



UNIVERSITY OF JAMMU

NOTIFICATION
(10/June/ ADP/ 25)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Academic Council, has been pleased to authorize adoption of the revised Syllabi and Courses of Study in the subject of Geology for B.Sc. Part III of Three Year (General) Degree Course for the examination to be held in the years as under alongwith %age of change:-

Adoption of the Revised Syllabi & %age of Change in each Paper/course Nos. of B.Sc. Part-III

<u>Class</u>	<u>Part</u>	<u>for the examination to be held in the years</u>	<u>Paper</u>	<u>%age of Change</u>
B. Sc.	III	2011, 2012 & 2013	Paper- A	about 25 % change
			Paper- B	about 25 % change

The alternative question papers are required to be set as per the University regulation given as under:-

- i). If the change in the Syllabi and Courses of Study is less than 25%, no alternative Question paper will be set.
- ii). if the change is 25% and above but below 50% alternative Question Paper be set for one year.
- iii). If the change is 50% and above on whole scheme is changed, alternative Question Paper are set for two years.

Sd/-
REGISTRAR

F.Acd./XXVI/10/ 4067-96
Dated: 15-07-2010

SYLLABI AND COURSES OF STUDY IN GEOLOGY FOR B.Sc PART –III FOR EXAMINATIONS TO BE HELD IN THE YEARS 2011, 2012 and 2013.

There shall be two theory papers and one practical paper of 50 marks each. Each theory paper shall be of three hours duration and the practical paper shall be of four hours duration. 20% of the marks shall be reserved for internal assessment in each theory paper 50% in practical paper. Each theory paper will be set for 40 marks and practical paper for 25 marks. In case of regular students, internal assessment received from the colleges will be added to the marks obtained by them in the University examination and in case of private candidates, marks obtained by them in the University examination shall be increased proportionately in accordance with the Statues / Regulations.

Paper – A

Dynamics of Earth

UNIT-I

- 1.1 Seismic waves and their application in the study of interior of Earth, structure and chemical composition of various layers of the earth.
- 1.2 Geophysical parameters of earth, gravity, magnetism and heat flow.
- 1.3 Application of geophysics in understanding the dynamics of earth.
- 1.4 Detailed idea of Isostasy and its various theories.
- 1.5 Origin of main mountain chains of the world (Rockies, Andes, Urals, Alps, Himalaya).

UNIT -II

- 2.1 Continental drift and its evidences; Evidences of sea-floor spreading; concept of Polar wandering.
- 2.2 Organic and epeirogenic phases and brief description of evolution of ocean and continents.
- 2.3 Continent – Continent Collision Tectonics; Himalaya
- 2.4 Geometry and mechanism of plate motion tectonics of continental margins and continental shelves.
- 2.5 Origin and distribution of Island Arcs, Mid-oceanic ridge and trenches.

UNIT-V

- 5.1 Recognition of the folds in the field.
- 5.2 Boundin structures: Geometry and types.
- 5.3 Equal area and Stereographic projections. Plotting of structural data.
- 5.4 Relationship between Folds and Foliations.
- 5.5 Response of rocks to stress change: Elastic, Plastic and Brittle behaviour of the rocks.

Note for Paper setting:

The Question Paper will contain two questions from each unit (Total Ten Questions) and the Candidates will be required to answer one question from each unit. Total Question to be attempted will be **five** i.e. there will be an internal choice within each unit.

Books recommended:

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|---------------------|---------------------------------|
| 1. A.Home: | Principles of Physical Geology |
| 2. A.M.Pat Wardhan: | The Dynamics of Earth System |
| 3. Valdiya K.S.: | Dynamic Himalaya |
| 4. M.P.Billings: | Structural Geology |
| 5. Ghosh S.K | Structural Geology Fundamentals |

Paper – B

Environmental Geology and Applied Geology.

UNIT-I

- 1.1 Environmental Geology: Concept: Definition. Concept of ecosystem on the Earth
- 1.2 Mutual inter relationship and interaction among atmosphere, hydrosphere, lithosphere and biosphere.
- 1.3 River erosion and its control. Floods; causes and management of floods.
- 1.4 Environmental changes due to influence of nature dominated system.
- 1.5 Engineering Geology and its impact on natural environment, geological conditions and environmental condition in the location of the Dams, Reservoirs and Tunnels.

UNIT-II

- 2.1 Introduction of Remote Sensing and GIS.
- 2.2 Introduction of aerial photography and its applicability in geosciences.
- 2.3 Groundwater: definition; water table; hydrologic cycle; Piezometric surface; perched water.
- 2.4 Vertical distribution of groundwater. Hydrological properties of rocks. Permeability and porosity.
- 2.5 Aquifer: confined and unconfined; coastal aquifers.

UNIT-III

- 3.1 Fuels; Coal: definition; origin; ranks of coal: Distribution of Indian coal deposits.
- 3.2 Hydrocarbons: Source rocks, Reservoir rocks and migration of oil and natural gas.
- 3.3 Oil traps:- Structural, Stratigraphic and Combination traps.
- 3.4 On-shore and off-shore distribution of petroliferous basins of India.
- 3.5 Radioactive minerals: Measurement of radioactivity; Indian distribution.

UNIT-IV

- 4.1 Various geophysical prospecting methods.
- 4.2 Geochemical and Geobotanical prospecting methods.
- 4.3 Drilling:- types of drilling methods.
- 4.4 Geophysical logging methods, borehole logging.
- 4.5 Sampling methods and assaying.

UNIT-V