

# Swami Ramanand Teerth Marathwada University, Nanded

## Theory Syllabus.

**BSc. III Year  
Semester-V  
Paper-XII  
(Geomorphology and Photogeology)**

**UNIT- I : Geomorphology** - Introduction and concepts of geomorphology, study of geomorphic surface features (land forms) of fluvial, Aeolian, glacial and marine origin.

**(Periods -20, Marks – 25)**

**UNIT- II : Photogeology** -Introduction to aerial photography, satellite imageries and preparation of photogeological maps. Elements of aerial photo interpretation. Stereoscopic vision, orientation of stereoscope, stereo-pairs and stereo viewing of air photos, types of aerial photographs and photo index. Scale of aerial photographs. Application of Aerial photographs in the study of lithology, structure and geomorphology.

**(Periods -20, Marks – 25)**

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**Semester-V  
Paper-XIII  
(Engineering Geology and Hydrogeology)**

**UNIT – I: Engineering Geology-** Concept and definition of engineering geology and environmental geology. Environmental and geological hazards such as earthquake volcano and mass movement. Environment and geological consideration in the location and construction of engineering structures such as dams, reservoirs and tunnels. Drilling and its application in Engineering geology.

**(Periods -20, Marks – 25)**

**UNIT- II: Hydrogeology-** Introduction, hydrologic cycle, water table, aquifer and its classification. Aquifer properties such as porosity, permeability, specific yield, specific retention, storativity, hydraulic conductivity. Darcy's law, occurrence of groundwater in igneous, sedimentary and metamorphic rocks. Hydrological prospecting. Concept of watershed. Methods of soil and water conservation.

**(Periods -20, Marks – 25)**

**BSc. III Year Syllabus.**  
**Semester-VI**  
**Paper-XIV**  
**(Stratigraphy of India)**

**UNIT – I: Stratigraphy- I** - Principles of stratigraphy, units of stratigraphy, principles of correlation. Occurrence, distribution, classification, lithology and economic importance of following super-groups/groups. Archean of central province, Singhbhum, Eastern Ghats, Delhi, Dharwar, Cuddupah, Vindhyan, **(Periods -20, Marks**

**– 25)** **UNIT –II:** Occurrence, distribution, classification, lithology and economic importance of super-groups/groups : Gondwana, Deccan Traps ;Geology of Kashmir, Spiti valley and Siwalik, Marine formations of Jurassic of Kutch, Cretaceous of Tiruchirapalli and Tertiary rocks of Assam. **( Periods -20, Marks – 25)**

**Paper- XV**  
**(Economic Geology and Prospecting)**

**UNIT –I: Economic Geology** : Introduction of economic geology, magma and mineral deposits. Metallic and non-metallic ore deposits. Processes of formation of mineral deposits such as: Magmatic concentration, sublimation, metasomatism, metamorphism, hydrothermal process, supergene sulphide enrichment, sedimentation, residual and mechanical concentration. Occurrence, geological and geographical distribution and uses of following mineral deposits of India: Iron, chromites, copper, lead zinc, gold, bauxite, gypsum, asbestos, mica, uranium, precious and semiprecious stones **(Periods -20, Marks – 25)**

**UNIT –II: Prospecting:** Geological method of prospecting. Geochemical method of prospecting including leakage anomalies and pathfinder elements. Geophysical prospecting (Instrument, field procedure and interpretation) based on magnetic, gravity, electrical, seismic studies.

**(Periods -20, Marks – 25)**

# **Practical Syllabus**

Swami Ramanand Teerth Marathwada University ,Nanded

Class : B.Sc. Third Year

## **PAPER NO. XVI**

(Based On Theory Papers XII and XIII )

Time-Four Hours

Maximum Marks : 50

- A) Morphometric Analysis of the given Watershed.
- B) Identification and description of the Geomorphological models
- C) Identification of the Structures from aerial photographs
- D) Merits and demerits of the Engineering site from given Geological Structural Contour Map on the basis of Draw section along given section line.
- E) Hydrological Problems.

## **PAPER NO. XVII.**

(Based On Theory Papers XIV and XV )

Time-Four Hours

Maximum Marks : 50

- A). Sub-surface information of the area with the help of Resistivity Meter.
- B ) Identify and locate the Geological Formations on a given map of India.
- C) Identification and description of the Physical Properties of Ore Minerals.
- D ) Describe and Locate the occurrence of Ore Minerals in the given map of India.
- E ) Field work and viva  
Record Book

## **Theory Question Paper pattern**

Faculty of Science  
B.Sc. ThirdYear  
Sub : Geology  
**Semester-V**

Time : 1 Hrs 15 min.

