

**REPUBLIC OF SOUTH AFRICA
DEPARTMENT OF MINERAL RESOURCES
EXAMINATION FOR THE MINE SURVEYORS CERTIFICATE OF COMPETENCY**

DATE: 11 October 2012 (Thursday)
TIME: 12:30 to 14:30 (2 Hours)

TOTAL MARKS: 100
TO PASS: 50

GEOLOGY

Note: (1) Answer all questions

QUESTION 1

“Crystal Form” is a Physical Characteristic of a Mineral. Discuss in detail. (10)

QUESTION 2

The Rock-forming “Femic Minerals Group” comprises a number of families in each of which the members have a close relationship to one another. Name and discuss the different families. (10)

QUESTION 3

Minerals can be classified by their various properties.
Complete the attached tabulation to indicate some of these properties. (15)

QUESTION 4

Discuss the Characteristics of Igneous Rocks under the following headings : Mode of Occurrence and Textures. (10)

QUESTION 5

Physical Geology is concerned with the processes and forces that bring about changes in the shape of the earth’s surface. Discuss in detail the different kind of “Lakes” and how they are formed. (10)

QUESTION 6

Strata are said to be “faulted” when there is relative movement across the plane of fracture. Discuss the different types of faults and the affect that they have on strata. (10)

QUESTION 7

7.1 Explain what is meant by “Denudation of the earth’s crust”.

7.2 Describe fully the agents which are responsible for the Denudation of the earth’s crust considering both the mechanical and the chemical processes. (10)

QUESTION 8

Discuss volcanic eruptions under the following heading :

8.1 Describe how a volcano is formed.

8.2 Name and discuss the types of volcanic eruptions.

8.3 Products produced from a volcanic eruption. (10)

QUESTION 9

Discuss “Vermiculite” in South Africa with reference to the following:

9.1 Uses and properties.

9.2 Method of mining.

9.3 Location. (10)

QUESTION 10

In regards to the Physical characteristics of a mineral, define or describe the following terms:

10.1 Tenacity.

10.2 Brittle.

10.3 Flexible

10.4 Fusibility

10.5 Malleable. (5)

TOTAL 100 marks

QUESTION 3

11 OCTOBER 2012

EXAM NO.

	MINERAL			
Physical Properties	Copper	Haematite	Limonite	Magnetite
Colour				Uraninite
Streak				
Lustre				
Fracture				
Density				
Hardness				

(15)