

**Syllabus for
Bachelor of Science in Geology (Gen/Pass)
Under Choice Based Credit System**

**Academic Session:
w.e.f. 2020-2023**



for
All Constituent/Affiliated Colleges Under
Binod Bihari Mahto Koyalanchal University,
Dhanbad

ESTD: 2017



UNIVERSITY DEPARTMENT OF GEOLOGY

BINOD BIHARI MAHTO KOYALANCHAL UNIVERSITY,
DHANBAD- 828130 (JHARKHAND)

Members of Board of Studies of CBCS Under- Graduate Syllabus as per Guidelines of the Binod Bihari Mahto Koyalanchal University, Dhanbad.

Name of Members	Signature
1. Prof. (Dr.) Uday Kumar, Retd. Head, Department of Geology, Ranchi University Ranchi	-Chairman U. Kumar 22.09.20
2. Dr. Atul Kumar Sinha, Head, University Dept. of Geology, BBMKU, Dhanbad	-Convenor A. K. Sinha 22.09.20
3. Dr. Sagar Kumar Swain, Head, Dept. of Geology, P.K.R.M. College, BBMKU, Dhanbad	-Member S. K. Swain 22.09.20
4. Mr. Santosh Kumar Singh Retd. Scientist, CIMFR, Dhanbad, Guest Faculty, University Dept. of Geology, BBMKU, Dhanbad	-Member S. K. Singh 22/09/20
5. Prof. (Dr.) Deepak Kumar Bhattacharya Retd. Dean, Faculty of Science, Ranchi University, Ranchi	-External Member D. K. Bhattacharya 22/09/2020
6. Prof. (Dr.) Atul Kumar Varma, Department of Applied Geology, IIT(ISM), Dhanbad	-External Member A. K. Varma 22.09.2020

CONTENTS

S. No.	Topic/Title	Page No.
SEMESTER I		
1.	GEO-G-DSC-101A-T Physical & Structural Geology	07
2.	GEO-G-DSC-101A-P Practical-101A-P	08
SEMESTER II		
3.	GEO-G-DSC-201A T Crystallography & Mineralogy	09
4.	GEO-G-DSC-201A-P Practical-201A-P	10
SEMESTER III		
5.	GEO-G-DSC-301A T Petrology	11
6.	GEO-G-DSC-301A-P Practical-301A-P	12
SEMESTER IV		
7.	GEO-G-DSC-401A-T Stratigraphy & Paleontology	13
8.	GEO-G-DSC-401A-P Practical-401A-P	14
SEMESTER V		
9.	GEO-G-DSC-501A-T Economic Geology & Hydrogeology	15
10.	GEO-G-DSC-501A-P Practical-501A-P	16
SEMESTER VI		
11.	GEO-G-DSC-601A-T Engineering & Mining Geology	17
12.	GEO-G-DSC-601A-P Practical-601A-P	18
13.	Question Format	19
14.	Question Format	20
15.	Question Format	21
16.	Annexure-1	22

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ESTD: 2017

COURSE STUCTURE

Semester	Course Code	Name of Paper	Full Marks	End Semester Marks	Mid Semester (Internal) Marks
I	GEO-G-DSC-101A-T (04 Credits, 60 Lectures)	Physical & Structural Geology	75	60	15
	GEO-G-DSC-101A-P (02 Credits, 30 Lectures)	Practcal-101A-P	25	20	5
	GEO-G-DSC-102B-T (04 Credits, 60 Lectures)	Choice to choose from other disciplines	75	60	15
	GEO-G-DSC-102B-P (02 Credits, 30 Lectures) Choice to choose from other disciplines		25	20	5
	GEO-G-DSC-103C-T (04 Credits, 60 Lectures)		75	60	15
	GEO-G-DSC-103C-P (02 Credits, 30 Lectures) Choice to choose from other disciplines		25	20	5
	GEO-G-AECC-101-T Language (02 Credits, 30 Lectures)	English/Hindi/NH +MB	50	40	10
II	GEO-G-DSC-201A-T (04 Credits, 60 Lectures)	Crystallography & Mineralogy	75	60	15
	GEO-G-DSC-201A-P (02 Credits, 30 Lectures)	Practcal-201A-P	25	20	5
	GEO-G-DSC-202B-T (04 Credits, 60 Lectures)	Choice to choose from other disciplines	75	60	15
	GEO-G-DSC-202B-P (02 Credits, 30 Lectures) Choice to choose from other disciplines		25	20	5
	GEO-G-DSC-203C-T (04 Credits, 60 Lectures)		75	60	15
	GEO-G-DSC-203C-P (02 Credits, 30 Lectures) Choice to choose from other disciplines		25	20	5
	GEO-G-AECC-202-T (02 Credits, 30 Lectures)	Environmental Science	50	40	10

