

SYALLABUS
B.Sc.II
GEOLOGY
SEMESTER-IV

Paper-I

(Sedimentary Petrology and Metamorphic Petrology)

Unit –I Definition –Sedimentology and Sedimentary petrology. Processes involved in the formation of sedimentary rocks : Weathering, transportation, deposition , consolidation , lithification and diagenesis. Sedimentary textures, structures and mineralogy of sedimentary rocks. Concept of sedimentary facies.

Unit-II Classification of sedimentary rocks : Residual, clastic, chemical and organic sedimentary deposits.

Unit-III Definition of metamorphism. Agents,kinds and products of metamorphism. Structures, textures and classification of metamorphic rocks.

Unit-IV Basic concepts about grade, zones and facies of metamorphism. Metamorphism of pelitic, acidic, basic and calcareous rocks.

Metasomatism- Definition, metasomatic processes, granitisation and migmatitisation with suitable Indian examples.

Books Recommended :

- 1) *G.W.Tyrell* (1998) Principles of Petrology B.I. Publications Pvt. Ltd., New Delhi.
- 2) S.R. Naylor, R.W.O.B. Knox, G.A. Chinner (1978) Petrology for students. Cambridge University Press, London.
- 3) E.G. Ehlers and H.Blatt (1981) Petrology : Igneous, Sedimentary and Metamorphic. CBS Publishers, New Delhi.
- 4) F.J. Pettijohn (1957)Sedimentary Rocks. Oxford and IBH Pub. Co.,New Delhi.
- 5) M.E. Tucker(1988) Sedimentary Petrology: An Introduction. ELBS.
- 6) N.W. Gokhale (1998)Fundamentals of Sedimentary Rocks. CBS Publishers.
- 7) J.D. Collinson and D.B. THOMPSON (1994) Sedimentary Structures.CBS Pub.
- 8) B.W.D. Yardley (1989) An Introduction to Metamorphic Petrology. Longman ELBS.
- 9) F.J.Turner (1980) Metamorphic Petrology. McGraw Hill, New York.
- 10) W.W. Moorhouse (1985)The study of Rocks in Thin Sections. CBS Publishers.
- 11) H.Williams,F.J.Turner and C.M.Gilbert (1985)Petrography : An Introduction to the Study of Rocks in Thin Sections. CBS Publishers.

SEMESTER IV
Paper-II
(Indian Stratigraphy)

Unit-I

Geological time Scale. Methods of Collecting stratigraphic data. Principles of Stratigraphy. Stratigraphic Classification: Lithostratigraphic, Chronostratigraphic and biostratigraphic Units, Stratigraphic Correlation. Physical and structural subdivisions of Indian subcontinent and their characteristics. Classification, Geographic distribution, lithological characteristics and economic importance of Dharwar Supergroup of Peninsular India and associated granitic rocks.

Unit II

Classification, geographic distribution, lithological Characteristic, and economic importance of the following :-

Sausar Group, Sakoli Group, Dongargarh Supergroup, Aravalli Supergroup and associated gneissic rocks, Iron Ore Group. Cuddapah Supergroup of Cuddapah basin, Kaladgis, Pakhals, Penganga Formation, Delhi Supergroup, Shimla Formation. Vindhyan Supergroup of Vindhyan basin, Kurnool Supergroup, Chattisgarh Supergroup.

Unit III

Classification, geographic distribution, lithological characteristics, fossil content and economic importance of the following:

Palaeozoic succession of Spiti valley, Gondwana Supergroup. Triassic of Spiti. Jurassic of Kutch, Rajasthan and Spiti.

Unit IV:

Classification, geographic distribution, lithological characteristics, fossil content and economic importance of the following.

Cretaceous of Narmada valley, Trichinopoly, Spiti and Lameta Formation. Deccan traps. Tertiary of Assam and coastal areas of India. Siwalik Group. Karewa Formation of Kashmir. Stratigraphy of Maharashtra

Books Recommended:

Indian Stratigraphy:

- 1) Ravindra kumar (1985) Fundamentals of Historical Geology and Stratigraphy of India. Wiley Eastern Ltd., New Delhi.
- 2) M.S. Krishnan (1982) Geology of India and Burma CBS Publishers.
- 3) D.N. Wadia (1998) Geology of India. Tata McGraw Hill, India.
- 4) G.G. Deshpande (1998) Geology of Maharashtra. Geological Society of India, Bangalore.

- 5) Ramkrishnan and Vaidhyadnan: Geology of India, Volume I and II, Geological Society of India, Bangalore

PRACTICALS

PETROLOGY:

Microscopic study of the following rock types:

Igneous Rocks:

Granite, Granodiorite, Diorite, Anorthosite, Lamprophyre, Porphyries, Gabbro, Norite, Dolerite, Diabase, Peridotite, Dunite, Pyroxenite, Obsidian, Pitchstone, Pumice, Trachyte, Andesite, Phonolite, Tuff, Basalt, Rhyolite, Charnokite

Megascope and microscopic Study of the following rock type:

Sedimentary Rocks:

Conglomerate, Breccia, Grit, Arkose, Graywacke, Arenite, Sandstone, Shale, Clay, Marl, Limestone, Bauxite, laterite, Agglomerate, Tufa, Chert, Coal.

Metamorphic Rocks :

Hornfels, slate, phyllite, Schist, Gneiss, Granulite, Amphibolite, Quartzite, Marble, Khondalite, Gondite, Kodurite, Mylonite, Eclogite.

FIELD WORK:

Every Student Should attend field work for one week duration and submit field notes, geological specimens and a report. The field work shall be treated as a part of practical examination of Semester IV and is Compulsory and shall be assessed by teacher and Head of the Department. Marks are assigned on field work.