

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

DATE: 14 October 2011 (Friday)
TIME: 12:30 to 14:30 (2 Hours)

TOTAL MARKS: **100**
TO PASS: **50**

GEOLOGY

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. (20)

QUESTION 4

There are three agents that bring about metamorphism :

- 4.1 Name the three agents.
- 4.2 Name and discuss the three types of Metamorphism.
- 4.3 List two metamorphic rocks. (10)

QUESTION 5

- 5.1 Explain what is meant by “Denudation of the earth’s crust”.
- 5.2 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 6

Discuss “Tin” in South Africa with reference to the following :
Uses , properties and location of tin deposits. (10)

QUESTION 7

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

7.1 Tenacity

7.2 Brittle

7.3 Flexible

7.4 Fusibility

7.5 Malleable

(10)

QUESTION 8

Plot the second level horizon showing all construction lines of intersection.

Name the type of fault and what effect that it has on the ground (show on plan).

Draw a section along line A – B.

Indicate the following regarding the reef:

a) Apparent movement.

b) Horizontal component of movement showing distance in metres.

c) Vertical component of movement showing distance in metres.

(20)

TOTAL 100