

B.Sc. Geology - II Year
Semester – IV
Paper – IV- Structural Geology and Economic Geology
(4 hrs/week) (DSC-4) Credits-4 (60 hours)

Unit-I:

Definition of structural geology. aim and objectives of the structural geology; importance of study of structures, primary and secondary structures; outcrop, attitude of beds; strike, dip and apparent dip, use of clinometer. primary structures; folds – description, nomenclature of folds, recognition of folds in the field; joints – geometrical and genetic classification of joints

Unit-II:

Faults – geometrical and genetic classification of faults, recognition of faults in the field, effects of faults on the outcrops. unconformities – definition of unconformity – types of unconformities, recognition of unconformities in the field and distinguishing the faults from the unconformities. definitions of overlap, of flap, outlier, cleavage, schistosity, foliation and lineation.

Unit-III:

Definition of economic geology. mineral resources and mineral deposits. importance of economic minerals and rocks. ore minerals, gangue minerals (gangue), industrial minerals. tenor and grade; syngenetic deposits, epigenetic deposits. classification of mineral deposits – bateman's classification modified by jensen. processes of formation of mineral deposits; endogenetic and exogenetic processes.

Unit-IV:

Study of ore deposits of gold, copper, lead, zinc, aluminum, iron, manganese, chromium, uranium and thorium, with respect to their mineralogy, mode of occurrence, origin, distribution in india and uses; distribution of industrial minerals in india for the following industries; abrasives, cement, ceramic, glass, fertilizers & chemicals, insulators)

Fossil fuels: Coal- origin and types of coal – coal deposits of India.

Oil and Natural Gas: Origin, migration and entrapment – and distribution in India, use of micropaleontology in oil exploration. Atomic Minerals: uranite, pitchblende. beach sands: monazite, ilmenite, rutile and zircon. mineral resources of Telangana

B.Sc. Geology - II Year
Semester – IV
Paper – IV-Structural Geology and Economic Geology Practicals
(3 hrs/week) (DSC-4) 45 hours (credits-1)

1. Study of topographical maps.
2. Interpretation of simple geological maps with horizontal and inclined beds, unconformity, folds and faults with reference to the topography and structure, geological succession and history. Section drawing (at least 8 maps)
3. Problems dealing with true dip and apparent dip.
4. Bore-hole data thickness and width of the outcrop and dip of the beds (At least 8 problems).
5. Megascopic study, mode of occurrence, distribution in India and uses of the following economic minerals, haematite, magnetite, pyrite, pyrolusite, psilomelane, chalcopryrite, malachite, Azurite, Bauxite, chromite, galena, sphalerite, magnesite, gypsum, asbestos, graphite, zircon, fluorite, barytes, corundum, , calcite, kyanite, sillimanite, garnet and mica.

Text books:

1. Structural Geology - Marland. P.Billings.
2. Economic Mineral Deposits Bateman, A.M. and Jensen, M.L. (1990). John Wiley
3. Indian Mineral Resources – S. Krishna Swamy

Reference books:

1. An outline of structural Geology - E.S..Hills.
2. The Geology of Ore deposits. 1. Guilbert, J.M. and Park Jr., C.F. (1986) Freeman & Co.
3. Ore Geology and Industrial minerals . Evans, A.M. (1993). John Wiley
4. Ore deposits of India their distribution and processing Gokhale, K.V.G.K. and Rao, T.C. (1978), Tata-McGraw Hill, New Delhi.
5. Industrial minerals and rocks of India. Deb, S. (1980). Allied Publishers.

Practical Model Paper

**B.Sc. (CBCS) - II Year Practical Examination
GEOLOGY
Semester-IV : Paper IV
(Structural Geology and Economic Geology)
(DSC-4)**

Credits : 1

Max.Marks:25

Time: 2 Hours

- 1) Identify the given economic minerals 1-4 and write their physical properties, chemical composition, origin, occurrence, distribution in India and uses. (4x2=8 M)
- 2) Identify the given economic minerals 5-6 and write their diagnostic properties. (2x2=4 M)
- 3) From the given geological map draw a profile along x-y section and describe the topography and geology of the area. (5 M)
- 4) Solve the given geological problem. (4 M)
- 5) Record & Viva (4 M)


