



DOON INTERNATIONAL SCHOOL, SRINAGAR

SUBJECT - Computer

Assignment:II

Grade:VIII

Chapter:- Working with Queries

- The objective of this assignment is to make students acquainted with the usage of Queries in Database, Setting relationships between tables, Reports and forms (Microsoft Access) and also the various other objects in it.

A query is database object that help us to retrieve and view information from one or more database tables that meet a specific conditions or criteria we define. The information received on the basis of specified criteria in the query is stored in a separate table called the query table.

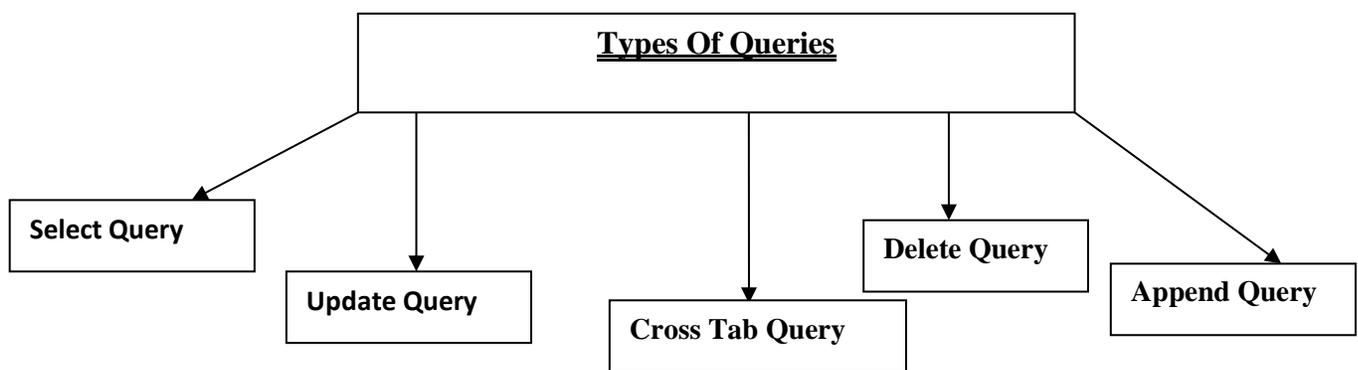
QUERY

A query is like a simple question or request that we ask to find a specific information from the database. We use queries to view, change, summarize and analyze specific data in different ways. We can use a query to answer a simple question, to perform calculations, to combine data from different tables, or even to add, change, or delete table data

OR

Queries are a way searching for and compiling data from one or more tables. Running a query is like asking a detailed question of your database. When you build a query in Access, you are defining specific search conditions to find exactly the data you want.

Queries are made on tables and the result of a query is also designed in the form of a table. The result which we get is a group of rows and columns with the set of records that matches the given condition.



1. **Select Query** :-The most basic and common type of query, select queries find and display the data you want from one or more tables or queries.

2. **Update Query**:- Updates selected information in a table.

3. **Delete Query**:-Deletes selected records from one or more tables.

4. **Append Query**:- Appends or adds selected records from one table to another table, useful for importing information into a table.

5. **Cross Tab Query** :-It summarizes the data from one or more of these fields that are separated into groups based on one or more fields. It Calculates a sum, average or other aggregate function and then groups the results by two sets of values-One set on the side of the datasheet and other set across the top.

Relationship Between Tables.

Relationships are links that associate a field in one table with the field in another. In access, you store data in multiple tables. To bring the information together, we need to define relationships between the tables. Once we have defined relationship between the tables, data from the tables can be used by Query, Form, Report.

A relationship works by matching a field with the same name in both tables. In most cases, these matching fields are the **Primary Key** from one table that uniquely identifies each record in a table and a **Foreign Key** in another table.

Primary Key :-A primary key is a sort of check on the table that every record in the table is unique and does not contain any duplicate data. A table can have only one primary key.

Foreign key:-A foreign key is value in one table that must match the primary key in another table.

Steps For Creating Relationship Between Tables.

- Click the **Database Tools** tab.
- In the ribbon click Relationships button from the show/hide relationships group.
- Select show table, when the show table appears, select the required table and click on Add button to add it in the relationship window. Similarly we can add more table to the relationship window.
- Click the close button to close the show table dialog box.
- Drag the primary of parent table and drop it over the same field in child table.(The cursor will change to an arrow).
- The **Edit Relationship** dialog box appears.

- Click on create button .Access creates the relationship between the tables.
- A line linking the two tables will appear indicating that both have been linked.
- Click the **Save** button on the quick access toolbar or press Ctrl+ S to save the relationship.

Creating A Query

Access provides two ways to create select queries by using **Query wizard** and **Query Design**.

Steps for Creating a select query in Design view.

Design view gives us more control over a query.

Open the database and click on Create tab> Query design>other group.

The Show table dialog box appears.

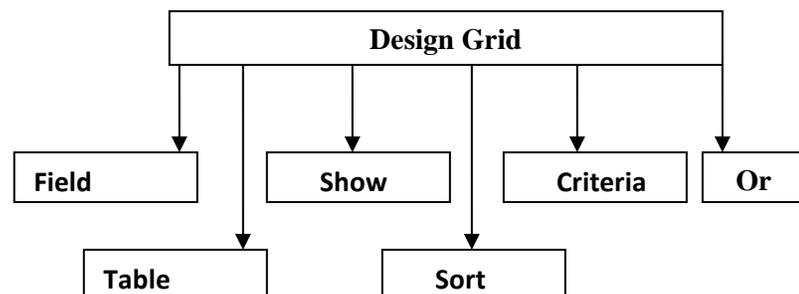
In the **Show Table** dialog box, select the record source either by clicking on **Tables, Queries Or Both Tab**. Your choices appear in the upper section of the query design.

Select the table from the show table dialog box. Click on Add button and then click on close button. (Access window changes into Query design view).

The main query window divides into two panes: Top and Bottom.

The top pane displays the table or tables selected for the query .in case of multiple tables, the field lists are joined by a line. These joined lines link key fields that share the same field name. The joined line indicates table relationships that relate the data in one table to the data in another table .The selected query table displays a list of fields which you can add to the query.

The bottom pane displays the design grid .We can add fields to the query by dragging them from the field list to the design grid or by double clicking on the field .The design grid is similar to a spread sheet, with columns representing each field in the query.



Field:-row of a design grid displays the selected field from a table.

Table :- row displays the name of the existing table.

Show:- row displays a check mark. The fields which check marks display the information when the query is being run.

Sort:-property is used to filter the data either in ascending or descending order. It is optional.

Criteria:-property contains the condition on the basis of which the records will be filtered in the query output.

Or:-property is used to set the multiple criteria.

Criteria

Criteria determines how to filter the records in the query output. We specify criteria in the criteria row of the design grid .Specify the criteria value in the criteria row and the data will be filtered accordingly in the query output.

Forms :-A form is an access object that allows the user to add and update data in one record at a time in a table. A form provides the user a systematic way of storing information into the database. It is an interface in a user specified layout that lets users to view, enter, and change data directly in database objects such as tables, picture, images and text formatting tools are used to make attractive forms. Form can have a different name from a table but they both manipulate the same information and data.

Access provides three main views in which a form is displayed:

- **Form view** is used to enter or edit data.
- **Design view** is used to adjust the design of your form.
- **Layout view** is used to change the look and feel of a form.

Creating A Form:-To create a form, select a table or a query in the navigation pane that you want to see the data source for the form.

- Click the create tab on the ribbon.
- Select Form >Forms group.
- A new form opens in Layout view, in which we can change the appearance of a form.
- We can also edit or enter data in the form, click on Home Tab>View button>Form view.
- After entering the data, save your work.

Reports:- Reports are used to present formatted summaries of the data contained from one or more tables or queries in a printed format. Reports provide you with many formatting and display options. Reports can be a simple list of records directly displayed from a table or query. It can also be a complex report that includes calculations, graphics even attractive charts of any type to represent data, not to say mailing labels.

On the basis of understanding of chapter answer the following questions.

1. Define Primary key. How can you set it in Ms access?
2. Write the relationship between a database and a table.
3. Differentiate between Simple criteria and Multiple criteria.
4. What is the importance of Forms in database?
5. Write the steps for creating relationship between three tables.
6. What is a Query wizard?

Practical work:-

Create a database of your school teachers, containing the following details:

Field name	Data type	Description.
Teach_ID	Text	Teacher ID
Name	Text	Name of the teacher
Gender	Text	Male/female
Subject	Text	The subject taught
Level	Text	Junior/Middle/Senior school

- Enter 15 records in the table.
- Display the records of Female teachers.
- Display the list of teachers teaching science.
- Display the list of teachers teaching your favorite subject.
- Further add 5 more records of teachers into the table using form.
- Create a report to display the teachers detail.

Note:-All the textual and additional questions to be done on fair notebook.



