

Revised Syllabus for the Session 2020-21

GEOLOGY

+2 1st Year Course

Theory Paper -I Full Marks - 70 marks

Time- 3hours

Practical Paper -II Full Marks - 30 marks

Time- 3hours

Scheme of Examination

Theory Paper

Time - 3hours

Full Marks - 70 marks

Unit - I: General Geology and Geomorphology

Unit - II: Crystallography

Unit - III: Mineralogy

Practical Paper

Time - 3hours

Full Marks - 30 marks

1. Crystallography

2. Mineralogy

4. Practical Records & Viva Voce

Detailed Syllabus in GEOLOGY -

PAPER -1

Time - 3hours

UNIT -1

14 Period

A. General Geology :-

1. Subdivision and Scope of Geology

2. Origin of the Earth

3. Age of the Earth

4. Internal constitution of the earth : Crust, Mantle, Outer Core, Inner Core

B. Geomorphology

1. Definition of Geomorphology

2. Weathering and Erosion

3. Geological Work of the following Exogenetic processes with respect to Weathering,

Transportation and Deposition with their important Landforms

(a) River

(b) Glacier

(c) Wind

4. Definition, Classification, Causes and Effects of the following Endogenetic processes:

(a) Earthquake

(b) Volcanoes

UNIT - II

CRYSTALLOGRAPHY

10 periods

1. Crystalline and Amorphous substances
2. Morphology of Crystal: Face, Form, Edge, Solid Angle and Interfacial angle, Zone
3. Symmetry Elements of Crystals : - Plane of symmetry, Axis of Symmetry, Centre of Symmetry
4. Crystallographic Axes, their relationship and classification of Crystals into Six systems
5. Parameters, Indices and Symbol of Crystals
6. Description of Normal Class of different crystal systems (Except **Monoclinic** & Triclinic)) with respect to: -
 - (a) Axial relationship
 - (b) Symmetry Elements
 - (c) Forms present (Both Tabular and description of each) and Minerals crystallised in these system (at least Three (previously FIVE))

UNIT - III

MINERALOGY

10 periods

1. Definition of Minerals
2. Physical properties of Minerals :-
Form, Colour, Lustre, Streak, Hardness, Cleavage, Fracture, Specific Gravity and any other special property.
3. Description of the following minerals with respect to their Chemical Composition, Physical properties and Uses :-
 - (i) Oxides - Quartz, Corundum, Haematite, Magnetite, Chromite, Bauxite
 - (ii) Carbon - Graphite
 - (iii) Carbonates - Calcite, Magnesite
 - (iv) Silicates - Orthoclase, Microcline, Plagioclase, Biotite, Muscovite, Olivine, Topaz, Talc, Garnet, Hornblende, Augite, (vi) Sulphates - Gypsum, Apatite
 - (vii) Fluoride - Fluorite

(viii) UNIT - IV

12 periods

PALAEONTOLOGY Deleted

Books Recommended:

1. Bureau's Higher Secondary (+2) Geology, Part - I

Published by Odisha State Bureau of Text Book preparation and production, Bhubaneswar. ,

PAPER - 1

PRACTICAL

Full Marks - 30

Time - 3 hours

To be covered in the first year and to be conducted at the end of +2 1st year :

1. Crystallography:- 12 marks

Study of Crystal models of Normal classes of Isometric, Tetragonal, Hexagonal and Orthorhombic

system with respect to Axial relationship, Symmetry elements and Forms present

2. Mineralogy:- 2 marks

Study of physical properties of Rock forming and Ore forming Minerals listed in Theory

3. deleted

Laboratory records and Viva Voce : 3+3 : 6 marks

GEOLOGY

+2 2nd Year

The students reading Geology subject are required to undertake a field training programme for getting an idea about the field aspect of the subject with a minimum period of three days. The Geological Field Training will be conducted by the respective Colleges and the students will be allowed to appear the Practical examination only after the completion of the field training programme, with their own expenses.