III	GEO-G-DSC-301A-T (04 Credits, 60 Lectures)	Petrology	75	60	15
	GEO-G-DSC-301A-P (02 Credits, 30 Lectures)	Practcal-301A-P	25	20	5
	GEO-G-DSC-302B-T (04 Credits, 60 Lectures)	Choice to choose from other disciplines	75	60	15
	GEO-G-DSC-302B-P (02 Credits, 30 Lectures)		25	20	5
	GEO-G-DSC-303C-T (04 Credits, 60 Lectures)		75	60	15
	GEO-G-DSC-303C-P (02 Credits, 30 Lectures)		25	20	5
	GEO-G-SEC-301-T (02 Credits, 30 Lectures) (Annexure-1)	Annexure-1	50	40	10
IV	GEO-G-DSC-401A-T (04 Credits, 60 Lectures)	Stratigraphy & Paleontology	75	60	15
	GEO-G-DSC-401A-P (02 Credits, 30 Lectures)	Practcal-401A-P	25	20	5
	GEO-G-DSC-402B-T (04 Credits, 60 Lectures)	Choice to choose from other disciplines	75	60	15
	GEO-G-DSC-402B-P (02 Credits, 30 Lectures)		25	20	5
	GEO-G-DSC-403C-T (04 Credits, 60 Lectures)		75	60	15
	GEO-G-DSC-403C-P (02 Credits, 30 Lectures) Choice to choose from other disciplines		25	20	5
	XYZ-G-SEC-402-T (02 Credits, 30 Lectures) (Annexure-1)	Annexure-1	50	40	10
V	GEO-G-DSE-501A-T (04 Credits, 60 Lectures)	Economic Geology & Hydrogeology	75	60	15
	GEO-G-DSE-501A-P (02 Credits, 30 Lectures)	Practcal-501A-P	25	20	5
	GEO-G-DSE-502B-T		75	60	15

	(04 Credits, 60 Lectures)				
	GEO-G-DSE-502B-P (02 Credits, 30 Lectures)	Choice to choose from other disciplines	25	20	5
	GEO-G-DSE-503C-T (04 Credits, 60 Lectures)		75	60	15
	GEO-G-DSE-503C-P (02 Credits, 30 Lectures)		25	20	5
	GEO-G-SEC-503-T (02 Credits, 30 Lectures) (Annexure-1)	Annexure-1	50	40	10
VI	GEO-G-DSE-601A-T (04 Credits, 60 Lectures)	Engineering & Mining Geology	75	60	15
	GEO-G-DSE-601A-P (02 Credits, 30 Lectures)	Practical-601A-P	25	20	5
	GEO-G-DSE-602B-T (04 Credits, 60 Lectures)	Choice to choose from other disciplines	75	60	15
	GEO-G-DSE-602B-P (02 Credits, 30 Lectures)		25	20	5
	GEO-G-DSE-603C-T (04 Credits, 60 Lectures)		75	60	15
	GEO-G-DSE-603C-P (02 Credits, 30 Lectures)		25	20	5
	GEO-G-SEC-604-T (02 Credits, 30 Lectures) (Annexure-1)	Annexure-1	50	40	10
Total Marks			2100	1680	420

Note:

