|  |
| --- |
|  |

|  |
| --- |
| **Assignment #1** |
| **Submitted To:** |
|  |
|  |
|  |
| **Name: Tayyaba Arbab** |
| **VU id:** |
|  |

**Q #1: What is functional group?**

An atom or a group of atoms or a double bond or a triple bond whose presence imparts specific properties to organic compounds is called functional group because they are the chemically functional parts of molecules.

**Example**

**CH3─OH**

**Q #2: Make a list of functional group in organic chemistry?**

Following are functional group in organic chemistry:

1. **Aldehydes**

O

║

C ─ H

1. **Ketones** O

**║**

**C ─ C ─ C**

1. **Carboxylic Acid**

O

║

C ─ OH

1. **Ester**

O

║

C ─ O ─ C

1. **Amine** R

│

C─N

│

R

1. **Nitrile**

─ C ≡N

**­­**

**Q #3: Write a general formula for each of functional group with brief description (1 to 2 lines)?**

Following are the general formula and description of each functional group:

**Alkyl halides:**

**General Formula:**

R─X

**Description:**

* Contain C ─ halogen bond ─ F, Cl, Br, or I.
* X represents the halogen atom.

**Alcohols:**

**General Formula:**

R─OH

**Description:**

* Alcohols form hydrogen bonds. Amphoteric in nature
* Higher molecular weight leads to high melting and boiling points.

**Aldehyde:**

**General Formula:**

R─CHO

**Description:**

* In aldehyde , the carbonyl group is bonded to at least one hydrogen atom and occurs at the end of chain.
* Aldehydes are present in many naturally occurring compounds.
* Aldehyde group is present in most sugars.

**Ether:**

**General Formula:**

R─O─R

**Description:**

* Ether are a class of organic compounds characterized by an oxygen atom.
* Connected two alkyl group.
* Mixed or unsymmetrical ethers which contain different alkyl or phenyl groups.

**Carboxylic acid:**

**General Formula:**

R─COOH

**Description:**

* Carboxylic acid are further classified as mono, di , tri or poly carboxlic acid.
* They contain one, two, three or many carboxlic group respectively in their molecules.

**Amine:**

**General Formula:**

R─NH2

**Description:**

* Amines contain basic hydrogen atom with a lone pair of electron.

**Ketones:**

**General Formula:**

R─CO─R

**Description:**

* In ketones, the carbonyl group is bounded to two carbon atom it occurs with in chain .

The end