

**IX. Joints****A. Character and importance of joints****B. Features of joints***Orientation and organization**Features of joint surfaces: Plumose structure**Joint-filling materials: veins***C. Typical occurrence and origin of joints***Primary joints in igneous rocks`**Joints around Intrusions**Joints associated with erosion, exhumation**Joints related to faults**Joints related to regional folding***X. Faults****A. Introduction:**

1. Significance and importance of faults
2. Faults, fault zones, shear zones

**B. Outcrop features of faults****1. Slickenlines***Striations**Mineral fibres***2. Fault rocks***Breccia, Cataclasite and Gouge**Pseudotachylite***3. Deformation of the wall rocks: Damage zone***Riedel fractures**Folds associated with faults***C. Map-scale features****1. Geometry***Strike, dip, footwall, hangingwall**Curved faults - listric, ramp, flat**Separation of layers***2. Slip***Separation vs. slip**Net slip**Dip slip**Strike slip**Oblique slip***D. Fault regimes****1. Rift zones and Normal faults**

- a) Occurrence of rift zones
- b) Features of single normal faults
- c) Arrays of normal faults: Horsts and graben

**2. Reverse faults, thrust and fold belts**

- a) Foreland fold-thrust belts: occurrence
- b) Features of single thrust faults
  - Ramps and flats*
  - Frontal, lateral and oblique ramps*
  - Folds associated with thrusts*
- c) Arrays of thrust faults
  - Imbricate fans and duplexes*
  - Triangle zones and tectonic wedges*
  - Rules for thrust propagation, and exceptions*
  - Cross-section balancing*

**3. Strike-slip faults**

- a) Strike-slip, transpression and transtension
- b) Features of strike-slip faults
- c) Transtensional zones
- d) Transpressional zones