- For General/Pass Course: In Core Courses as DSC: select 03 papers from each of the 03 disciplines of choice for Semester I to IV and in Elective Courses as DSE: select 02 papers from each of the 03 disciplines of choice including interdisciplinary nature for Semester V to VI.
- Symbol of Paper: XYZ-H-C-101-T:** The first three symbols in Roman capital letters indicate the subject; the next symbol H or G indicate Honours or General course; the next symbol(s) denotes Core (C), Generic Elective (GE), Discipline Specific Elective (DSE), Discipline Specific Choice (DSC), AECC, SEC, etc. Out of the next three digits, the first digit indicates the semester e.g. 1,2,3,4,5,6 for semester I, II, III, IV, V, VI respectively, and the next two digits indicate paper number. The last letter T or P indicates Theory or Practical.

SEMESTER-I

GEO-G-DSC-101A-T	PHYSICAL AND STRUCTURAL GEOLOGY	(04 Credits, 60 Lectures)
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There will be two groups of questions. Five Questions to be answered out of Nine Questions. Group A is compulsory and will contain two questions. Question No.1 (A) will be MCQ of 1 mark each (six questions). Question No.1 (B) will be short answer type to be answered in about 50 words of 3 marks (2 Questions). Group B will contain descriptive type eight questions of twelve marks each, out of which any four are to answer. Each question carries 12 marks.

PHYSICAL AND STRUCTURAL GEOLOGY

Unit-I: Introduction to geology and its scope, Earth and solar system: origin, size, shape, mass, density and its atmosphere.

Unit-II: A brief account of various theories regarding the origin and age of the earth; Brief idea of interior of earth and its composition.

Unit-III: Weathering and erosion: factors, types and their effects;

Unit-IV: Earthquakes: nature of seismic waves, their intensity and magnitude scale; Origin of earthquake; Volcanoes: types, products and causes of volcanism;.

Unit-V: Introduction to Structural Geology; contours, topographic and geological maps; Elementary idea of bed, dip and strike; Outcrop, effects of various structures on outcrop. Clinometer/Brunton compass and its use.

Unit-VI: Elementary idea of types of deformation; Folds: nomenclature and types of folds;

Unit-VII: Faults: nomenclature, geometrical and genetic classifications, normal, thrust and slip faults;

Unit-VIII: definition, kinds and significance of joints and unconformity.

GEO-G-DSC-101A-P	PRACTICAL	(02 Credits, 30 Lectures)
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Instruction to Question Setter for End Semester Practical Examination (ESE): The questions in practical examination will be of equal to 20 marks and will be of 3 hours duration. Distribution of marks in practical paper of an end-semester examination will be of 60% in performance of experiment, 20% in record/note book and 20% in viva-voce.

Practical:

1. Physical Geology:

Study of important geomorphological models; Reading topographical maps of the Survey of India; Identification of geomorphic features.

2. Structural Geology:

Study of clinometers/Brunton compass; Identification of different types of folds/faults from block models; Exercises on structural problems: preparation of cross section profile from a geological map.

Books Recommended:

- Arthur Holmes, 1992. Principles of Physical Geology. Chapman and Hall, London.
- Miller, 1949. An Introduction to Physical Geology. East West Press Ltd.
- Spencer, E.V., 1962. Basic concepts of Physical Geology. Oxford & IBH.
- Mahapatra, G.B., 1994. A text book of Physical geology. CBS Publishers.
- Billings, M.P., 1972. Structural Geology. Prentice Hall.
- Davis, G.R., 1984. Structural Geology of Rocks and Region.
- John Wiley Hills, E.S., 1963. Elements of Structural Geology. Farrold and Sons, London.
- Singh, R. P., 1995. Structural Geology, A Practical Approach. Ganga Kaveri Publ., Varanasi.
- A Practical Approach. Ganga Kaveri Publ., Varanasi.

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SEMESTER-II

GEO-G-DSC-201A T	CRYSTALLOGRAPHY & MINERALOGY	(04 Credits, 60 Lectures)
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There will be two groups of questions. Five Questions to be answered out of Nine Questions. Group A is compulsory and will contain two questions. Question No.1 (A) will be MCQ of 1 mark each (six questions). Question No.1 (B) will be short answer type to be answered in about 50 words of 3 marks (2 Questions). Group B will contain descriptive type eight questions of twelve marks each, out of which any four are to answer. Each question carries 12 marks.