DOON INTERNATIONAL SCHOOL, SRINAGAR

SUBJECT: Chemistry

Assignment II

Grade: VIII

Chapter: Metals and non-metals

Instructions:

- *Students are to read and understand the chapter on their own before initiating to respond to the given assignment.*
- *The objective of this assignment is to make the students acquainted with;*
- *By the end of the lesson, students will be able to*
- *record observations about metals, non-metals, and metalloids*
- *label simple elements as metals, no-metals, or metalloids*
- *describe properties of metals, non-metals, and metalloids*
- *orient themselves with the location of metals, non-metals, or metalloids on the periodic table*

INTRODUCTION

There are 118 elements at present. Each of the elements is unique. The discovery of the elements started about 8000 years ago, when people obtained shiny materials from the rocks by heating. By 1940, all the 90 naturally-occurring elements had been discovered.

Classification of elements:

All elements are classified into three categories: - Metals, Non Metals, and Metalloids. Metals are placed on the left-hand side, in the middle and at the bottom of the periodic table. Non metals are placed on the right hand side and in the upper middle part of the periodic table. Metalloids are located at the left end of the non-metals. On the extreme right side of the periodic table are the noble gases.

METALS:

*Metals are the elements (except hydrogen) which form positive ions by losing electrons. Thus metals are **electropositive elements** i.e. they easily lose their valence electrons. Metals are lustrous (shiny), malleable and ductile. They possess high density and are good conductors of heat and electricity. The oxides of metals are basic in nature. Some examples of metals are Iron, Aluminum, Copper, Zinc and Sodium. Metals generally have 1 to 3 electrons in the valence shell of their atoms.*

NON METALS:

The elements which tend to form anions by gaining electrons are termed as non metals. Thus, non metals are **electronegative elements**. Non metals have no lustre. They are non malleable and non- ductile. Non –metals are brittle. Most of the non-metals possess low density and they are poor conductors of heat and electricity. The oxides of non metals are acidic or neutral in nature. Some examples of non metals are carbon, silicon, phosphorous, iodine, bromine, hydrogen, nitrogen, oxygen, fluorine, etc. Non metals usually have 4 to 8 electrons in the outermost shell of their atoms.

METALLOIDS:

The elements which behave like metals as well as non-metals are called metalloids. Boron, Arsenic, Tin, Bismuth, Silicon, Antimony, Germanium are common examples.

Periodic Table of the Elements

The periodic table is color-coded by groups and categories. A legend at the bottom identifies the following categories:

- Alkali Metal (Blue)
- Alkaline Earth (Light Blue)
- Transition Metal (Dark Blue)
- Basic Metal (Light Green)
- Semi-metal (Green)
- Nonmetal (Yellow)
- Halogen (Orange)
- Noble Gas (Red)
- Lanthanide (Purple)
- Actinide (Pink)

Physical Properties of Metals:-

- **Physical State:** - Metals are generally solid at room temperature except Mercury and Gallium which are a liquid at room temperature.
- **Hardness:** - Most metals are very hard. However Na and K are exception both

are so soft that they can be easily cut with a knife.

- **Opaque Nature:** - Generally metals are opaque in nature and do not allow the light to pass through them.
- **Metallic Lustre:** - The freshly cut and uncorroded surface of metals is lustrous as they are good reflectors.
- **Density:** - Metals have relatively high densities except Sodium and Potassium.
- **Melting Point and Boiling Point:** - Metals have high melting point and boiling point except Na and K, both melt and boil at low temperature.
- **Thermal and Electrical Conductivity.** All metals are good conductors of heat and electricity. It is found that Ag is best conductor and lead (Pb) is poorest. The metals are good conductors because they contain free or mobile electrons which can conduct heat and electricity.
- **Malleability :-** Metals are malleable i.e. they can be beaten into very thin sheets called foils with a hammer without breaking Al and Cu are highly malleable.
- **Ductility:** - Metals are ductile i.e. they can be drawn into thin wires Silver and Gold are best ductile.
- **Metals Are Sonorous:**-i.e. they produce a ringing sound when struck hard on surface of solid.
- **Tensile Strength:** - metals have high tensile strength. Due to this property of metals, heavy weights can be transferred into metallic wires without breaking.

Chemical Properties Of Metals:-

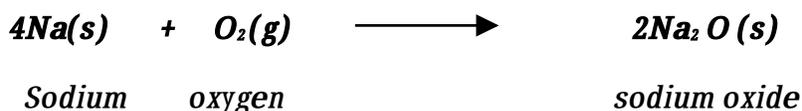
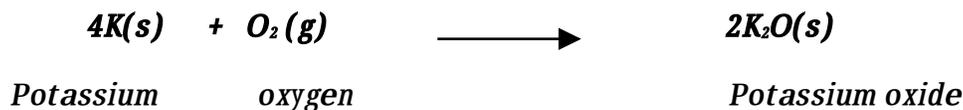
The metals are electropositive in nature. The tendency of metal atoms to form positive ions gives rise to characteristic chemical properties of metals.

- **Reaction with Oxygen:** - Almost all metals combine with oxygen to form metal oxides. The general equation is



All metals do not react with same speed.

- 1) Sodium and potassium reacts so vigorously that they catch fire if kept in open air.



2) When Magnesium is heated it burns with a blinding white light to form Magnesium Oxide.



3) Aluminium combines with O_2 only on heating



4) Zn burns in air only on strong heating.



5) Iron does not burn on heating but glows brightly



6) Copper does not burn, but a layer of black substance known as copper oxide is formed.



7) Silver and Gold do not react with O_2 even at high temperature.

➤ **Reaction with Water.** - Metals react with water to form Metal Oxide or Metal Hydroxide with the liberation of Hydrogen gas.



1) Sodium metals react vigorously with cold H_2O

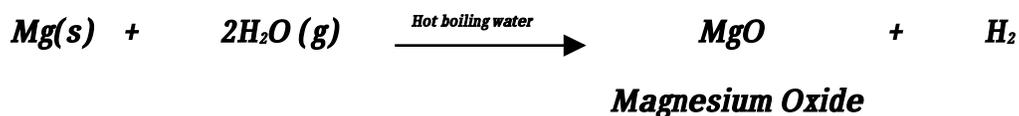


Sodium Hydroxide.

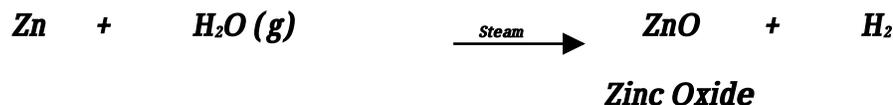
2) Magnesium metals react rapidly with hot boiling water



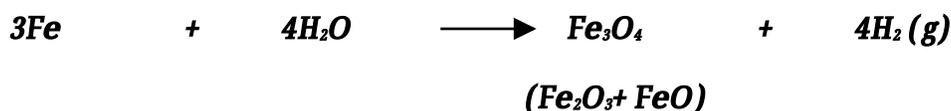
Magnesium hydroxide



3) Zn metal reacts only with steam



4) Iron metal does not react with water under ordinary conditions. The reaction occurs only when steam is passed over red hot iron.



Fe₃O₄ is a mixed oxide of ferrous oxide (FeO) and ferric oxide (Fe₂O₃).

Copper metal does not react with water even under strong conditions.

➤ **Reaction with Acids:**

1) When a metal reacts with dilute mineral acid metal salt is formed and hydrogen gas is liberated.



2) Na reacts violently with dilute HCl or dilutes H₂SO₄ to form metal salt and H₂.



3) Magnesium reacts quite rapidly with HCl and H₂SO₄



4) Copper does not react with acid like silver and gold.

➤ **Metal Reactivity Series:-**

From the action of oxygen, water and acid with metals, it is clear that some metals are more reactive than others. On the basis of rate of reaction of metals with oxygen, water and acids, the metals have been arranged in serial order or grouped according to their chemical reactivity.

The arrangement of metals in a vertical column in the decreasing order of their chemical reactivities is called **metal activity series**:

Potassium	(K)	
Sodium	(Na)	
Calcium	(Ca)	
Magnesium	(Mg)	
Aluminium	(Al)	
Zinc	(Zn)	
Iron	(Fe)	
Tin	(Sn)	
Lead	(Pb)	
Hydrogen	(H)	
Copper	(Cu)	
Mercury	(Hg)	
Silver	(Ag)	
Gold	(Au)	
Platinum	(Pt)	

Decreasing Metal Reactivity

Hydrogen is a non metal but it has been placed in metal reactivity series because hydrogen like metals can donate an electron to form H^+ ions. It also acts as border line between more reactive and less reactive metals.

Metals more reactive than hydrogen: - The metals which can lose their valence electrons more readily than hydrogen are called **more reactive metals**. E.g. K, Na, Ca, Mg, Al, Zn, Fe, Sn and Pb.

Metals less reactive than Hydrogen: - The metals which lose their valence electrons with more difficulty than hydrogen are called **less reactive metals** e.g. Cu, Hg, Ag, Au and Pt.

