### THEOREY

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester</th>
<th>Title of the Paper</th>
<th>HPW</th>
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### PRACTICALS

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<td>Paper VII Economic Geology</td>
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<td>Discipline specific Elective - Optional I A - Environmental Geology or Optional I B - Mining Geology</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>
UNIT-I
Physical Geology:
Definition of Geology – Basic assumptions of Geology – Its relationship with other sciences
– Branches of Geology – Aim and Applications of Geology.
Earth as a Planet: Its shape, size, and density – movement and their effects. Origin and age
of Earth. Interior of the earth. Geological processes – exogenic and endogenic, Definition of
weathering – Types of weathering of rocks – physical and chemical; Definition of erosion
and denudation, agents of erosion, cycle of erosion; erosion, transportation and deposition;
Earth movements: Definition of diastrophism, epigeny and orogeny – Mountains.
Continental drift and plate tectonics.
Wind: Development of characteristic features by wind (arid cycle) erosion and deposition –

UNIT - II
Glaciers: Definition of a glacier – types of glaciers – development of typical land forms by
glacial erosion and deposition – Cirque, U-shaped valley, Hanging valley, Monadnocks.
Moraines, Drumlin, Eskers and Varves, Characteristic features of glaciated regions.
Groundwater: Storage, of ground water – porosity, permeability aquifer, water table, zone
of saturation, artesian well, spring, geysers. Development of typical land form by erosion and
deposition by groundwater (Karst topography) sinkhole, cavern, stalactites and stalagmites.
(Lake) deposits.

UNIT - III
Rivers: Erosion, Transportation and deposition of river (fluvial) cycle in different stages –
Development of typical land forms by river erosion and deposition. V-shaped valley,
Waterfall, alluvial fans, Natural levees, Meander, Ox-bow lakes, flood plains, Penplain and
Deltas. Types of rivers.
Earthquakes: Causes and kinds of earthquake waves, and mode of propagation, intensity of
earthquakes, Ritchers scale – seismograph and seismogram. Effects of earthquakes,
Volcanoes: Origin, products of Volcanoes.

UNIT-IV
Crystallography: Definition of a crystal – amorphous and crystalline states, Morphology of
Crystals – face, edge, solid angle, interfacial angle.
Forms: Simple, combination, closed, and open forms.
Symmetry: Plane, axis, centre, crystallographic axes, Parameters, indices; crystallographic
notation – parameter system of Weiss, index system of Miller.
Classification of Crystals into 7 Systems.
Morphological study of the following classes of symmetry.
I. Cubic system – Normal class - Galena type
II. Tetragonal system – Normal class - Zircon type
III. Hexagonal system – Normal class - Beryl type
IV. Trigonal system - Normal class - Calcite type
V. Orthorhombic system – Normal class - Barytes type
VI. Monoclinic system – Normal class - Gypsum type
VII. Triclinic system – Normal class - Axinite type

Practicals: (3 hrs/week) 45 hrs (Credits: 1)
1. Study of Symmetry Elements of Seven Crystal Systems – Orientation and description of crystals from different crystal systems
2. Study of important geomorphological models and charts

Text Books:
7. Elements of Mineralogy - Rutlelys.

References:
1. Basic Physical Geology by E.S.Robinson (1982).
FACULTY OF SCIENCE
B.Sc. (CBCS) - 1 Year Examination
GEOLOGY
Semester-I : Paper I
(Physical Geology and Crystallography)

Time: 2 Hours

Credits: 4
Max. Marks: 40

Section-A (Marks: 4 x 2 = 8)
Write short notes on any four of the following:

1.
2.
3.
4.
5.
6.

Note: Two short answer type questions from each unit.

Section-B (Marks: 4 x 8 = 32)
(Essay questions)

1. a) or
   b)
2. a) or
   b)
3. a) or
   b)
4. a) or
   b)

Note: Two essay questions from each unit with internal choice.