CRYSTALLOGRAPHY & MINERALOGY**Theory: 60 Lectures****Unit-I:** Crystals and their characters:**Unit-II:** Crystal form, face, edge, solid angle; Interfacial angle and their measurements; Crystallographic axes and angles.**Unit-III:** Crystal parameters, Weiss and Miller system of notations;**Unit-IV:** Symmetry elements and description of normal class of Isometric, Tetragonal, Hexagonal, Trigonal, Orthorhombic, Monoclinic and Triclinic systems.**Unit-V:** Introduction to Mineralogy, Definition and characters of mineral;**Unit-VI:** Common physical properties of minerals; Chemical composition and diagnostic physical properties of minerals such as: Quartz, Orthoclase, Microcline, Hypersthene, Hornblende, Garnet, Muscovite, Biotite, Chlorite, Olivine, Epidote, Calcite.**Unit-VII:** Polarizing microscope, its parts and functioning; Ordinary and polarized lights; Common optical properties observed under ordinary, polarized lights and crossed nicols.**Unit-VIII:** Optical properties of some common rock forming minerals (Quartz, Orthoclase, Microcline, Olivine, Augite, Hornblende, Muscovite, Biotite, Garnet, Calcite).

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ESTD: 2017

University Department of Geology, Binod Bihari Mahto Koyalachal University, Dhanbad

GEO-G-DSC-201A-P	PRACTICAL	(02 Credits, 30 Lectures)
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Instruction to Question Setter for End Semester Practical Examination (ESE): The questions in practical examination will be of equal to 20 marks and will be of 3 hours duration. Distribution of marks in practical paper of an end-semester examination will be of 60% in performance of experiment, 20% in record/note book and 20% in viva-voce.

Practical:

1. Crystallography:

Study of symmetry elements of normal class of Isometric, Tetragonal, Hexagonal, Trigonal, Orthorhombic, Monoclinic and Triclinic systems.

2. Mineralogy:

Study of physical properties of minerals mentioned in theory course. Use of polarizing microscope; Study of optical properties of common rock forming minerals mentioned in theory course.

3. Geological Field Training:

Students will be required to carry out 03 days field work in a suitable geological area to study the elementary aspects of field geology and submit a report thereon.

Books Recommended:

- Dana, E.S. and Ford, W.E., 2002. A textbook of Mineralogy (Reprints).
- Flint, Y., 1975. Essential of crystallography, Mir Publishers.
- Phillips, F.C., 1963. An introduction to crystallography. Wiley, New York.
- Berry, L.G., Mason, B. and Dietrich, R.V., 1982. Mineralogy. CBS Publ.
- Nesse, D.W., 1986. Optical Mineralogy. McGraw Hill.
- Read, H.H., 1968. Rutley's Element of Mineralogy (Rev. Ed.). Thomas Murby and Co.
- Berry and Mason, 1961. Mineralogy. W.H. Freeman & Co.
- Kerr, B.F., 1995. Optical Mineralogy 5th Ed. Mc Graw Hill, New York.

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ESTD: 2017

SEMESTER-III

GEO-G-DSC-301A T	PETROLOGY	(04 Credits, 60 Lectures)
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There will be two groups of questions. Five Questions to be answered out of Nine Questions. Group A is compulsory and will contain two questions. Question No.1 (A) will be MCQ of 1 mark each (six questions). Question No.1 (B) will be short answer type to be answered in about 50 words of 3 marks (2 Questions). Group B will contain descriptive type eight questions of twelve marks each, out of which any four are to answer. Each question carries 12 marks.

PETROLOGY**Theory: 60 Lectures****Igneous Petrology**

Unit-I: Magma: definition, composition, types and origin; Forms of igneous rocks; textures of igneous rocks.

Unit-II: Reaction principle; Differentiation and Assimilation; Crystallization of unicomponent and bicomponent (mix-crystals); Bowen's reaction series.