Marks : 25

Note : All questions are compulsory

Draw neat diagram wherever necessary

### **Part-I**

#### ***(Geomorphology and Photogeology )*** **Paper- XII**

Q. No. 1: Give the answers of the following.

5 Marks

- a)
- b)
- c)
- d)
- e)

Q. No. 2: Write short notes (any two)

10 Marks

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

Q. No. 3: Describe/ explain the following (any one)

10 Marks

- a)
- b)

### **Paper-XIII**

#### ***(Engineering Geology and Hydrogeology)***

Q. No. 1: Give the answers of the following.

5 Marks

- a)
- b)
- c)
- d)
- e)

Q. No. 2: Write short notes (any two)

10 Marks

- a)
- b)
- c)

Q. No. 3: Describe/ explain the following (any one)

10 Marks

- a)
- b)

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**(This pattern will be same for Semester VI and Paper No.XIV and XV)**

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Swami Ramanand Teerth Marathawada University, Nanded

Faculty of Science

B.Sc. ThirdYear

Sub : Geology

**Semester-V**

Time : 20 min

Marks : 15

**Part II**  
Multiple Choice Questions

**Paper- XII**  
*(Geomorphology and Photo geology )*

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.

**Paper-XIII**  
*(Engineering Geology and Hydrogeology )*

- 16
- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28
- 29
- 30

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(This pattern will be same for Semester VI and Paper No.XIV and XV)

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# Practical Question Paper Pattern

Swami Ramanand Teerth Marathwada University ,Nanded  
in **GEOLOGY** Subject  
Class : B.Sc. Third Year  
**PAPER NO. XVI**

Time-Four Hours

Maximum Marks : 50

- |   |          |
|---|----------|
| Q.1. Identify and describe the Geomorphologic models from Item No. 1 to 5.  | 10 marks |
| Q.2. Identify the Structures from aerial photographs from Item No. 6 & 7  | 10 marks |
| Q.3 Carry out the Morphometric Analysis of the given Watershed.   | 10 marks |
| Q.4. Select the suitable Engineering site from given Geological Structural Contour Map and Draw section along X-Y | 10 marks |
| Q.5 Solve the given Hydrological Problem.   | 05 marks |
| Record Book   | 05 marks |

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50 marks

Practical Question Paper in **GEOLOGY** Subject  
Class : B.Sc. Third Year  
**PAPER NO. XVII.**

- |   |          |
|---|----------|
| Q.1. Find out the sub-surface information of the area with the help of Resistivity Meter.   | 10 marks |
| Q.2 Identify & locate the Geological Formations on a given map of India from item No.1 to 2 | 10 marks |
| Q.3 Identify and describe the Physical Properties of Ore Minerals from item No. 3 to 12.    | 10 marks |
| Q.4 Locate the occurrence of Ore Minerals in the given map of India from item No. 13 to 14  | 10 marks |
| Q.5 Field work and viva   | 05 marks |
| Record Book   | 05 marks |

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50 marks

## Books Recommended

1. Holms Principles of Physical Geology - D. Duff
2. Geology of India and Burma - M.S. Krishnan
3. Geology of India and Burma - D.N. Wadia
4. Fundamental of Historical Geology - Ravindra Kumar
5. Exploration of Geophysics - V.L.S. Bhimashankaran
6. General and Applied Geophysics - Kaul, Bhattacharya and Sengupta
7. Principles and Applications of Photogeology - Shiv N. Pande
8. Groundwater - H.M. Raghunath
9. Introduction to Geophysical Prospecting - Dorbin
10. Studies of Mineral deposits - Smrinov, Ginzburg and Others
11. Ore Deposits of India - KVGK Gokhale and T.C. Rao
12. Applied Hydrology - C.W. Feter
13. Economic Mineral Deposits - Bateman
14. Principles of Geomorphology - Thornmbury
15. Engineering Geology - Parbin Singh
16. Mining Geology - Arogyaswami
17. Elements of Hydrology - Vijay Singh
18. Watershed Hydrology - R. Suresh
19. Rainwater Harvesting - K. Meghashyam
20. Geomorphology - Bloom

Date: 08.04.2011

To  
The Director  
B.C.U.D.  
S.R.T.M. University  
Nanded

Sub: Submission of B.Sc. III Syllabus in Geology for Semester Pattern.

Sir'

With reference to above mentioned subject we are herewith submitting the syllabus, Question paper pattern of both Theory and Practical and Scheme of marking for the coming academic year.

So you are requested to kindly consider the same for further necessary action.

Thanking you

Yours sincerely

Dr. R.A. Pathani  
(Chairman)

DR. R.B. Muley

Dr. P.R. Wesanekar