FACULTY OF SCIENCE
B.Sc. (CBCS) - 1 Year Practical Examination
GEOLOGY
Semester-I : Paper I
(Physical Geology and Crystallography)

Time: 2½ Hours

Credits: 1
Max. Marks: 25

Practical Model Paper

1) Identify the given crystal models 1-6 and write their crystal system, symmetry elements, forms and miller indices. (6x2 = 12 M)

2) Identify and add a note on the given geomorphological feature from model/chart 7-8 (2x4 = 8 M)

3) Record & Viva (5 M)

.............
UNIT – I
Mineralogy: Definition of mineral – classification of minerals into rock forming and ore minerals. Physical properties of minerals – colour, streak, play of colours, opalescence, asterism, transparency, lustre, luminescence, specific gravity, magnetic properties, Electrical properties, pyro and piezo electricity.
Chemical properties of minerals – Isomorphism, solid solution, polymorphism, allotropy, pseudomorphism, radioactivity; silicate structures.

UNIT - II
Descriptive Mineralogy: Study of physical properties, chemical properties and mode of occurrence of the following mineral groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neso silicate</td>
<td>Olivine, Garnet, Aluminum silicates</td>
</tr>
<tr>
<td>Sorosilicate</td>
<td>Epidote</td>
</tr>
<tr>
<td>Cyclosilicate</td>
<td>Beryl</td>
</tr>
</tbody>
</table>

UNIT III
Descriptive Mineralogy: Study of physical properties, chemical properties and mode of occurrence of the following mineral groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inosilicate</td>
<td>Pyroxene; Amphibole</td>
</tr>
<tr>
<td>Phyllosilicate</td>
<td>Mica, Hydrous magnesium silicate</td>
</tr>
<tr>
<td>Tectosilicate</td>
<td>Feldspars, Feldspathoids and Silica group</td>
</tr>
</tbody>
</table>

Miscellaneous: Staurolite, Tourmaline, zircon, Calcite, Corundum, Apatite.

Unit IV
Optical Mineralogy: Petrological microscope (polarizing) its mechanical and optical parts. Double Refraction, Refractive Index, Construction of Nicol Prism.
Behavior of isotropic and anisotropic minerals between crossed nicols – extinction, pleochroism, interference colours. Definition of Uniaxial and Biaxial minerals.

Practicals: (3 hrs/week) 45 hrs (Credits:1)
1. Study of physical properties and diagnostic features of the following minerals.
2. Study of optical properties of the following minerals: Quartz, Orthoclase, Microcline, Plagioclase, Augite, Hornblende, Hypersthene, Muscovite, Biotite, Garnet, Olivine, Kyanite, Sillimanite, Leucite, Calcite.
Text Books:
1. Rutley's elements of mineralogy - H.H.Reed.
3. Mineralogy for students - M.H.Batey.

References Books:
1. An introduction to rock forming minerals - Deer, Howie, and zussman.
2. Elements of mineralogy - Mason and Berry.
4. Elements of optical mineralogy; an introduction to microscopic petrography
Section-A (Marks: $4 \times 2 = 8$)
Write short notes on any four of the following:

1. 
2. 
3. 
4. 
5. 
6. 

Note: Two short answer type questions from each unit.

Section-B (Marks: $4 \times 8 = 32$)
(Essay questions)

1. a) 
   or 
   b) 
2. a) 
   or 
   b) 
3. a) 
   or 
   b) 
4. a) 
   or 
   b) 

Note: Two essay type questions from each unit with internal choice.

Practical Model Paper

1) Identify the given rock forming minerals 1-7 and write their physical properties chemical composition and crystal system.  
   (7x2=14)
2) Write the optical properties of minerals in thin sections 6-10 under the polarizing microscope and indentify them.  
   (5x2=10)
3) Record & Viva  
   ............  
   (6 M)
UNIT-I

Igneous Rocks: Classification into plutonic, hypabyssal and volcanic rocks; Forms – Lava flows, Intrusions, sills, laccolith, bysmalith, lopolith, dykes, ring dykes, cone sheets, volcanic necks, phacoliths and batholiths.
Structures – vesicular, amygdaloidal, blocky lava, ropy lava, pillow, flow, jointing and sheet structures. Plates, columnar and prismatic structures.
Reaction structures – corona, myrmekitic, orbicular, spherulitic, pelitic.