Unit-III: Mineralogical and chemical classification of igneous rocks.

Unit-IV: Detailed petrographic description of Granite, Granodiorite, Rhyolite, Syenite, Phonolite, Diorite, Gabbro.

Sedimentary Petrology

Unit-V: Processes of formation of sedimentary rocks; Classification, textures and structures of sedimentary rocks;

Unit-VI: Petrographic details of important siliciclastic and carbonate rocks such as - conglomerate, breccia, sandstone, greywacke, shale, limestones.

Metamorphic Petrology

Unit-VII: Process and products of. metamorphism; Type of metamorphism. Factors, zones and grade of metamorphism; Textures, structures and classification of metamorphic rocks.

Unit-VIII: Petrographic details of some important metamorphic rocks such as - slate, schists, gneiss, quartzite, marble.

ESTD: 2017

University Department of Geology, Binod Bihari Mahto Koyalanchal University, Dhanbad

GEO-G-DSC-301A-P	PRACTICALS	(02 Credits, 30 Lectures)
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Instruction to Question Setter for End Semester Practical Examination (ESE): The questions in practical examination will be of equal to 20 marks and will be of 3 hours duration. Distribution of marks in practical paper of an end-semester examination will be of 60% in performance of experiment, 20% in record/note book and 20% in viva-voce.

Practicals:

1. Igneous Petrology:

Identification of rocks: On the basis of their physical properties in hand specimen; and optical properties in thin sections.

2. Sedimentary and metamorphic Petrology:

Identification of sedimentary and metamorphic rocks both in hand specimen and thin sections.

Books Recommended:

- Turner, F.J. & Verhoogen, J., 1960, Igneous & Metamorphic petrology. McGraw Hill Co.
- Bose, M.K., 1997. Igneous petrology. World press
- Tyrell, G. W., 1989. Principles of Petrology. Methuren and Co (Students ed.).
- Ehlers, WG, and Blatt, H., 1987. Petrology, Igneous, Sedimentary and Metamorphic rocks, CBS Publishers
- Moorhouse, WW., 1969. The study of rocks in thin sections. Harper and sons.
- Friedman & Sanders, 1978. Principles of Sedimentology. John Wiley and sons. Pettijohn,
- F.J., 1975. Sedimentary rocks, Harper & Bros. 3rd Ed.
- Prasad, C., 1980. A text book of sedimentology.
- Sengupta. S., 1997. Introduction to sedimentology. Oxford-IBH. Turner, F.J., 1980. Metamorphic petrology. McGraw Hill.
- Mason, R., 1978. Petrology of Metamorphic Rocks. CBS Publ.
- Winkler, H.G.C., 1967. Petrogenesis of Metamorphic Rocks. Narosa Publ

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ESTD: 2017

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SEMESTER-IV

GEO-G-DSC-401A-T	STRATIGRAPHY & PALEONTOLOGY	(04 Credits, 60 Lectures)
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There will be two groups of questions. Five Questions to be answered out of Nine Questions. Group A is compulsory and will contain two questions. Question No.1 (A) will be MCQ of 1 mark each (six questions). Question No.1 (B) will be short answer type to be answered in about 50 words of 3 marks (2 Questions). Group B will contain descriptive type eight questions of twelve marks each, out of which any four are to answer. Each question carries 12 marks.

STRATIGRAPHY & PALEONTOLOGY**Theory: 60 Lectures**

Unit I: Definition, Principle of stratigraphy; Geological Time Scale and stratigraphic classification; Physiographic division of India.

Unit II: Study of following Precambrian succession: Dharwar, Singhbhum, Cuddapah, Vindhyan and Delhi Supergroups; Brief idea of Palaeozoic succession of northwestern Himalaya; Triassic of Spiti; Mesozoic type succession of Kutch; Cretaceous of Tiruchirapalli;

Unit III: Study of following type localities: Gondwana and Deccan Trap.

Unit IV: Palaeogene-Neogene sequences of northwest Himalaya and Assam.