➤ **Displacement Reaction**

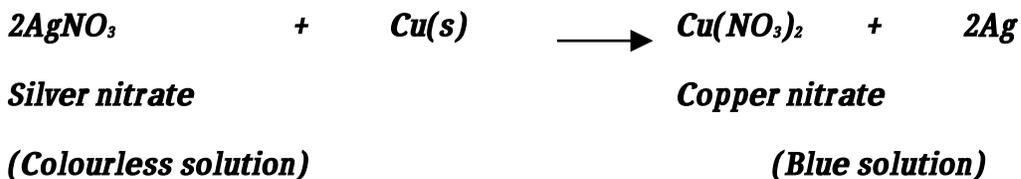
It is a type of reaction in which highly reactive metal displaces less reactive metal from its salt solution. Examples of displacement reaction:-

a) Reaction of copper metal with silver nitrate solution:-

When a strip of copper (red in colour) is placed in clear silver nitrate solution in a beaker, following observations are made:

- I. The clear silver nitrate solution gradually changes to blue solution.
- II. The strip of copper gets coated with shining layer of silver.

Reason: - When copper is placed in the solution of silver nitrate, copper being more reactive than silver, displaces silver from silver nitrate solution. Copper metal dissolves to form copper nitrate which is blue in colour.

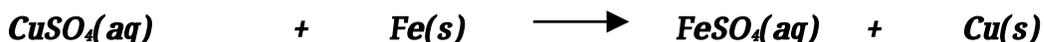


b) Reaction of Iron metal with copper sulphate solution:-

When a strip of Iron metal is placed in copper sulphate solution, following observations are made:-

- I. The blue colour of copper sulphate gradually fades.
- II. The colour of solution gradually changes to light green.
- III. Reddish brown precipitate of copper is deposited on iron.

Reason: - Iron metal is more reactive than copper when a strip of iron is placed in copper sulphate solution, iron being more reactive this displaces copper from copper sulphate solution. The iron metal dissolves to form ferrous sulphate.



Exactly in the same way zinc metal displaces copper from copper sulphate solution.

Uses Of Metals:

- *Copper and Aluminium metals are used to make wires to carry electric current. This is because they have very low electrical resistance and hence are very good conductors of electricity.*
- *Iron, copper and aluminium metals are used to make house-hold utensils and factory equipments.*
- *Iron is also used for making bells etc. because of its sonorous property.*
- *Zinc is used for galvanizing iron to protect it from rusting.*
- *Chromium and nickel metals are used for electroplating and in the manufacture of stainless steel.*
- *The Aluminium foils are used in packaging of medicines, cigarettes and food materials.*
- *Silver and gold metals are used to make jewellery.*
- *The liquid metal mercury is used in making thermometers.*

Physical properties of non metals:

1. ***Non metals are neither ductile nor malleable:*** - *Non metals cannot be drawn into wires and beaten into leaves/ sheets because they are brittle. They break up into pieces when pressed hard or hammered. For example, sulphur and red phosphorous are brittle. The property due to which non-metals break up on hammering is called brittleness.*
2. ***Non metals are insulators:*** - *Non metals do not conduct heat and electricity. This is because they do not have free electrons. However, diamond is a non metal which is a good conductor of heat and graphite is a non metal which is a good conductor of electricity.*
3. ***Non metals do not have lustre:*** - *Non metals are not shiny. However, graphite and iodine are the only non metals which have metallic lustre. As a result non metals cannot be polished.*
4. *Non metals are generally soft except diamond which is the hardest natural substance known.*
5. ***Non metals have low tensile strength:*** - *They can be easily broken. For example, when a large weight is placed on a graphite sheet, it gets snapped (breaks).*

6. **Non metals have low melting and boiling points:** - For example, the m.p. of sulphur is 115°C and m.p of white phosphorous is 44°C . However, graphite, which is a non metal, has a high m.p. (3700C).
7. *Non metals may be solid, liquid or gaseous at room temperature.*
8. **Non metals have low densities:** - Non metals are light substances for example; the density of sulphur is $2\text{g}/\text{cm}^3$. Only non –metal iodine has, however, high density.
9. **Non metals are non sonorons:** - Non metals do not produce sound when hit with an object.
10. **Non metal have many different colours:-** For example, sulphur is yellow, phosphorous is white or red, graphite is black, chlorine is yellowish green whereas hydrogen and oxygen are colourless.
11. **Non metals show allotropy:** - Some non metals exist in more than one allotropic form. For example, phosphorous exists in five different forms; sulphur exists in three forms etc.

Uses of Non Metals:

- *Many non-metals like chlorine, Sulphur, iodine are very useful for medicinal purposes.*
- *Non-metal like oxygen is very essential for respiration.*
- *We use nitrogen and phosphorus in fertilizers for better plant growth and enhance the fertility of the soil.*
- *Non-metal like Sulphur is useful in crackers.*
- *Chlorine and Fluorine are useful for water purification purpose.*

QUESTIONS:

1. **State two physical properties on the basis of which metals may be distinguished from non-metals.**

Ans.

Metals	Non-Metals
<i>Metals are good conductors of</i>	<i>Non-metals are bad conductors of</i>

electricity.

Metals are generally solids at room temperature except mercury and gallium which are liquid at room temperature.

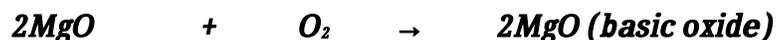
electricity except graphite (a form of carbon) which is a good conductor of electricity.

Non-metals occur as solids (carbon, sulphur, Iodine), liquids (bromine) or gases (oxygen, nitrogen).

2. State one chemical property which may be used to distinguish a metal from a non-metal.

Ans. One chemical property on the basis of which we can distinguish a metal from a non-metal is as follows:

Whenever metals react with oxygen they form basic oxide (metallic oxide) i.e. they form bases when dissolved in water e.g.



Magnesium Oxygen Magnesium oxide



Sodium Oxygen Sodium oxide



Zinc Oxygen Zinc Oxide

Whenever non-metals react with oxygen they form acidic oxide or neutral oxide (non-metallic oxide) i.e. they form acidic or neutral solutions with water. E.g.



Carbon Oxygen Carbon dioxide



Sulphur Oxygen Sulphur dioxide





3. Why is aluminium used for making cooking utensils?

Ans. Aluminium being a metal is a good conductor of heat as it has free electrons which help it to conduct heat. That is why aluminium is used for making cooking utensils.

4. What are noble metals? Is silver a noble metal?

Ans. Those metals which occur in native or free state in nature and don't react with air, water and acids are called noble metals. Yes, silver is a noble metal.

5. Name a non-metal which is a good conductor of electricity.

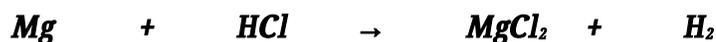
Ans. Graphite is a non-metal which is good conductor of electricity.

6. Name two non-metals which occur in a solid state at room temperature.

Ans. Sulphur and carbon are two non-metals which occur in a solid state at room temperature.

7. What is the gas evolved when a metal reacts with acid?

Ans. When a metal reacts with acid, it forms corresponding salts along with the liberation of hydrogen gas.



8. Magnesium and copper metals are directly heated over a flame which of these will burn in air. Which is more reactive?

Ans. Magnesium will burn in air as it is more reactive.

9. Why is gold found in the native state in the earth's crust, but not iron?

Ans. Gold is a noble metal so it possesses a characteristic of being chemically inert i.e. it doesn't react with air, water and acids. That is why it is found in native (free) state in nature while as iron reacts with air, water and acids to form compounds. Therefore, it is not found in native state in nature.

10. Why is sodium stored in kerosene oil?

Ans. Sodium is the most reactive metals, so it spontaneously even at room temperature reacts with oxygen to form sodium oxide (Na₂O). To prevent this reaction of sodium it is stored in kerosene oil.

11. Describe how magnesium reacts with dilute hydrochloric acid. Write the equation for this reaction.

Ans. Magnesium is a reactive metal so it vigorously reacts with hydrochloric acid and giving magnesium chloride (a salt) and hydrogen gas



12. What would you expect to observe when a strip of zinc is dipped in a copper sulphate solution?

Ans. Zinc is more reactive than copper. Thus, when a strip of zinc is dipped in a copper sulphate solution, a brown coating of copper is formed over the strip and blue copper sulphate solution turns colourless.

13. Why is iron not deposited over a copper plate when the latter is dipped in a ferrous sulphate solution?

Ans. Iron is more reactive metal than copper. More reactive metals replace less reactive metals from their salt solution but less reactive metals cannot replace more reactive metals. So iron is not deposited over a copper plate when copper plate is dipped in a ferrous sulphate solution.

14. Arrange the following metals in decreasing order of their reactivity. Which of these is the least reactive?

a. Iron b. Sodium c. Copper d. Magnesium

Ans. Decreasing order: Sodium, magnesium, iron and copper.

Copper is the least reactive metal.

15. Why does an aluminium vessel lose its shine so soon after use?

Ans. Aluminium being a reactive metal begins to corrode as soon as it comes in contact with moist air. It combines with moist air to form a coating of aluminium oxide.