UNIT-II
Classification of Igneous rocks - CIPW and Tyrrell Tabular classification.
Descriptive Study of following rock types: Granite, Granodiorite, Syenite, Nephelinesyenite, Diorite porphyry, Pegmatite, Aplite, Gabbro, Anorthosite, peridotite, Pyroxenite, Dunite, Dolerite, Rhyolite, Obsidian, Trachyte, Andesite and Basalt.
Composition and constitution of magma – Crystallization of Magma, Uni-component, bi-component, eutectic and solid solutions.
Origin of igneous rocks – Bowen’s reaction principle, differentiation and assimilation of magma.

UNIT – III

UNIT - IV
Plutonic metamorphism, metasomatism and its types. Definition of anatexitis and palingenesis. Descriptive study of the following metamorphic rocks. Gneiss, schist, slate, phyllite, quartzite, marble, granulite, eclogite, amphibolites, migmatite – Charanockite and Khondalite.
Practicals: (3 hrs/week)  45 hrs  (Credits: 1)

1. Megascopic Examination of Igneous Rocks and Metamorphic rocks like Granite, Syenite, Diorite, Gabbro, Dolerite, Rhyolite, Basalt, Pegmatite, Schist, Gneiss, Quartzite, Marble, Charnockite and Khondalite.


Text Books:
1. The Principles of Petrology, G.W. Tyrrell.

Reference Books:
1. Petrology – Turner and Verhoogen
2. Petrology of Igneous rocks – Alok Gupta
FACULTY OF SCIENCE
B.Sc. (CBCS) - II Year Examination
GEOLOGY
Semester-III : Paper III
(Igneous and Metamorphic Petrology)

Time: 2 Hours

Section-A (Marks: 4 x 2 = 8)
Write short notes on any four of the following:
1. 
2. 
3. 
4. 
5. 
6. 

Note: Two short answer type questions from each unit.

Section-B (Marks: 4 x 8 =32)
(Essay questions)
1. a) 
   or
b) 
2. a) 
   or
b) 
3. a) 
   or
b) 
4. a) 
   or
b) 

Note: Two essay type questions from each unit with internal choice.

B.Sc. (CBCS) - II Year Practical Examination
GEOLOGY
Semester-III : Paper III
(Igneous and Metamorphic Petrology)

Time: 2½ Hours

Practical Model Paper
1) Identify the given megascopic rock samples 1-8 and write their mineralogy, texture, structure, mode of occurrence and origin.
   (8x2 = 16)
2) Identify the given thin sections of rocks under the microscope and write their essential and accessory minerals and add a note on petrogenesis.
   (2x2=4)
3) Record & Viva

............... 

(5M)
B.Sc. (CBCS) Geology - II Year  
Semester - IV : Theory Paper - IV  
Sedimentary Petrology and Structural Geology

(4 hrs/week)  

UNIT – I  

UNIT II  

UNIT-III  
Structural Geology: Definition, aim and objectives of the Structural Geology; primary and secondary structures; outcrop, attitude of beds; strike, dip and apparent dip, use of clinometer. Primary structures, Folds – description, nomenclature and types of folds, recognition of folds in the field.

UNIT - IV  
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, distinguishing the faults from the Unconformities. Definitions of overlap, offlap, outlier, foliation and lineation, cleavage and schistosity.

Practicals: (3 hrs/week)  
45 hrs  (Credits: 1)  
1. Megascopic and Microscopic examination of Sedimentary rocks like Breccia, Conglomerate, sandstone, limestone, shale,  
2. Study of Topographical maps.  
3. 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.  
4. Problems dealing with true dip and apparent dip. Calculation of strike and dip from Borehole data, thickness and width of the outcrop and dip of the beds.

Text Books:  
1. The Principles of Petrology, G.W. Tyrrell.  