Unit-V: Palaeontology: definition, Fossils: definition, characters, binomial nomenclature in taxonomy, mode of preservation, condition of fossilization and significance of fossils.

Unit VI: Morphology and geological distribution of brachiopods, pelecypods, cephalopods.

Unit VII: Morphology and geological distribution of trilobite, echinoidea.

Unit VIII: Evolutionary history of horse; Morphology, distribution and significance of Gondwana flora.

GEO-G-DSC-401A-P	PRACTICAL	(02 Credits, 30 Lectures)
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Instruction to Question Setter for End Semester Practical Examination (ESE): The questions in practical examination will be of equal to 20 marks and will be of 3 hours duration. Distribution of marks in practical paper of an end-semester examination will be of 60% in performance of experiment, 20% in record/note book and 20% in viva-voce.

Practicals:

1. Morphological characters, systematic position and age of fossil genera pertaining to brachiopods, pelecypods, cephalopods, trilobite and Echinacea.
2. Preparation of lithostratigraphic maps of India showing distribution of important geological formations.

Books Recommended:

- Wadia, D., 1973. Geology of India. Mc Graw Hill Book co.
- Krishnan, M.S., 1982. Geology of India and Burma, 6th Edition. CBS Publ.
- Ravindra Kumar, 1985. Fundamentals of Historical Geology & Stratigraphy of India.
- Wiley Eastern. Shrock, R.R. & Twenhoffel, W.H., 1952. Principles of Invertebrate Paleontology. CBS Publ.
- Swinerton, HH., 1961. Outlines of Paleontology. Edward Arnold Publishers
- Jain, P.C. & Anantharaman, M.S., 1983. Paleontology: Evolution & Animal Distribution.
- Vishal Publ. Lehmann, U., 1983. Fossil Invertebrate. Cambridge Univ. Press.
- Rastogi, 1988. Organic evolution. Kedrnath and Ramnath Publ.

SEMESTER V

GEO-G-DSC-501A-T	ECONOMIC GEOLOGY & HYDROGEOLOGY	(04 Credits, 60 Lectures)
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There will be two groups of questions. Five Questions to be answered out of Nine Questions. Group A is compulsory and will contain two questions. Question No.1 (A) will be MCQ of 1 mark each (six questions). Question No.1 (B) will be short answer type to be answered in about 50 words of 3 marks (2 Questions). Group B will contain descriptive type eight questions of twelve marks each, out of which any four are to answer. Each question carries 12 marks.

ECONOMIC GEOLOGY & HYDROGEOLOGY

Theory:

60 Lectures

Unit-I: Concept of ore and ore deposits, ore minerals and gangue minerals; Tenor of ores; Metallic and non-metallic ore minerals; Strategic, Critical and essential minerals.

Unit-II: Processes of formation of ore deposits; Magmatic, contact metasomatic, hydrothermal, sedimentation, Residual.

Unit-III: Study of important metallic (Cu, Pb, Zn Mn, Fe, Au, Al) and non-metallic (industrial) minerals (gypsum, magnesite, mica).

Unit-IV: Distribution of coal and petroleum in India;

Unit-V: Definition of hydrogeology, Hydrological cycle;

Unit-VI: Hydrological parameters - Precipitation, evaporation, transpiration and infiltration.

Unit-VII: Origin of groundwater; Vertical distribution of groundwater; Types of aquifers; Water bearing properties of rocks - Porosity and Permeability; specific yield, specific retention.

Unit-VIII: Surface and subsurface geophysical and geological methods of ground water exploration; Groundwater provinces of India.

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ESTD: 2017

University Department of Geology, Binod Bihari Mahto Koyalachal University, Dhanbad

GEO-G-DSC-501A-P	PRACTICAL	(02 Credits, 30 Lectures)
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Instruction to Question Setter for End Semester Practical Examination (ESE): The questions in practical examination will be of equal to 20 marks and will be of 3 hours duration. Distribution of marks in practical paper of an end-semester examination will be of 60% in performance of experiment, 20% in record/note book and 20% in viva-voce.