THEORY PAPER - II

Time - 3 hours

Full Marks - 70 marks

Short questions will be set for 50 marks (fifty marks) and rest 20 (twenty marks) will be of long type. At least two long questions of 10 marks each should be set covering all units of the syllabus. There should be uniform distribution of marks for every unit for short questions also.

PRACTICAL PAPER - II

Time - 3 hours

Full Marks - 30 marks

1. Petrology
2. Structural Geology
3. Economic Geology
5. Viva Voce
6. Laboratory Record

The pass marks for theory paper is 30% and pass mark for practical paper is 40%. The candidate has to secure the pass marks individually in each paper to be successful in Higher

Secondary Examination.

Detailed Syllabus
GEOLOGY
(+2 II Year)

THEORY PAPER

Full Marks - 70

Time - 3 hours

UNIT -1

Marks - 20

14 periods

PETROLOGY

A. Igneous Petrology

1. Definition and classification of Rocks.
2. Classification of Igneous rocks based on depth of Cooling.
3. Forms of Igneous Rock -
(a) Concordant, - Sill, Laccolth, Lopolith, Phacolith
(b) Discordant - Dyke, Batholith.
4. Texture and Structure of Igneous rocks.
5. Description of the following rocks with respect to the Textural & Mineralogical Composition.
(a) Intrusive Rocks - Granite, Pegmatite, , Gabbro, Dolerite, Peridotite.
(b) Extrusive Rocks - Basalt

B. Sedimentary Petrology

1. Brief idea about mode of formation of Sedimentary Rocks.
2. Texture and Structure of Sedimentary Rocks. Description of the following Sedimentary Rocks -Conglomerate, Breccia, Sandstone, Shale, Limestone.

C. Metamorphic Petrology

1. Definition, Agents & kinds of metamorphism.
2. Metamorphic Texture and Structure.
3. Description of the following Metamorphic Rocks -Gneiss, Schist, Quartzite, Marble,

UNIT - II

Marks-20

12 periods

ECONOMIC GEOLOGY

1. Definition of Ore, gangue, Tenor and grade of Ore
2. Elementary idea about the process of formation of mineral deposits with special reference to magmatic Concentration and Hydrothermal processes.
3.
(b) Mineralogy, Mode of occurrence, Uses and Indian distribution of the following ores: (i) Iron Ore(ii) Manganese Ore iv) Aluminium (v) Chromium

APPLIED GEOLOGY:

Deleted

UNIT - III**Marks - 25****14 periods****STRATIGRAPHY and STRUCTURAL GEOLOGY****A. Stratigraphy**

1. Stratigraphic Units and Principles of Stratigraphy
2. Standard Stratigraphic Time Scale
3. Pre Cambrian of Singhbhum and Odisha
5. Type areas of Cuddapah and Vindhyan Super Group

B. Structural Geology:

1. Attitude of Beds: Dip and Strike
2. Fold : Antiform, Synform, Anticline, Syncline, Symmetrical, Isoclinal and Recumbent Fold.
3. Fault: Normal fault, Reverse fault, Horst & Graben.
4. Unconformity and its types.

Books Recommended:**1. Bureau's Higher Secondary (+2) Geology, Part - II**

Published by Odisha State Bureau of Text Book Preparation and Production, Bhubaneswar.

PRACTICAL Full-Marks - 30

Time - 3 hours

1. Petrology - 10 marks
2. Structural Geology - 6marks
3. Economic Geology (Ore Minerals) - 5 marks
5. Viva Voce - 3 marks
6. Laboratory Records - 3 marks

Detailed Syllabus for Practical:**1. Petrology**

Megascopic Identification of Rocks as mentioned in Theory.

2. Structural Geology

Study of Geological Maps and drawing of sections of Simple Maps.

3. Economic Geology

Megascopic Identification of the following Economic Minerals:- Haematite, Pyrite, Magnetite, Pyrolusite, Psilomelane, Chalcopyrite, Bauxite, Chromite, Magnesite, Coal, Graphite.

5. Viva Voce

Oral questions to be answered by the students.

6. Laboratory records

The Laboratory Records are to be examined by the examiner at the time of Practical

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NB: Question Pattern Remain Unchanged