This layer of aluminium oxide covers the upper surface of the aluminium so it loses its shine soon after its use.

16. Silver does not combine easily with oxygen but silver jewellery tarnishes after

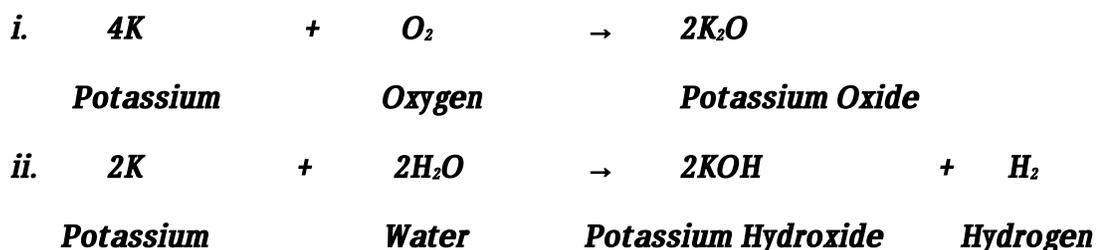
layers of other metals {which are resistant to corrosion} by passing an electric current e.g. Iron and Steel are protected from corrosion by coating them with a layer of tin or chromium metal which are themselves resistant to corrosion.

VI. **Alloying.** Some metals become more corrosion resistant when alloyed (mixed) with other metals e.g. stainless steel which is an alloy of iron, chromium and nickel does not rust easily and brass which is alloy of copper and zinc does not also rust easily.

20. **Arrange the elements – copper, zinc, lead, calcium, potassium, silver and aluminium in order of their increasing reactivity with oxygen and water. Write the reaction of one metal of your choice with oxygen and water.**

Ans. Silver, copper, lead, zinc, aluminium, calcium and potassium.

Reaction of magnesium with oxygen and water:

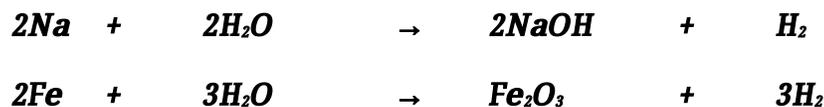


21. **From amongst the set of metals sodium, zinc, iron, copper – Select the following giving equations for each reaction: -**

a. **Two metals which will liberate hydrogen from water.**

Ans. Sodium and Iron.

Reactions:



b. **One metal which is used to prepare hydrogen gas in the laboratory.**

Ans. Zinc is used to prepare hydrogen gas in the laboratory



c. **One metal which will displace copper from copper sulphate solution.**

Ans. Zinc will displace copper from copper sulphate solution.



d. One metal which will not displace copper from copper sulphate solution.

Ans. Copper will not displace copper from copper sulphate solution. The other three metals are more reactive than copper and thus, can replace it from its salt solution.

22. Suggest reasons why.

a. Silver is used in jewellery.

Ans. Silver is a metal so it has a shiny appearance i.e. it shows metallic luster and does not easily react with air, water and acids as other metals do. That is why it is used in jewellery.

b. Copper is used for electrical wiring

Ans. Copper is a metal and metals are good conductors of electricity. Therefore, it is used for electrical wiring.

c. Gold is found in the native state.

Ans. Gold is found in the native state because it does not easily react with air, water and acids.

d. Sodium does not occur in the Free State in nature.

Ans. Sodium does not occur in the free state in nature because it is a highly reactive metal and reacts with air, water and acids thereby forming compounds such as chlorides, oxides and sulphides.

23. Give two uses of highly sonorous metals.

Ans. The two uses of highly sonorous metals are: -

- 1. Their wires are used in musical instruments.*
- 2. They are used for making bells.*

24. Describe how magnesium and iron react with oxygen. Write the equation for their reactions.

Ans. Magnesium metal does not react with oxygen at room temperature. On heating, it readily burns in oxygen with a bright white light producing magnesium oxide (MgO).



Iron doesn't combine with oxygen at room temperature. When iron is strongly heated in oxygen, it forms a brown black compound called iron oxide, Fe₂O₃.



28. **How will you show that copper is more reactive than silver?**

Ans. *Copper displaces silver from silver nitrate solution. Therefore, copper is more reactive than silver because more reactive metal displaces less reactive metal from its salt solution.*



29. **A set of metals in order of their increasing chemical reactivity is given below. silver, copper, lead, iron, zinc, magnesium and sodium.**

a. **Which of the above metals is stored in kerosene?**

Ans. *Sodium is stored in kerosene.*

b. **Which metals will react with cold water?**

Ans. *Sodium and magnesium will react with cold water.*

c. **Which gas will be liberated when metals react with cold water?**

Ans. *Hydrogen gas will be liberated when metals react with cold water.*

d. **Which of the metals will react with oxygen when heated?**

Ans. *Magnesium will react with oxygen when heated.*

e. **Which of the metals becomes black in the presence of hydrogen sulphide H_2S ?**

Ans. *Silver becomes black in the presence of hydrogen sulphide H_2S .*

f. **Which of the metals burns with white bright flame in oxygen?**

Ans. *Magnesium burns with white bright flame in oxygen.*

30. **Illustrate with reference to four physical properties and one chemical property, the chief differences between metals and non metals. For each physical property that you choose, note down at least one exception to the general statement.**

METALS	NON-METALS
<p><i>Metals usually have a silver or grey colour except gold and copper.</i></p> <p><i>All metals are hard except sodium and potassium which can be cut with a knife.</i></p> <p><i>Metals usually exist in the solid form at room temperature except mercury which exists as liquid at room temperature.</i></p> <p><i>Metals usually have high density except sodium and potassium which are even lighter than water.</i></p> <p><i>Metals react with oxygen to form basic oxides which dissolve in water to form bases.</i></p> $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ $\text{MgO} + \text{H}_2\text{O} \rightarrow \text{Mg}(\text{OH})_2$	<p><i>They occur in many colours, e.g. sulphur is yellow and chlorine is yellowish green.</i></p> <p><i>Non metals are not generally hard. Solid non-metals are brittle.</i></p> <p><i>Non-metals may occur as solids, liquids or gases at room temperature e.g. sulphur, carbon and iodine are solids. Bromine is a liquid while chlorine and nitrogen are gases.</i></p> <p><i>Non-metals have low densities except iodine which has high density.</i></p> <p><i>Non metals react with water to give acidic oxides which dissolve in water to form acids.</i></p> $\text{S} + \text{O}_2 \rightarrow \text{SO}_2$ $\text{SO}_2 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_3$

31. Why hydrogen gas been placed in the reactivity series?

Ans. Though hydrogen is not a metal but still it has been placed in the reactivity series of metals because hydrogen also loses electrons and forms positive ions H^+ like metals and it acts as borderline between highly reactive and least reactive metals.

32. Why some metals are more reactive and others less reactive?

Ans. Reactivity of metals depends on the ease with which they lose electrons to form positive ions. Now, if a metals losses electrons easily to form positive ions, it will react rapidly with other substance and hence it will be highly

reactive metal. On the other hand, if a metal loses electrons less readily to form positive ions, it will react slowly with other substance. Such a metal will be less reactive.

TEXTUAL QUESTIONS:

C. Short-Answer Questions (Type I):

- 1. What is the difference between the physical state of metals and non-metals at room temperature?**

Ans.. Difference between the physical state of metals and non-metals:

Metals are solid at room temperature except mercury which is liquid whereas non-metals are found in solid, liquid and gaseous state at room temperature like carbon, phosphorus, etc., are solids; bromine is a liquid while hydrogen, nitrogen, etc., are gases.

- 2. What do you mean by reactivity series of metals?**

Ans. The reaction of metals with oxygen, water and acids shows that metals have different reactivities. Potassium and sodium are the most reactive whereas silver and gold are the least reactive. An arrangement of metals in decreasing order of reactivity is called the reactivity series of metals.

- 3. What is the advantage of galvanized iron over tin-plated iron?**

Ans. Tin is electroplated on iron to make food containers. However, if the tin layer gets scratched, the iron starts rusting at that place. The tin can is then no longer suitable for storing food. Whereas galvanized iron does not rust even if there is a scratch on the zinc layer. This is the advantage of galvanized iron over tin-plated iron.

- 4. What is an alloy? How is alloys generally made?**

Ans. An alloy is a homogeneous mixture of two or more metals or one or more metals and a non-metal (usually carbon). An alloy is usually made by mixing together metals in their molten form. They are also sometimes made by mixing metal powders together.

- 5. What are noble metals? Why are they used to make ornaments?**

Ans.. The metals which do not react with water, acids and alkalis, occur in the free state in nature are known as noble metals. Examples: gold, silver, platinum.

As they are unreactive, they are used to make ornaments. They do not lose their shine easily.

6. Can a wire be drawn out of wood. Why not?

Ans. No, a wire cannot be drawn out of wood because wood is not a metal, thus it does not have ductility property.