References:  
2. Petrology for students - S.R.Nockolds Knox, Chinnar.  
7. Structural Geology - L.U.De Setter.  

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FACULTY OF SCIENCE
B.Sc. (CBCS) - II Year Examination
GEOLOGY
Semester-IV : Paper IV
(Sedimentary Petrology and Structural Geology)

Time: 2 Hours

Section-A (Marks: 4 x 2 = 8)
Write short notes on any four of the following:

1. 
2. 
3. 
4. 
5. 
6. 

Note: Two short answer type questions from each unit.

Section-B (Marks: 4 x 8 =32)
(Essay questions)

1. a) 
   or
b) 
2.a) 
   or
b) 
3.a) 
   or
b) 
4.a) 
   or
b)

Note: Two essay type questions from each unit with internal choice.

B.Sc. (CBCS) - II Year Practical Examination
GEOLOGY
Semester-IV : Paper IV
(Sedimentary Petrology and Structural Geology)

Time: 2½ Hours

Practical Model Paper

1) Identify the given rock samples 1-6 and write their mineralogy, texture, structure, mode of occurrence and origin. (6x2 = 12)

2) From the given geological map draw a profile along x-y section and describe the topography and geology of the area. (5)

3) Solve the given geological problem. (4)

4) Record & Viva (4)

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B.Sc. (CBCS) Geology - III Year
Semester - V : Theory Paper - V
Indian Geology and Palaeontology

(3 hrs/week)  Credits-3
(45 hours)

UNIT-I

Indian Geology: Definition of stratigraphy, principles of stratigraphy, lithostratigraphy, standard geographical time scale. Physiographic divisions of India with their stratigraphic and structural characteristics.

Brief study of type area, distribution in India; lithology, fossil content and economic importance of Dharwar system, Cuddapah system, Vindhyan system, Kurnool system and Gondwana system.

UNIT-II

Brief study of type area, distribution in India; lithology, fossil content and economic importance of the systems: Triassic of Spiti, Jurassic of Kutch, Cretaceous of Tiruchirapalli Deccan Traps and their Age, Siwaliks with vertebrate fossils.

Stratigraphic contacts boundaries between Archaean and Proterozoic and cretaceous and tertiary boundaries (K-T boundary). Geology of Telangana state.

UNIT – III

Palaeontology:

Definition of Palaeontology, conditions of fossilization, modes of preservation and uses of fossils. Phylum echinodermata and Phylum Brachiopod, Phylum Mollusca and Phylum Arthropoda, Phylum Hemichordata, Phylum Cephalopoda.

Study of the following fossils with respect to their classification, morphology and geological distribution.


Study of plant fossils glossopteris, gangamopteris, ptylyphyllum.

Practicals: (3 hrs/week) 45 hrs (Credits: 1)

1. Locating of different type areas and equivalents of systems /groups of India in the Indian political map and study of their economic importance.


3. Drawing and description of plant fossils: glossopteris, gangamopteris, ptylyphyllum.

Text Books:

1. Geology of India & Burma- M.S.Krishnan.
2. Geology of India- D.N. Wadia.
5. Outlines of Palaeontology Paperback - Henry Hurd Swinnerton (Author)
FACULTY OF SCIENCE
B.Sc. (CBCS) - III Year Examination
GEOLOGY
Semester-V : Paper V
(Indian Geology and Palaeontology)
Theory model question paper

Time: 2 Hours

Credits : 3
Max.Marks:40

Section-A (Marks: 4 x 2½= 10)
Write short notes on any four of the following:

1.  
2.  
3.  
4.  
5.  
6.  

Note: Two short answer type questions from each unit.

Section-B (Marks: 3 x 10=30)
(Essay questions)

1. a)  
   or
   b)  
2. a)  
   or
   b)  
3. a)  
   or
   b)  

Note: Two essay type questions from each unit with internal choice.

