

GEOLOGY

III-SEMESTER – W.E.F. 2016-17

PAPER- III - Igneous Petrology and Sedimentology

Unit-I

Nature and scope of petrology - definition of rock, classification of rocks into igneous, sedimentary and metamorphic. Distinguish features of three types of rocks.

Forms - Lava flows, Intrusions, sills, laccolith, butte, mesa, dykes, ring Structures - vesicular, amygdaloidal, block lava,ropy lava, pillow, flow, and sheet structures. Columnar and prismatic structures

(12hrs)

Unit-II

Textures - Definition of texture, micro-structure, devitrification - Hypidiomorphic, pandiomorphic, porphyritic, poikilitic, ophitic, intergrartular, intersertal, trachytic, graphic and micro-graphic textures. Classification of igneous rocks - CIPW and Tyrrell tabular classification.

Descriptive study of following rock types: Granite, Syenite, Diorite porphyry, Pegmatite, Gabbro, Pyroxenite, Dunite, Dolerite, Rhyolite, Trachyte, and Basalt
(12hrs)

Unit-III

Composition and constitution of magma - Crystallisation of Magma - Uni-component, binary system, eutectic and solid solutions.

Origin of igneous rocks - Bowen's reaction principle, differentiation and assimilation of magma.

(12hrs)

Unit - IV

Sources of sediments - mechanical and chemical weathering, modes of transportation, stratification. Sedimentary structures, Types of bedding, surface marks, deformed **bedding**, solution structures

(12hrs)

Unit-V

Classification of sedimentary rocks; clastic - rudaceous, arenaceous, argillaceous, non-clastic - calcareous, carbonaceous, evaporities

Descriptive study of the following sedimentary rocks - conglomerate, Breccia, Sandstone, Gritt, Arkose, Shale and limeston.

(12 hrs)

Text books

1. Principles of petrology - G.W. Tyrrell
2. Petrology - W. T. Huang

References

1. Petrology for students - S.R.Ndckolds Knox, Chinnar
2. A Text book of sedimentary petrology - Verma & Prasad
3. Petrology of the sedimentary rocks - J.T. Greehsmith

4. Petrology of the sedimentary rocks -
F.H;Hatch, Wells and Wells.
5. Petrology of the igneous rocks -
F.KHatch, Wells and Wells.

LAB-III (Practicals) 100 Marks

At the end of Third semester

**Practical- II- Igneous Petrology and
Sedimentology**

Megascopic and microscopic study of the following igneous rocks:

Dunite, peridotite, granite. Syenite, Diorite, Gabbro. Dolerite, Rhyolite, Basalt, Pegmatic,

Megascopic and microscopic study of the following sedimentary rocks:

Conglomerate, Breccia, Sandstone, Shale, Limestone and its varieties

SRI VENKATESWARA UNIVERSITY, TIRUPATHI
THREE YEAR B.Sc DEGREE EXAMINATION
Subject: GEOLOGY SEMESTER-III
MODEL QUESTION PAPER
(IGNEOUS PETROLOGY & SEDIMENTALOGY)

Time: Three hours

Marks: 75

PART- A (5x5= 25 marks)
Answer any FIVE questions
Each question carries 5 marks

1. Write a brief a note on classification and distinguishing features of different types of rocks
2. Explain the following:
(a) Devitrification (b) Gabbro
3. Describe the composition and constitution of magma
4. Stratification and cementation
5. Write a note on Evaporites
6. Write a note on assimilation of magma
7. Nature and scope of Petrology
8. Explain the following:
(a) Arkose (b) Pegmatite

PART- B (5x10= 50 marks)
Answer all the questions
Each question carries 10 marks

9. Explain in detail about different forms found in igneous rocks with neat sketches
(or)
Give an account of structures exhibited by igneous rocks
10. Write an essay on mica classification of igneous rocks
(or)
Define texture? Describe the textures of igneous rocks
11. Write an essay on crystallization of magma
(or)
Write a brief note on the origin of igneous
12. Describe the structures of sedimentary rocks with neat sketches
(or)
Write an essay on weathering of rocks
13. Explain in detail about calcareous and carbonaceous rocks
(or)
Write an essay on rudaceous and arenaceous rocks