8. Can alloying be used to lower the melting point? Give an example.

Ans. Yes. Solder, an alloy of lead and tin has a melting point much lower than that of lead and tin.

9. How is anodizing of aluminium carried out?

Ans. It is done by passing an electric current through sulphuric acid using aluminium as anode. Oxygen is evolved at the anode which reacts with aluminium to form a uniform protective layer of aluminium oxide.

D. Short-Answer Questions (Type II)

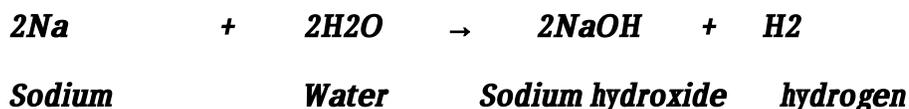
1. What do you mean by malleability and ductility? How are these properties different in metal and non-metals?

Ans. The property of metals by which they can be beaten into thin sheets is known as malleability, e.g. copper, aluminium. The property of metals by which they can be drawn into thin wires is known as ductility, e.g. gold, silver. Metals are malleable and ductile in nature whereas non-metals are neither malleable nor ductile; they are brittle.

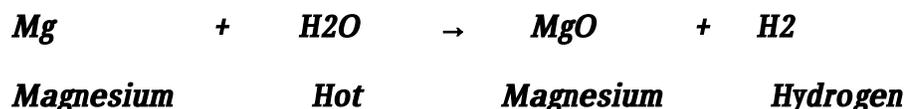
2. Give three examples of reactions between metals and water, to show that different metals have different reactivities.

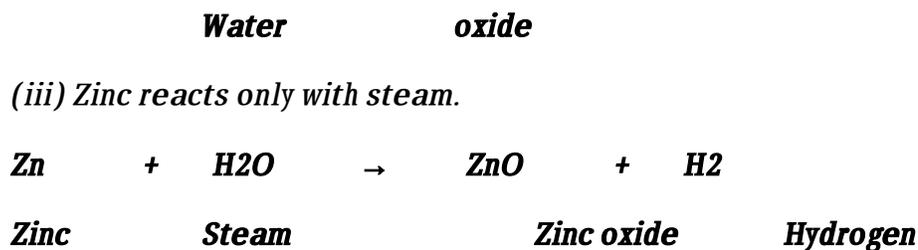
Ans. Metals react with water to form oxides or hydroxides and hydrogen. Different metals have different reactivities with water.

(i) Sodium reacts vigorously with water, giving off a lot of heat.



(ii) Magnesium reacts with hot water or steam.





3. Give the important uses of copper.

Ans. Important uses of copper are:

(a) It is widely used to make electric wires and cables. Copper coils are used in several electrical appliances.

(b) It is also used to make heating utensils, car radiators and calorimeters.

(c) It forms useful alloys.

4. Aluminium protects itself against corrosion. Discuss why it is necessary to anodize aluminium to make it corrosion resistant.

Ans. Aluminium protects itself against corrosion upon exposure to air by forming a layer of aluminium oxide. If this layer is made more uniform, it protects the aluminium underneath more effectively. Thus, this is done by a process called anodizing to make it corrosion resistant.

5. List three important uses of hydrogen

Ans. Three important uses of hydrogen are:

I. to manufacture ammonia gas, which is used to manufacture fertilizers such as urea and ammonium sulphate.

II. to extract metals such as copper, lead and tin.

III. to use in oxy-hydrogen flame, obtained by burning hydrogen in oxygen is used for cutting and welding metals.

6. List three uses of silicon.

Ans. The uses of silicon are:

I. in the electronic and computer industries to make devices like transistors, microchips and solar cells.

II. to manufacture silicones, which are used for making waterproof clothes, greases and polishes.

III. to make insulating material for electrical appliances.

E. LONG-ANSWER QUESTIONS:

1. State whether a displacement reaction will occur if the following are mixed. Give reasons. Give the reaction.

a. copper sulphate and Zinc

b. zinc sulphate and copper

c. iron sulphate and zinc

d. copper sulphate and iron

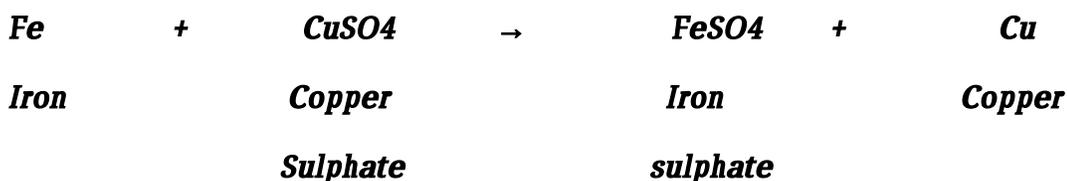
e. zinc sulphate and iron

f. iron sulphate and copper

Ans. a. **Copper sulphate and Zinc:** A displacement reaction will occur between copper sulphate and zinc because zinc is placed above copper in the reactivity series. Thus, it will replace copper.



(b) **Copper sulphate and Iron:** A displacement reaction will occur because iron is placed above copper. Thus, it will replace copper.



(c) **Zinc sulphate and copper:** A displacement reaction will not occur here because copper is placed below zinc. Thus, it will not replace zinc.

(d) **Zinc sulphate and iron:** A displacement reaction will not occur here because iron is placed below zinc. Thus, it will not replace zinc.

(e) **Iron sulphate and zinc:** A displacement reaction will occur because zinc is placed above iron. Thus, it will replace iron.



Zinc

Iron

Zinc

Iron

Sulphate

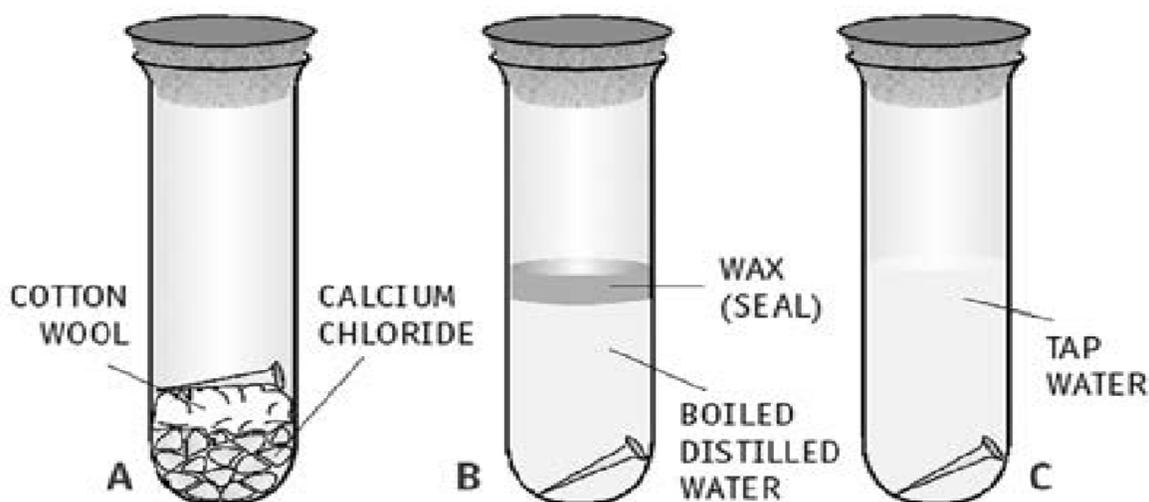
sulphate

(f) Iron sulphate and copper. A displacement reaction will not occur here because copper is placed below iron. Thus, it will not replace iron from iron sulphate.

2. Describe an experiment to show the conditions necessary for rusting of iron.

ANS. To investigate the conditions under which iron rusts, let us perform the following activity:

Take three clean iron nails without any rust on them and three test tubes with corks. In test tube A, put a few lumps of anhydrous calcium chloride (a good drying agent which absorbs water vapour from the atmosphere). Put a layer of cottonwool and then the nail. Close the test tube with a cork. In test tube B, take some pure (distilled) water. Boil it for one minute to drive off any dissolved air. Then drop in the nail. To keep the air out, seal the water surface in the test tube by pouring molten wax on it (wax will solidify on the cool water surface). Close the test tube with a cork. Half-fill test tube C with tap water and drop the nail in it. Close this test tube also with a cork. Leave the tubes for several days and then examine them. What do you observe? You will find that the nails in test tubes A and B have not rusted, while that in test tube C has rusted. The activity shows that for rusting to take place, both air (oxygen) and water are essential



Rusting of iron

3. Discuss briefly the different methods used for preventing corrosion of metals.

Ans. Different methods are used for preventing corrosion of metals. They are:

(a) Painting or applying oil: *Painting the surface of the metal after cleaning it thoroughly is the most common method which keeps air away. Applying grease or oil on the surface has a similar effect.*

(b) Covering with another metal: *Depositing a layer of another metal which is more resistant to corrosion is another commonly used method. The metals mostly used are tin and zinc. This method can be done by the following ways:*

(i) Galvanizing. *Clean iron sheets are dipped in molten zinc to deposit a layer of zinc on it. This process is called galvanization.*

(ii) Electroplating. *Tin is electroplated on iron to make food containers commonly called tin cans.*

(iii) Anodizing of aluminium: *Anodizing process consists of passing an electric current through sulphuric acid using aluminium as anode. Oxygen is evolved at the anode which reacts with aluminium to form a uniform protective layer of aluminium oxide.*

(iv) Alloying. *An alloy is a mixture of two or more metals. It is used to alter the properties of metals to suit certain applications. Example: stainless steel is an alloy of iron, chromium and nickel, does not rust easily.*

HOTS QUESTIONS: Think and answer.