B.Sc. (CBCS) - III Year Practical Examination
GEOLOGY
Semester-V : Paper V
(Indian Geology and Palaeontology)

Time: 2½ Hours

Credits : 1
Max.Marks:25

Practical Model Paper

1) Locate the type area and equivalents of the Cuddapah System and add a note on the available economic important minerals in the given political map of India. (5 M)
2) Identify the given invertebrate fossils 1-8 and write their classification morphology and age. (5x2= 10 M)
3) Identify the given plant fossils 9-10 and write their classification, morphology and age. (2x2½=5 M)
4) Record &Viva (5 M)
B.Sc. (CBCS) Geology - III Year  
Semester - V : Theory Paper - VI  
Discipline specific Elective -Optional IA - Hydrogeology  
(3 hrs/week)  
Credits-3  
(45 hours)  

UNIT-I  
Introduction: Definition of Hydrology, Hydrogeology, Scope and application of Hydrogeology.  
Hydrological Cycle: Concept of Hydrological cycle, Evaporation, Condensation, Precipitation, Infiltration, Transpiration, Evapotranspiration. Groundwater and Runoff, Conneate water, Juvenile water, Movement of subsurface water.  

UNIT-II  
Quality of Groundwater: Physical, Chemical and Bacteriological characteristics of groundwater. Suitability of groundwater for drinking (with special reference to fluoride content).  
Pollution of Groundwater: Pollution in relation to water use urban, industrial and Agricultural sources and causes of pollution.  

UNIT-III  
Geophysical Exploration: Basic principles of Geophysical exploration methods, Electrical methods – Schlumberger and Wenner configuration, Resistivity profiling and Vertical Electrical Sounding.  
Practicals: (3 hrs/week)  
1. Methods of water analyses for physical and chemical parameters.  
2. pH Electrical conductivity and total dissolved solids estimation in water.  
3. Electrical Resistivity - Schlumberger method and VES for groundwater exploration.  

Field work: Field visit.  

Text Books:  
1. Groundwater hydrology by Todd.  
2. Hydrogeology by Davis and Dewiest.  
3. Hydrogeology by Karanth.  
5. Applied Hydrogeology by Fetter.  
FACULTY OF SCIENCE
B.Sc. (CBCS) - III Year Examination
GEOLOGY
Semester-V : Paper VI
Discipline specific Elective -Optional I A - Hydrogeology
Theory model question paper

Time: 2 Hours

Credits : 3
Max.Marks:40

Section-A (Marks: 4 x 2 ½= 10)
Write short notes on any four of the following:

1.
2.
3.
4.
5.
6.
Note: Two short answer type questions from each unit.

Section-B (Marks: 3 x 10=30)
(Essay questions)

1. a) or
   b)
2. a) or
   b)
3. a) or
   b)
Note: Two essay type questions from each unit with internal choice.

B.Sc. (CBCS) - III Year Practical Examination
GEOLOGY
Semester-V : Paper VI
Discipline specific Elective -Optional I A - Hydrogeology

Time: 2½ Hours

Credits : 1
Max.Marks:25

Practical Model Paper

1) Analyze the given water sample and estimate their chlorides, carbonates, Bi-carbonates and calcium. (5 M)
2) Find out the pH and Electrical conductivity of the given water sample. (5 M)
3) Conduct the geophysical survey in field for ground water exploration and suggest a suitable point for bore well / open well by interpreting the data. (10 M)
4) Record &Viva (5 M)
Definition and scope of mineral prospecting and exploration. Prospecting criteria and detailed geological guides: Physiographic, lithological, structural and stratigraphic guides.

UNIT – II
Geochemical prospecting – Primary and secondary dispersion, pathfinder elements. Geophysical exploration brief description and application of gravity, magnetic seismic electrical and radioactive methods.

UNIT-III
Estimation of Ore reserves – classification – Sampling: chip sampling, grab sampling, pitting, trenching and Calculation of Ore Reserves and characterisation under UNFC.

PRACTICALS : (3 hrs/week) 45 hrs (Credits: 1)
1. Sample preparation - Coning and quartering.
2. Estimation of ore reserves 1. Bedded type and vein type (included area and extended area method problems).
3. Field work: Field visit.