Practicals:

1. Economic Geology:

Study of ore and economic minerals in hand specimen; Preparation of maps showing distribution of important metallic and non-metallic deposits and important coal and oil fields of India.

3. Hydrology:

Study of hydro-geological models, Estimation of porosity and permeability from the given data; Preparation and interpretation of water table maps.

Books Recommended:

- Brown, C. and Dey, A.K. 1955. Indian Mineral Wealth. Oxford Univ.
- Gokhale, K.V.G.K. and Rao, T.C., 1983. Ore Deposits of India. East West Press Pvt. Ltd. Jense,
- M.L. and Bateman A.M., 1981. Economic Mineral Deposits. John Wiley and Sons.
- Krishnnaswamy, S., 1979. India's Minerals Resources. Oxford and IBH Publ.
- Deb, S., 1980. Industrial minerals and Rocks of India. Allied Publishers Pvt. Ltd.
- Umeshwar Prasad, 2003. Economic Geology. CBS Publishers and distributors.
- Sharma, N.L. and Ram, K.V.S., 1972. Introduction to India's Economic Minerals, Dhanbad.
- Karanth, K. R., 1989. Hydrogeology. Tata McGraw Hill Publ.
- Raghunath, H. M., 1990. Groundwater. Wiley Eastern Ltd.
- Subramaniam, V., 2000. Water-Kingston Publ. London.

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ESTD: 2017

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SEMESTER VI

GEO-G-DSC-601A-T	ENGINEERING & MINING GEOLOGY	(04 Credits, 60 Lectures)
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There will be two groups of questions. Five Questions to be answered out of Nine Questions. Group A is compulsory and will contain two questions. Question No.1 (A) will be MCQ of 1 mark each (six questions). Question No.1 (B) will be short answer type to be answered in about 50 words of 3 marks (2 Questions). Group B will contain descriptive type eight questions of twelve marks each, out of which any four are to answer. Each question carries 12 marks.

ENGINEERING & MINING GEOLOGY**Theory: 60 Lectures****Unit-I:** Engineering properties of rocks and Soils.**Unit-II:** Soil and Soil groups of India.**Unit-III:** Dam, Types and their geological and environmental considerations; Geological problem of reservoirs.**Unit-IV:** Tunnels: geology, structure, seepage problem and role of water table;**Unit-V:** Landslides: classification, causes and preventative measures.**Unit-VI:** Mineral exploration: Elementary idea of geological and geophysical prospecting.**Unit-VII:** Elementary idea of mining.**Unit-VIII:** Environmental considerations for mining,

GEO-G-DSC-601A-P	PRACTICAL	(02 Credits, 30 Lectures)
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Instruction to Question Setter for End Semester Practical Examination (ESE): The questions in practical examination will be of equal to 20 marks and will be of 3 hours duration. Distribution of marks in practical paper of an end-semester examination will be of 60% in performance of experiment, 20% in record/note book and 20% in viva-voce.

Practicals:

1. Surveying by Plane Table; Preparation of engineering geological maps; Engineering properties and identification of building stones. Identification of various models of landslide, tunnel and dam. Study of soil profiles.

Books Recommended:

- Valdiya, K.S., 1987. Environmental Geology – Indian Context. Tata McGraw Hill. Rajendran S., 2007. Mineral Exploration : Recent Strategies.
- Dobrin, M.B. & Savit, CH., 1988. Introduction to Geophysical Prospecting, McGraw-Hill.
- Arogyaswamy, R.N.P., 1973. Courses in Mining Geology. Oxford and IBH Publ.
- Parasins, D.S., 1997. Principles of applied geophysics. Chapman Hall.
- Krynine D.P. and Judd W.R., 1957. Principles of Engineering Geology & Geotechnics. McGraw-Hill
- Book Kesavulu, N.C., 2009. A text book of engineering geology. Macmillan P publishing India Ltd.
- Crozier. M.J., 1989. Landslides: causes, consequences and environment. Academic Press.
- Readman, J.H., 1979. Techniques in Mineral exploration. Applied Science Publishres.
- Bell, F.G., 1983. Fundamentals of Engineering Geology. Butterworth and Co.