- 1. Silver is the best conductor of electricity. Can you say why electric wires are not made of Silver?**
- 2. Why are bells made of metals and not from wood?**
- 3. Suppose copper was high up in the reactivity series. Would it still have been such a useful metal? Give reasons.**
- 4. It has been noticed that silverware becomes black faster today than it did fifty years ago. What can be the reason?**
- 5. Aluminium is above iron in the reactivity series. However, its reactions with oxygen and water seem to indicate that it is less reactive than iron. Explain.**
- 6. If you are an engineer constructing a multi-storey building, which alloy would**

you be extensively used and why?

- 7. A doctor diagnosed a patient with iron deficiency, and gave him tablets containing iron. But the tablets were not hard and did not look like iron at all. What do you think the tablets contain?***



DOON INTERNATIONAL SCHOOL, SRINAGAR.

SUBJECT: ENGLISH

Assignment:II

Grade:VIII

- The objective of this assignment is to make the students get acquainted with the following ideas:
- How to distinguish between reality and illusion.
 - Preposition and its types.
 - Conjunction and its types.

Chapter no. 3: The World-Renowned Nose.

About the Author:

Vaikom Muhammad Basheer fondly known as Bepore Sultan, was an Indian independence activist and writer of Malayalam literature . He was a writer, humanist, freedom fighter, novelist and short story writer, noted for his path-breaking, down-to-earth style of writing that made him equally popular among literary critics as well as the common man. His notable works include Balyakalaskhi, Shabdangal, Pathummayude Aadu, Mathilukal, and Anargha Nimisham and the translations of his works into other languages have earned him worldwide acclaim. The Government of India awarded him the fourth highest civilian honour of the Padma Shri in 1982.

Plot Summary:

The world-renowned nose' by Vaikkom Muhammed Basheer is a humorous story, a satire on the contemporary society and the political incidents behind it. The story seems like to be an unimaginable tale, but the characters and the 'long nose' referred in the story may be taken as a symbol of those gangs of society who worship just the status and the glory of a person, not the hard ways through which he had walked in the past to earn a living as well as the ways through which he achieved those heights.

The hero of the story is a foolish young man, who works as a cook in a rich man's house to earn a living. He is not at all careful about the seriousness of life. Something strange happened at his 24th age. His nose started to grow. It grew in length and finally, passed his mouth and chin and finally reached his navel. People started to crowd before the house and stared and were amazed upon the extra-ordinary nose. As it became a nuisance for the house owner, the cook was dismissed from the job. He sat in his hut without having enough food for days and a single buck to buy even a pinch of stuff for his mental relief. Still the crowd queued before the hut, but no one sympathised or lent a helping hand in this dreadful situation. At last he became angry and asked his mother to shut the door. Now the crowd bribed his mother and she was forced to place his son as an exhibit property before the society to escape from poverty. The mother and son began to get money and within several days they became the richest among the rich across the country.

As the man became famous, politicians hatched conspiracies to 'capture' him. The ruling party made him his loyal by giving him a title and a gold medal. The president too honored his position in the society. Then the opposition party started agitation, violence and riots, on the pretext that the nose was fake and was made of rubber. The man was arrested by the police under the influence to examine the nose by the

gang of expert doctors. Anyways, the nose was proved to be real and this led to his nomination as the Member of Parliament by the president. But the opposition parties didn't agree to that. They formed a United Front and continued their struggle.

Answer the following questions:

a. Does the author give us a reason why the twenty-fourth year of a person's life is significant?

Ans: The author does not give any reason as to why the twenty-fourth year of a person's life is significant one, but he says that for many people of the past, the twenty-fourth year has been very significant.

b. Why was the man dismissed?

Ans: The people for whom the long-nosed one had been working dismissed him because of his long nose. Since his nose attracted visitors, they had no peace at home. People came to visit him day and night. Photographers troubled them and news reporters became a nuisance.

c. How did the man's decision to keep visitors out of his hut have a fortunate result?

Ans: One day the son called his old mother aside and told her to get the visitors out and shut the door. As the mother did so, visitors began to bribe the mother to get an opportunity to see the long-nosed one. Although some upholders of justice protested against this corruption, the government did not take any action. Thus, the mother and son began to earn an income that rose in a couple of days.

Note: Part d, e, and f to be done by the students themselves on their classwork notebook.

Poem: On the Grasshopper and Cricket.

About the Poet:

John Keats was an English Romantic poet. He was one of the main figures of the second generation of Romantic poets, along with Lord Byron and Percy Bysshe Shelley. His first volume of poems appeared in 1817. "On the grasshopper and the Cricket" by John Keats is a fine piece of sonnet written in December 1816.

Summary of the Poem:

In this sonnet the poet describes the beauty of the nature, expressing that the beauty of earth never ceases to exist and it is present in every season. In the summer season when all the birds have retired due to the hot sun and are resting under the trees, it is the Grasshopper who takes the lead by chirping and hopping from hedge to hedge, thus filling the silence of summer. Then after full filling his duty the grasshopper himself takes rest beneath the weeds.

The poet further expresses that even in the winter evening, when the ground freezes due to the frost. One would expect all activities to end but the sound of the earth does not cease as now the Cricket takes over and fills the atmosphere with this chirping which brings some warmth to the environment. For the human beings far away, their sounds seem to replace those of the Grasshoppers. And thus for the poet, the beauty of the earth and its song never ends and it exists in all the seasons.

Answer the following questions:

a. Which line in the poem is similar to the first, and expresses the same idea?

Ans: The line which is similar to the first line and expresses the same idea is “The poetry of earth is ceasing never”.

b. Whose voice will run from hedge to hedge? Why do you think the voice sounds in the hedges?

Ans: The Grasshopper’s voice runs from hedge to hedge because he tirelessly keeps on hopping and chirping in the hedges.

c. Where do the birds hide and why?

Ans: The birds hide in the trees. They hide there so that they can protect themselves from the scorching heat of the sun.

d. What does the poet mean by ‘take the lead in summer luxury’?

Ans: The poet means that the Grasshopper takes up the duty of filling the silence of the summer season with his chirping sounds.

e. Does the Grasshopper tire, and does he then behave like the birds?

Ans: Yes, the Grasshopper does get tired. Yes, he behaves like the birds but instead of hiding inside the trees it hides beneath a weed.

Note: Part f, g and h to be done by the students themselves on their classwork notebooks.

GRAMMAR

Preposition:

A preposition is a word used to link nouns, pronouns, or phrases to other words within a sentence. They act to connect the people, objects, time and locations of a sentence. Prepositions are usually short words, and they are normally placed directly in front of nouns.

Examples of Prepositions:

In the following sentences, examples of prepositions have been bold and italicized.

- I prefer to read ***in*** the library.
- He climbed ***up*** the ladder to get ***onto*** the roof.
- Please sign your name ***on*** the dotted line ***after*** you read the contract.

Types of Prepositions:

There are three types of prepositions, including time prepositions, place prepositions, and direction prepositions.

a. Prepositions of Time

The preposition which tells about a noun in terms of time is called preposition of time.

For example:

- The factory has been here *since* the 1970s.
- You should receive a reply *within* seven days.

b. Preposition of Place

The preposition which is used to denote the place or position of something or someone is called preposition of place.

For example:

- The lady is *near* the front door.
- I can see a spider *on* the ceiling.

c. Prepositions of Movement

The prepositions which are used to show movement from one place to another. These prepositions are most often used with verb of motion and are found after the verb.

For example:

- They ran *down* the hill to the stream below.
- The car crashed *into* the wall.

Exercises:

Fill in the blank with the most appropriate preposition.

1. Dr. Robin is responsible _____ (for, in, from) the recruitment.
2. In this company salary depends _____ (at, on in) the level of responsibility.
3. The Doctor reminds me _____ (from, for, of) the old history teacher.
4. The food in Japan is very different _____ (from, for, into) European food.
5. John is sitting _____ (beside, next, from) his brother.

Conjunction:

Conjunctions are words which are used to join clauses, phrases, and words together for constructing sentences. Conjunctions make a link between words or groups of words to other parts of the sentence and show a relationship between them.

Example:

- Alex *and* Robin are playing together.
- Alex plays well, *but* Robin plays better than him.
- I play cricket, *and* Robin plays football.
- *When* he was sick, I went to see him.