Text Books :
5. Introductory Mining Engineering Hardcover – Howard L. Hartman (Author).
FACULTY OF SCIENCE
B.Sc. (CBCS) - III Year Examination
GEOLOGY
Semester - V : Theory Paper - VI
Discipline specific Elective -Optional I B - Mineral Exploration
Theory model question paper

Time: 2 Hours

Section-A (Marks: 4 x 2½ = 10)
Write short notes on any four of the following:
1.
2.
3.
4.
5.
6.

Note: Two short answer type questions from each unit.

Section-B (Marks: 3 x 10 = 30)
(Essay questions)
1. a) or
   b)
2. a) or
   b)
3. a) or
   b)

Note: Two essay type questions from each unit with internal choice.

B.Sc. (CBCS) - III Year Practical Examination
GEOLOGY
Semester-V : Paper VI
Discipline specific Elective -Optional I B - Mineral Exploration

Time: 2½ Hours

Practical Model Paper

1) Sample preparation. (5 M)
2) Ore reserve estimation. (15 M)
3) Record & Viva (5 M)

Credits : 3
Max. Marks: 40

Credits : 1
Max. Marks: 25

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Unit I

UNIT-II
Study of Ore deposits of gold, copper, lead, zinc, aluminum, Iron, manganese, chromium, uranium and thorium, with respect to their mineralogy, uses, mode of occurrence, origin and distribution in India.
Distribution of Industrial Minerals in India for the following industries: Abrasives, cement, Ceramic, Glass, Fertilizers & Chemicals. Gemstones and Dimensional stones.

UNIT - III
Fossil fuels: Coal, origin and types of coal – coal deposits of India.
Oil and Natural Gas: Origin, migration and entrapment – and distribution in India.

Practicals: (3 hrs/week) 45 hrs (Credits: 1)
1. Megascopic study, mode of occurrence, distribution in India and uses of the following economic minerals, haematite, magnetite, pyrite, Pyrolusite, Psilomelane, Chalcopyrite, malachite, Azurite, Bauxite, Chromite, Galena Sphalerite, Magnesite, Gypsum, Asbestos, Steatite, Graphite, Monazite, Ilmenite, Zircon, Fluorite, Baryte, Corundum, Topaz, Calcite, Kaolinite, Kyanite, Sillimanite, Garnet, Mica.

Text Books:
1. Indian mineral resources - S.Krishna swamy.

References:
FACULTY OF SCIENCE
B.Sc. (CBCS) - III Year Examination
GEOLOGY
Semester - VI : Paper - VII
Economic Geology
Theory model question paper

Time: 2 Hours

Section-A (Marks: 4 x 2½= 10)
Write short notes on any four of the following:

1.
2.
3.
4.
5.
6.

Note: Two short answer type questions from each unit.

Section-B (Marks: 3 x 10=30)
(Essay questions)

1. a) or
b) 2.a) or
b) 3.a) or
b)

Note: Two essay type questions from each unit with internal choice.

B.Sc. (CBCS) - III Year Practical Examination
GEOLOGY
Semester-VI : Paper VII
Economic Geology

Time: 2½ Hours

Practical Model Paper

1) Identify the given economic minerals 1-8 and write their physical properties, chemical composition, origin, occurrence, distribution in India and uses. (8x2=16 M)

2) Identify the given economic minerals 9-10 and write their diagnostic properties. (2x2=4 M)

3) Record & Viva (5 M)
B.Sc. (CBCS) Geology - III Year
Semester - VI: Theory Paper - VIII
Discipline specific Elective -Optional I A - Environmental Geology

(3 hrs/week)                           Credits-3
(45 hours)

UNIT-I
Scope of Environmental Geology – Environmental Awareness – Urbanisation and its impact on environment, air, water, sound and land pollution, Global warming and green house effect, waste disposal practices, recycling. Role of Geologist in Environmental Protection and Planning.

