DSPMU UNIVERSITY, RANCHI.
DEPARTMENT OF GEOLOGY

B.Sc. SEMESTER-II [SUBSIDIARY] **DATE-20/05/2020**
PAPER -GENERAL ELECTIVE-II

BOWEN'S REACTION SERIES

Bowen's Reaction Series is the work of petrologist **Norman L. Bowen**. He determined that specific minerals are formed at specific temperature as a magma is cooled. According to this series, with the lowering of temperature, an early formed crystal reacts with the melt and forms a new mineral. Each mineral is suppose to react with the magmatic liquid so as to produce the mineral placed beneath it (See Figure-1).

The series consists of two branches :

1. Discontinuous Series : In this series, an early formed minerals react discontinuously with the melt to form new minerals with different structures and chemistries. The discontinuous branch describes the formation of the mafic minerals olivine, pyroxene, amphibole, and biotite mica.

2. Continuous Series : In this series, an early formed minerals react continuously with the melt to form new minerals with the same structure, but different chemistries. It describes the evolution of plagioclase feldspars (as they evolve from being Ca-rich to more Na-rich minerals-Anorthite, Bytownite, Labradorite, Andesine, Oligoclase, Albite respectively).

At lower temperatures, the two branches converge, interlocked and finally merged into a single discontinuous series of which quartz is the final product formed after potassium feldspar and muscovite respectively.

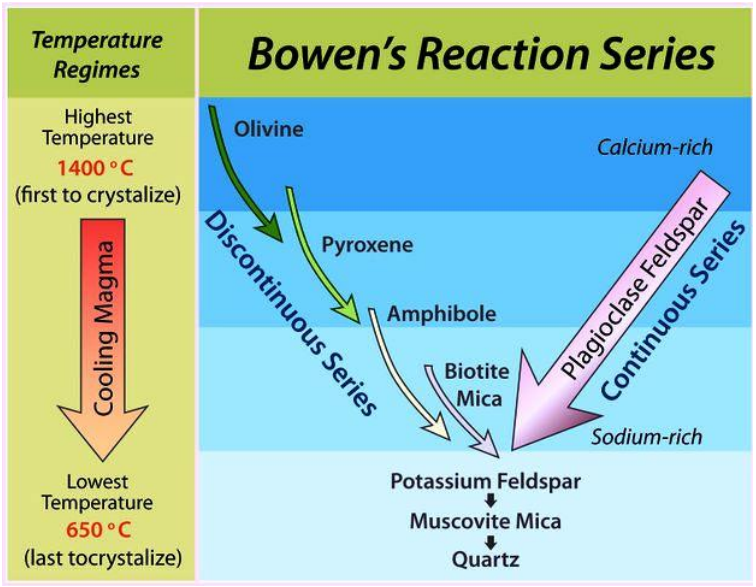

Figure-1