Types of Conjunctions:

1. Coordinating Conjunctions:

A Coordinating conjunction is a word that joins two elements of equal grammatical rank or syntactic importance. There are seven coordinating conjunctions which are by far the most common conjunctions: **and, but, for, nor, or, so, yet.**

Example:

- We went to the stadium **and** enjoyed the cricket match.
- Do you want an ice cream **or** chocolate?
- Go away **and** never come back.

2. Correlative Conjunctions:

The correlative conjunctions are always used in pairs. They are similar to coordinating conjunctions because they join the sentence elements that are similar in importance.

The correlative conjunctions are **not only - but also, either- or, neither - nor, both - and, not - but, whether - or.**

Example:

- **Neither** Alex **nor** Robin can play baseball.
- I want **both** ice cream **and** pizza.
- He ate **not only** the ice cream **but also** the chocolate.

3. Subordinating Conjunctions:

A subordinating conjunction joins a dependent clause and an independent clause. Most commonly used subordinating conjunctions are:

After, how, when, although, if, that, where, as, in order that, though, which, as much as, inasmuch as, unless, while, because, provided, until, who/whom, before, since, what, whoever/whomever.

Example:

- **Before** we left home, I had had my breakfast.
- **When** he was washing my car, I went to the store.
- **Even though** the weather was horrible, they still went outside.

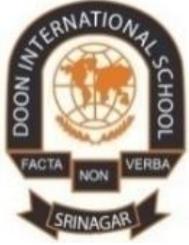
Exercise:

Fill in the blank with the most appropriate conjunction:

1. I could not get a seat, _____ (as, though, when) I came early.
2. We are leaving Wednesday _____ (if, whether, though) or not it rains.
3. Pay attention to your work _____ (so that, unless, or) you will not make mistakes.
4. The musicians delivered a rousing performance _____ (though, as, once) they had rehearsed often.
5. She's honest _____ (if, so, when) everyone trusts her.

6. Write this down _____ (or, when, lest) you will forget.

Note: Do all the questions and answers on your respective classwork notebook.



DOON INTERNATIONAL SCHOOL, SRINAGAR

SUBJECT: S.ST

Assignment: II

Grade: VIII

Chapter: EXPANSION OF BRITISH POWER.

Instructions:

- The objective of this assignment is to make the students acquainted with;
 1. Battle of Plassey (1757).
 2. Battle of Buxar (1764).
 3. Subsidiary Alliances.
 4. Expansion under LORD DALHOUSIE (1848-1856).
 5. Army.
 6. Judiciary.

TIMELINE

Colonel Alexander Dow's translation of Farishta's history of Hindustan is published. It is the first English work done on Indian History.

1768

→ Maharaja Sawai Pratap Singh Completes the construction Of the Hawa Mahal in Jaipur. It enables women of the court to watch street processions.

1799

↓ Maharaja Ranjit Singh repairs The Harmandir Sahib Gurudwara. He also donates five Lakh rupees for gold plating.

1802

→ The Baaradari at Kaiser bagh In Lucknow is constructed for the presentation of an Opera Nawab Wajid Ali Shah plays the lead role in the Opera.

1853

Important information

- The Industrial Revolution begins in England in the mid-eighteenth century. There are sporadic cases of protests against industrialization, such as the one by the Luddites Popularly known as the 'machine-breakers'. The Luddites broke into factories at night and damaged the textile machines because these were putting people out of work. The movement was over by 1816.
- The Declaration of American independence is signed in 1776. The 13 colonies of north America become independent.
- There is a revolution in France in 1789. Monarchy is abolished and France becomes a republic.

Many trading companies from Portugal, Holland, England, France and Denmark began to set up their base in India. They established their trading centers in different parts of the country, Especially in the coastal areas. These centers were called 'factories', not because anything was manufactured there but because officials of the companies were called 'factors'. These factors consisted of offices and godowns. Most of them also had the houses of the officials and residential quarters for the merchants and traders who came for trade. Over time, some factors were fortified.

Battle of Plassey (1757)

On 23rd June 1757, the armies of Siraj-ud-Daulah and the English East India Company meet at Plassey (Palasi). The British forces were led by Robert Clive. Mir Jafar, the Commander-in- chief of the Nawab and a large section of the Nawabs army loyal to Mir Jafar didn't take part in the battle. Jagat Seth, the richest banker of Bengal, also refused to help the Nawab. Siraj-ud-Daulah was defeated, imprisoned and later killed. The British made Mir Jafar the Nawab of Bengal.

The battle of Plassey is an important landmark in the history of India. It marked the first step in the transformation of a small trading company into a supreme political power. The British got a foothold from where they were to eventually conquer the whole of India.

Battle of Buxar (1764)

The British defeated Mir Qasim in a series of battles. Mir Qasim fled to Awadh. He formed an alliance with Shuja-ud-Daulah, the Nawab of Awadh and Shah Alam II the Mughal Emperor. The combined armies met the British forces at Buxar on 22nd October 1764. The Indian army was defeated. A treaty was signed and Shah Alam II granted the company the 'DIWANI' of Bengal, Bihar and Orissa (now Odisha). Shuja-ud-Daulah was made to pay 50 lakh rupees as war damages. Mir Qasim was deposed. Mir Jafar was made the Nawab once again. The battle of Buxar was a decisive battle in Indian history. The weakness of the Indian armies was thoroughly exposed. The Nawabs of Awadh and Bengal, and the Mughal Emperor now became dependent on the English east India Company. Total financial control over the rich eastern provinces gave the British enormous resources for the next round of expansion.

Subsidiary Alliances

The system of forming Subsidiary Alliances was a very clever move by the British to take advantage of the rivalries among the Indian rulers. They asked the rulers to accept the paramountcy of the British and sign a Subsidiary Treaty with them. In return, the British promised to protect the ruler from internal rebellions and from attacks by his rivals. The Indian ruler who signed the Subsidiary treaty had to agree to the following conditions:

- He would not keep an army of his own.
- He would keep a British army (a subsidiary force), which was supposedly for his protection, and pay for its maintenance. The ruler could also cede part of his territory to the British insisted of maintaining the British army.

Expansion under LORD DALHOUSIE (1848-1856)

After taking over as Governor-General in 1848, Lord Dalhousie began the final stage of annexations. He devised a Policy called the doctrine of lapse. According to it, when the ruler of a kingdom under British protection (Subsidiary state) died without a natural heir, his territory would not automatically pass to an adopted heir, but would 'lapse', that is, become part of the British domination, unless the adoption had been earlier approved by the British. Dalhousie annexed Satara, Nagpur, Jhansi and many other kingdoms under the Doctrine of Lapse.

ARMY

The British needed a large army to:

- Conquer more territories,
- Protect British territories from their rivals,
- Protect the trading interests of the company, and
- Suppress internal revolts against the British.

The army comprised Indian soldiers, who were called '**sepoys**'. It is the anglicized version of the Hindi word '**sipah**'. A large no. of them were originally farmers. They were keen to join the company's army as it was a very prestigious occupation. Most sepoys were recruited from areas at present included in Uttar Pradesh, Bihar and Jharkhand. British officers commanded the sepoys. The British army was a well-trained and disciplined force. The sepoys were armed with **muskets**. They were also paid a regular salary.

Judiciary

Before the coming of the British, the Indians followed laws based on local customs and traditions. For some time, the British didn't interfere with the existing system. They decided that British laws would apply only to the Europeans. However, the existence of two sets of laws created confusion. The Bengal regulation of 1793 stated that justice should be based on written laws and regulations instead of age-old customs and traditions. So, sum of the Indian traditions was written down in the form of laws and regulations. This made laws uniform and easier to enforce. Warren Hastings and Lord Cornwallis gave a proper shape to the judicial set-up.

Write down the answer of these questions on your fair notebook:

Q1: Why was there intense rivalry among the trading companies of different Europeans?

Q2: What were the issues of conflict between the Nawabs of Bengal and the English East India Company?

Q3: What is the Subsidiary Alliance system?

Q4: How did Lord Dalhousie expand the British Territories in India?

Q5: How did the British deal with dispensing justice in India?

Q6: What were factories? Why were they called so?

Q7: What did the British stand to gain through the system of Subsidiary Alliance?

Q8: Discuss the Growth of British influence with special Reference to Mysore.

Q9: Why did the British need a large army? Describe the British army.