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ESTD: 2017

Format of question Papers of End-Semester Theory Examination



Binod Bihari Mahto Koyalanchal University, Dhanbad

End-Semester Examination xxxx(Session: xxxx-xx)

Subject/Code:

Full Marks: 80

Pass Marks: 32

Time:3Hours

General Instructions:

Candidates are required to give their answers in their own words as far as practicable.

The Questions are of equal value.

Answer any five questions of the following in which Q.1 is compulsory.

Group A

1. (A) Multiple Choice Questions

(1x8=08)

- (i)
- (ii)
- (iii)
- (iv)
- (v)
- (vi)
- (vii)
- (viii)

(B) Short answer type questions

(4x2=08)

- (a)
- (b)

Group B

(Long answer type questions)

Answer any four of the following.

(16x4=64)

- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

Short notes type questions

(8x2=16)

- (a)
- (b)
- (c)
- (d)

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University Department of Geology, Binod Bihari Mahto Koyalanchal University, Dhanbad



Binod Bihari Mahto Koyalanchal University, Dhanbad

End-Semester Examination xxxx(Session: xxxx-xx)

Subject/Code:

Full Marks: 60

Pass Marks: 24

Time: 3Hours

General Instructions:

Candidates are required to give their answers in their own words as far as practicable.

The Questions are of equal value.

Answer any five questions of the following in which Q.1 is compulsory.

Group A

1. (A) Multiple Choice Questions

(1x6=06)

- (i)
- (ii)
- (iii)
- (iv)
- (v)
- (vi)

(B) Short answer type questions

(3x2=06)

- (a)
- (b)

Group B

(Long answer type questions)

Answer any four of the following.

(12x4=48)

- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

Short notes type questions (6x2=12)

- (a)
- (b)
- (c)
- (d)

॥ तमसो मा ज्योतिर्गमय ॥

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Binod Bihari Mahto Koyalanchal University, Dhanbad

End-Semester Examination xxxx(Session: xxxx-xx)

Subject/Code:

Full Marks: 40

Pass Marks: 16

Time: 2Hours

General Instructions:

Candidates are required to give their answers in their own words as far as practicable.

The Questions are of equal value.

Answer any five questions of the following in which Q.1 is compulsory.

Group A

1. (A) Multiple Choice Questions

(1x4=04)

(i)

(ii)

(iii)

(iv)

(B) Short answer type questions

(2x2=04)

(a)

(b)

Group B

(Long answer type questions)

Answer any four of the following.

(8x4=32)

2.

3.

4.

5.

6.

7.

8.

9.

Short notes type questions (4x2=8)

(a)

(b)

(c)

(d)

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ESTD: 2017

University Department of Geology, Binod Bihari Mahto Koyalanchal University, Dhanbad

Annexure-1

Skill Development Courses (Common for All Programmes)

For Honours Degree:

(I) Third Semester: Compulsory for All Disciplines

Any one of the following three in a particular college depending upon the facility available:

1. Constitution of India and Human Rights
2. Environment and Public Health
3. Computer Applications and Information Technology

(II) Fourth semester: One from the following may be chosen may be common for a faculty.

The courses may include the following:

1. Entrepreneurship
2. Life Skills and Personality Development
3. Human Resource Development
4. Legal Aid and Awareness
5. Indian History, Culture and Diversity
6. Science and Life
7. Banking and Finance
8. Building Mathematical Ability
9. Capital and Stock Market
10. Any other subject to be decided by the Academic Council.

For General Degree:

(I) Compulsory for All Disciplines

1. Constitution of India and Human Rights
2. Environment and Public Health
3. Computer Applications and Information Technology in Semester 3, Semester 4, and Semester 5 respectively.

(II) Sixth semester: One from the following may be chosen, may be common for a faculty or all faculties. The courses may include the following:

1. Entrepreneurship
2. Life Skills and Personality Development
3. Human Resource Development
4. Legal Aid and Awareness
5. Indian History, Culture and Diversity
6. Science and Life
7. Banking and Finance
8. Building Mathematical Ability
9. Capital and Stock Market

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