



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

MINE SURVEYOR'S CERTIFICATE OF COMPETENCY EXAMINATION

GEOLOGY

DATE: 09 April 2015

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

**TIME ALLOWED: 2 HOURS
(12h30 to 14h30)**

NOTE:

- This question paper consists of **THREE** pages including cover page.
- All questions must be answered.
- All answers and sketches to be presented in a neat and decipherable manner. Papers will not be marked if not decipherable.
- Restrict the use of highlighters.
- Do not use a red pen.
- Read the instructions on the front page of your answer book carefully.
- No cellular phones shall be allowed in the examination venue.
- The use of computers, laptops and palmtops is prohibited.

QUESTION 1

South Africa is divided into a number of Stratigraphic sub-divisions.
The rocks in the Swazian are placed in several sequences and groups.

1.1 Name and briefly discuss the three Swazian Sequences.

1.2 Name the groups in the Swazian.

(10)

QUESTION 2

Name five metals of the Platinum Group, their uses, and where they occur in South Africa.

(10)

QUESTION 3

Minerals can be classified by their various properties.

Complete the attached tabulation to indicate some of these properties.

(20)

QUESTION 4

Name the five family groups into which Igneous Rocks can be divided and give a South African example where each of these family groups occur.

(10)

QUESTION 5

Discuss "Vermiculite" in South Africa with reference to the following:

5.1 Uses and properties.

5.2 Method of mining.

5.3 Location.

(10)

QUESTION 6

Discuss the uses, location, characteristics and major constituents of Sapropelic (Cannel) coal.

(10)

QUESTION 7

Lustre is a physical characteristic of a mineral, define.
Name the eight (8) common descriptive terms associated when describing lustre.
Discuss and give an example of a mineral for each term. (10)

QUESTION 8

Regarding the formation of economic deposits, name five deposits formed by
mechanical concentration. Give an example of a mineral associated with each deposit. (10)

QUESTION 9

Write short notes on the following Geophysical Prospecting methods:
9.1 Gravimetric Surveying.
9.2 Magnetometric Surveying.
9.3 Seismic Methods
9.4 Radiometric Surveying (10)

TOTAL 100

QUESTION 3

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EXAM NO.

MINERAL						
Physical Properties	Calcite	Cuprite	Copper	Cinnabar	Diamond	Gold
Crystal System						
Colour						
Streak						
Fracture						
Cleavage						
Hardness						
Density						

(20 Marks)