Subject Code : P8AG3

STRATIGRAPHY AND PALAEONTOLOGY

UNIT 1 Stratigraphic Principles:

Study of standard European stratigraphic scale – Principles of Stratigraphy, Geological Time Scale – methods of correlation – Homotaxis and Contemporeinity – Stratigraphic, terminology, nomenclature and classification – Lithostratigraphy, Biostratigraphy, chronostratigraphy and stratotypes – causes of imperfections of geological records.

UNIT 2 Indian Geology:

Pre Cambrian formations in India – Cuddapah and Vindhyan Super Group – Cambrian of Salt Range – Permo–Carboniferous of Salt Range – Gondwana formations – selected studies pertaining to Triassic of Spiti, Jurassic of Kutch, Cretaceous of Tiruchirapalli

UNIT 3

Deccan traps – inter and infra traps – Siwaliks – Tertiary and Quaternary formations – Age problems pertaining to Indian stratigraphy:- a) Saline series b) Deccan trap, study of the following boundary problems with reference to India:- a)Precambrian – Cambrian, b) Permian – Triassic c) Cretaceous – Tertiary.

UNIT 4 Organic evolution:

History of the concept of evolution – Preformation theory; Baer's law; Biogenetic law; Lamarckism; Darwanian principles- Natural, Sexual and artificial selections; Theory of pangenesis; Mutation theory (De Vries and Modern version); Orthogenesis; Isolation. Detailed morphology, evolution and stratigraphic importance of the following groups. Corals, Graptolites, Trilobites, Brachiopods and Ammonites. Evolution of plants through ages – Gondwana flora and their stratigraphic significance.

UNIT 5.

Brief accounts on the principal groups of vertebrates through geologic time – Devonian fishes and Mesozoic reptiles. Evolutionary histories of Horse, Elephant and Man. Micropalaeontological techniques – Sampling methods, separation of microfossils from matrix, thin sectioning. Types of microfossils – General morphology, Stratigraphic importance and ecological and palaeoecological significance of foraminifera, Ostracoda and spores and pollens. Applications of micropalaeontoligcal studies in environmental interpretation, Petroleum exploration, and marine geological studies.

TEXT BOOKS

1. Krishnan, M.S. 1956 – Geology of India and Burma, Higgin bothams.
2. Wadia, D.N. 1953 – Geology of India , Mc Millan
3. Woods, H. 1959 –Invertebrate Palaeontology, Cambridge.
4. Romer, A.S. 1960 – Vertebrate Palaeontology, Chicago press.
5. Amold, C.A. – 1947 – An introduction to palaeobotany.
6. Pascoe, E.S. – 1968 – A manual of the geology of India and Burma, Government of India, Pub.
7. Gregory, J.N and Barrot, B.H – General stratigraphy, Methuen.

8. Shrock. R.R. and Twenhofel , W.H – 1953 – Principles of invertebrate Palaeontology, Amold publication
9. Moore, R.C. Lalieker, C.D. and Fischer, A.G – 1952 – Invertebrate Fossils Mc Graw Hill.
10. Jones. D.J – 1958 – An introduction to Microfossils, Harper brothers
11. G.Bignot (1985)- Elements of Micro palaeontology Graham Trotman, 1985.
12. B.U. Hag and A. Boersma (1978) Introduction to Marine Micropalaeontology. Elsevier, Netherlands, 376 P.
13. V.J. Gupta – Indian Paleozoic Stratigraphy
14. V.J. Gupta – Indian Mesozoic Stratigraphy
15. V.J. Gupta – Indian Cenozoic Stratigraphy
16. V.J. Gupta – Indian Precambrian Stratigraphy