دون انٹرنیشنل اسکول ، سرینگر

☆ جماعت: ہشتم

☆ سبق: گُل عباس

☆ مفوضہ کام: حصہ دوم

مرکزی خیال:

اس سبق کا مرکزی خیال یہ ہے کہ گُل عباس اپنے وجود سے ایک دکھیاری بچی کو کم سے کم تھوڑی دیر کی خوشی تو دیتا ہے۔ اُس کے گورے گورے گالوں پر سرخی کی جھلک لانے مددگار ثابت ہوتا ہے۔

سوالات:-

س ۱: گُل عباس کا گھر کیسا تھا؟

ج: گُل عباس کا گھر چھوٹے سے کالے کالے بیچ میں تھا۔ اس کی دیواریں مضبوط تھیں۔

س ۲: گُل عباس کا نیا گھر کیسا تھا؟

ج: گُل عباس کا نیا گھر کھلے آسمان کے نیچے زمین پر ایک خوبصورت باغ میں تھا۔

س ۳: گُل عباس نے بیچ کی دیوار کس طرح توڑ دی؟

ج: گُل عباس کو ایک میٹھی آواز آتی تھی کہ چلو روشنی کی طرف چلو جس کی وجہ سے اس میں جوش پیدا ہوتا تھا اور پھر ایک دن

ہمت کر کے اس نے اللہ کا نام لیکر زور لگایا تو اس نے بیچ کی دیوار توڑ دی۔

نوٹ:- سوال نمبر ۴ ، ۵ ، ۶ ، ۷ ، ۸ خود کریں۔



DOON INTERNATIONAL SCHOOL, SRINAGAR

SUBJECT: MATH

Assignment:II

Grade:VIII

Chapter: Squares and Square Root

Instructions:

- The objective of this assignment is to make the students acquainted with;
 - Meaning of squares of numbers.
 - Meaning of square root of the number.
 - Whether the square root of a negative number exists in real numbers or not.
 - Students are able to solve the questions related to square root of the numbers.

Some definitions:

Exponent: - When an integer is multiplied by itself several times, it can be written in a short form as under:

$$5 \times 5 \times 5 \times 5 = 5^4$$

This short form (5^4) is called exponential form or power form. It is read as five raised to power four or fourth power of five. In 5^4 5 is called base and 4 is called exponent or index or power. Exponential form is also called power form or power notation.

The base can also be a negative number or a rational number. Power can also be a negative number or zero as well. For example:

$$-2^3, (2/3)^2, 5^{-3}, 4^0 \text{ etc...}$$

Squares:

If a number is multiplied by itself, the product so obtained is called the square of that number. For example:

$$3 \times 3 = 9, \text{ here } 9 \text{ is the square of } 3.$$

The square of an even number is even and the square of an odd number is odd.

Methods to find the square of a number:

There are two methods to find the square of a number. They are:

i) **Column method.**

Column method is used to find the square of only two digit numbers. So we will find the square of XY by this method.

First make a table of three rows and three columns with column heads X^2 , $2.X.Y$ and Y^2 . Let's take the value $x = 2$ and $y = 6$, it means we are going to find the square of 26 by column method.

In the below boxes write the calculated value from the upper boxes.

X^2	$2.x.y$	Y^2
$2^2 = 4$	$2.2.6 = 24$	$6^2 = 36$
$4 + 2 = \underline{6}$	$24 + 3 = \underline{27}$	

In the Second row 6 being at unit place, so underline it. Now in third row we write 4 as it is and add the digit at tens place of the second row and second column which is 2 so $(4+2=6)$ and underline it. Similarly we write 24 as it is and add digit at ten's place of the number from second row and third column which is 3 so $(24+3=27)$. Now underline the digit at unit place which is 2.

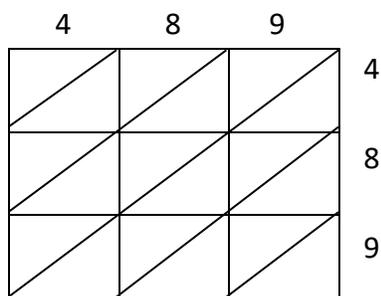
Now combine the underline digits together which gives the square of the number 26.

i.e. $(26)^2 = 676$

ii) **Diagonal method.**

Make the table with equal number of rows and columns both equals to the number of digits of a number whose square we have to find. If a number is 234, then the table has three rows and three columns.

Now write the digits 4, 8 and 9 above the top most row and outside the right most column. Draw the diagonals of all sub-squares.



Square root:

Square root of the given number is that number which when multiplied by itself gives the same given number. For example;

$$16 = 4 \times 4 \quad \text{therefore 4 is the square root of 16.}$$

$$81 = 9 \times 9 \quad \text{therefore 9 is the square root of 81 etc.}$$

Square root is symbolically written as ($\sqrt{\quad}$). The value of square root is $\frac{1}{2}$ in power notation.

It means $\sqrt{13}$ can be written as $(13)^{\frac{1}{2}}$

Square root of the number can be determined by prime factorization and by long division method. In this method we find the prime factors of given number. Then after pairing we determine the square root of the given number.

Finding square root by long division method:

Long division method is another method to find the square root of a number. Following are the steps to be done.

- i) Do the pairing of the digits of the number starting from unit place.
- ii) Take the first group and look for product of same numbers which must be either equal or less than the number in first group and do the subtraction.
- iii) Get the divisor for second division by doubling the quotient in first division and look for the same digit which must be written with new divisor so that the product of new divisor and this same digit would come either equal or less than the new dividend and perform the subtraction. Note that new suitable digit is written at both i.e. with new divisor and with quotient.
- iv) Continue the process till you get zero in its remainder if the given number is perfect square.
- v) If it is decimal number make pairing first of integral part and then decimal part.
- vi) First do the same type division for integral part and then do it for decimal part. As the division for integral part is over, take a point to quotient and perform as usual.

Note: The number of pairs in the number whose square root are to be required gives the number of digits in its square root.

Q1. Find the square root of 196 by prime factorization method:

Sol. Here we have 196

2	196
2	98
7	49
	7

Therefore $196 = \underline{2 \times 2} \times \underline{7 \times 7}$

Now $\sqrt{196} = \sqrt{2 \times 2 \times 7 \times 7}$

$$\sqrt{196} = \sqrt{14 \times 14} = 14$$

Hence square root of 196 = 14

For example find the square root of 729 by long division method.

Sol.

2	7,29 4	27
47	3 29 329	
	0	

Therefore square root of 729 = 27

$$\text{i.e. } \sqrt{729} = 27$$

Q2. Find the square root of 490000 by prime factorization.

Sol.

2	490000
2	245000
2	122500
2	61250
5	30625
5	6125
5	1225
5	245
7	49
	7

Therefore $\sqrt{(490000)} = \sqrt{(2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 5 \times 7 \times 7)}$

Now $\sqrt{(490000)} = \sqrt{2 \times 2 \times 5 \times 5 \times 7}$

$$\sqrt{(490000)} = 700$$

Hence square root of 490000 = 700

C. 25/64

Sol. 25/64

$$= (25/64)^{1/2}$$

$$= (5 \times 5/8 \times 8)^{1/2}$$

$$= \{(5/8)^2\}^{1/2}$$

$$= 5/8$$

Hence square root of 25/64 is 5/8

Q3. Find the number of numbers between the 9^2 and 10^2 .

Sol. The number of numbers between 9^2 and 10^2 are $2 \times 9 = 18$.

As we know if x be positive integer, then there are $2x$ numbers between x^2 and $(x+1)^2$
i.e. these are the numbers existing between two consecutive square numbers.

Q4. Find the square numbers that we will get if we add the 4th and 5th terms of triangular numbers.

Sol. 4th and 5th terms of a triangular numbers are 10 and 15. (see page 36)

Therefore sum of these numbers = $10 + 15$

$$= 25$$

Now 25 is a square number as it can be written as 5×5

Q5. Form the Pythagorean triplet using given number 7.

Sol. Let $n = 7$

Therefore second number of Pythagorean triplet = $(n^2 + 1)$

$$= (7^2 + 1)$$

$$= (49 + 1) = 50$$

And third number of Pythagorean triplet = $(n^2 - 1)$

$$= (7^2 - 1)$$

$$= (49 - 1) = 48$$

Now the Pythagorean triplet formed is (7, 48 and 50)

Q6. Find the smallest possible perfect square number which is exactly divisible by 3, 4, 12 and 15.

Sol.

We find the LCM of 3, 4, 12 and 15

2	3	4	12	15
2	3	2	6	15
3	3	1	3	15
5	1	1	1	5
	1	1	1	1

Here LCM = $2 \times 2 \times 3 \times 5 = 60$

Here on pairing 3 and 5 remains unpaired, so to get a smallest possible square number we have to multiple the 60 by 3 and 5 in order to get all pairs. Hence the required number is $60 \times 3 \times 5 = 900$

Q7. Find out the square root of 148. 84.

Sol.

1	<u>148.84</u>	12.2
	<u>1</u>	
22	048 44	
242	484 484	
	0	

Therefore square root of 148.84 is 12.2

$$\text{i.e. } \sqrt{148.84} = 12.2$$

Note: Students are directed to do the remaining questions of the exercises on fair note book

Assignment questions to be done on fair note book:

Q1. Express 100 as the sum of 10 positive odd numbers.

Q2. How many natural numbers lie between squares of 28 and 29?

Q3. Find the least number which must be added to 1220 so that the sum obtained is a perfect square. Also find the square root of the number so obtained.

Q4. There were 257 students in a class. They were asked to sit in rows. If the number of students in each row is equal to the number of rows, find the minimum number of students who could be left standing.

Q5. Estimate the value of $\sqrt{458}$ to the nearest whole number.

Q6. Write the Pythagorean triplet whose one number is 14.