **9.** | C | 1953 AD |
| **10.** | A | Butanoic acid | **11.** | B | Proteins | **12.** | A | Glucose |

**Note:** Answers of subjective questions are given in Learning Material.

## Assessment Chapterwise Test 6

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **1.** | C | Helium | **2.** | D | Ozone layer | **3.** | D | Thermosphere |
| **4.** | D | Troposphere | **5.** | C | 50km | **6.** | A | $H_2SO_4$ |
| **7.** | B | Sulphur dioxide | **8.** | C | $O_3$ | | | |
| **9.** | B | increasing concentration of $CO_2$ | | | | | | |
| **10.** | A | PAN | **11.** | B | Pollutant | **12.** | C | 4 |

**Note:** Answers of subjective questions are given in Learning Material.

ہمت کرے انسان تو کیا کچھ نہیں ممکن  پانی سے ہی بنتی ہے تصویرِ چمن

# میٹرک امتحانات کی تیاری کے لیے الرازی اکیڈمک ڈیویلپمنٹ یونٹ کی خدمات

الرازی پبلی کیشنز محض ایک ادارہ نہیں بلکہ ایک تحریک ہے۔ جس کی کتب طلباء کو امتحان میں 100 فیصد کامیابی تو دلاتی ہیں ساتھ ہی ان کی آئندہ زندگی میں کامیابی کے راستے بھی ہموار کرتی ہیں۔ الرازی پبلی کیشنز نے جدید تعلیمی تقاضوں کو مدنظر رکھتے ہوئے اپنی تمام کُتب کو BLOOM TAXONOMY کے لیولز سے ہم آہنگ کیا ہے۔ یہ تحریک طلباء کے روشن مستقبل کے سفر کی نوید ہے۔

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(وقت اور پیسے دونوں بچائیے) امتحان میں 100 فیصد کامیابی اور A+ گریڈ کے حصول کے لیے الرازی اَپ ٹو ڈیٹ پیپرز سے تیاری کیجیے۔

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