



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

MINE SURVEYOR'S CERTIFICATE OF COMPETENCY EXAMINATION

GEOLOGY

DATE: 09 October 2014

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

“Palaeontology” is the study of ancient life, thus deals with fossils. Discuss Palaeontology in detail.

(10)

QUESTION 3

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

(20)

QUESTION 4

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

- 4.1 Uses and properties.
- 4.2 The location of major Asbestos deposits.

(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

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 7

Define and discuss the Coalification Process. (10)

QUESTION 8

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 9

Discuss volcanic eruptions under the following headings:

9.1 Describe how a volcano is formed.

9.2 Name and discuss the types of volcanic eruptions.

9.3 Products produced from a volcanic eruption. (10)

TOTAL 100

QUESTION 3

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EXAM NO.

MINERAL						
Physical Properties	Calcite	Cuprite	Copper	Cinnabar	Gypsum	Haematite
<i>Crystal System</i>						
<i>Colour</i>						
<i>Streak</i>						
<i>Fracture</i>						
<i>Cleavage</i>						
<i>Hardness</i>						
<i>Density</i>						

(20 Marks)