UNIT – II
Disaster management: Natural hazards - Earth quakes, Tsunamis, Coastal erosion - protection and management, floods and landslides.
Man made hazards - Man as agent of mass wasting and land scarification.

UNIT-III
Geo technical constructions and its impact on environment - Dams, Highways.
Mining and its impact on the environment – Health Hazards associated with mining – Mine waste disposal,

PRACTICALS: (3 hrs/week)                           45 hrs (Credits: 1)
1. Study of maps of seismic zones, earthquake-prone, landslide-prone and flood-prone areas in India.
2. Methods of water analyses for physical and chemical parameters.

Text Books:-
1. Strahler- Environmental Geology
2. Lindgren- Environmental Geology
4. K.S. Valdiya, Environmental Geology
FACULTY OF SCIENCE  
B.Sc. (CBCS) - III Year Examination  
GEOLOGY  
Semester-VI : Paper VIII  
Discipline specific Elective -Optional I A - Environmental Geology  
Theory model question paper  
Credits : 3  
Max.Marks:40  
Time: 2 Hours  
Section-A (Marks: 4 x 2½= 10)  
Write short notes on any four of the following:  
1.  
2.  
3.  
4.  
5.  
6.  
Note: Two short answer type questions from each unit.  
Section-B (Marks: 3 x 10=30)  
(Essay questions)  
1. a)  
   or  
   b)  
2. a)  
   or  
   b)  
3. a)  
   or  
   b)  
Note: Two essay type questions from each unit with internal choice.  

B.Sc. (CBCS) - III Year Practical Examination  
GEOLOGY  
Semester-VI : Paper VIII  
Discipline specific Elective -Optional I A - Environmental Geology  
Credits : 1  
Max.Marks:25  
Time: 2½ Hours  
Practical Model Paper  
1) Study of maps of seismic zones, earthquake-prone, landslide-prone and flood-prone areas in India. (10 M)  
2) Analyse the given water sample and estimate their chemical parameters. (10 M)  
3) Record &Viva (5 M)
B.Sc. (CBCS) Geology - III Year
Semester - VI : Theory Paper - VIII

Discipline specific Elective - Optional I B - Mining Geology and Mineral Beneficiation
(3 hrs/week)

Credits-3
(45 hours)

UNIT-I

UNIT-II
Open Cast Mining- Glory Hole Mining and Strip Mining, open pit mining, quarrying. Underground Mining- Gophering, Breast, Stopping, Open Overhand stopping, Pillar and Chamber Method, Sub-Level Stopping method. Long wall mining.

UNIT-III

PRACTICALS : (3 hrs/week) 45 hrs (Credits: 1)
Problems related to mining: Bore hole problems, reserve estimation (vein type and bedded type).

Field training / Mine visit.

Text Books :

1. Courses in Mining Geology- Arogyaswamy
2. Principles of Mineral Dressing- Gaudin
3. Mining Policy Initiatives- Dhar, Gautam
4. Mineral Processing Technology-Wills
FACULTY OF SCIENCE
B.Sc. (CBCS) - III Year Examination
GEOLOGY
Semester - VI : Theory Paper - VIII
Discipline specific Elective - Optional I B - Mining Geology and Mineral Beneficiation
Theory model question paper
Credits : 3
Max. Marks: 40

Time: 2 Hours

Section-A (Marks: 4 x 2½ = 10)
Write short notes on any four of the following:

1.
2.
3.
4.
5.
6.

Note: Two short answer type questions from each unit.

Section-B (Marks: 3 x 10 = 30)
(Essay questions)

1. a) or
   b)
2. a) or
   b)
3. a) or
   b)

Note: Two essay type questions from each unit with internal choice.

B.Sc. (CBCS) - III Year Practical Examination
GEOLOGY
Semester-VI : Paper VIII
Discipline specific Elective - Optional I B - Mining Geology and Mineral Beneficiation

Credits : 1
Max. Marks: 25

Time: 2½ Hours

Practical Model Paper

1) Bore hole problems. (10 M)
2) Ore reserve estimation (vein type and bedded type) (10 M)
3) Record & Viva (5 M)