

## 2.2 QUARTZ GROUP OF MINERALS

### QUARTZ

- ✓ Quartz is an important rock forming mineral. It is found in all types of rocks.
- ✓ Chemically, it is  $\text{SiO}_2$ .

#### Varieties of quartz

1. **Polymorphs:**  $\alpha$  and  $\beta$  Quartz

2. **Right handed and left handed quartz:**

If such faces are found to occur on the right upper edge of the prism, then it is called right handed quartz and if they are located on the left side upper edge, then left handed quartz.

3. **Crypto crystalline varieties:**

When crystallisation is incomplete, then quartz is turned as crypto crystalline varieties of silica. They are

- i. **Chalcedony** : translucent, waxy lustre, massive
- ii. **Agate** : banded, opaque, massive
- iii. **Onyx** : banded agate with different colours alternating evenly.
- iv. **Flint** : dull, opaque variety of chalcedony with conchoidal fracture.
- v. **Jasper** : amorphous variety of silica, dull red or yellow.

4. **Coloured varieties:**

Quartz becomes coloured, when impurities are present. A few common varieties are:

- i. **Amethyst** : purple or violet in colour.
- ii. **Rose quartz** : Rose colour, due to the presence of titanium.
- iii. **Milky quartz** : milky white in colour
- iv. **Smoky quartz** : brown or black in colour.

**Physical Properties of Quartz group of minerals**

Sl.No	Mineral property	Quartz
1.	Crystal system	Hexagonal (Rhombohedral)
2.	Colour	Colourless and various shades of colour
3.	Streak	White
4.	Luster	Vitreous to subvitreous
5.	Hardness	7
6.	Specific gravity	2.65
7.	Cleavage	Absent
8.	Fracture	Conchoidal
9.	Optical properties	Optically positive
10.	Chemical composition	SiO <sub>2</sub>
11.	Form / structure	Crystalline, massive
12.	Special properties	a) Piezoelectric and pyroelectric b) Used as abrasive c) Amethyst a variety used as semiprecious, gemstone