



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

MINE SURVEYOR'S CERTIFICATE OF COMPETENCY EXAMINATION

GEOLOGY

DATE: 10 OCTOBER 2013

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.
- 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

“Crystal Form” is a Physical Characteristic of a Mineral. Name and discuss six different crystal forms. (10)

QUESTION 2

The Rock-forming “Salic Minerals Group” comprises a number of families in each of which the members have a close relationship to one another. Discuss in detail “Salic Minerals” and the different family members. (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 five metals of the Platinum Group, their uses, and where they occur in South Africa. (10)

QUESTION 5

South Africa is divided into a number of Stratigraphic sub-divisions.
The rocks in the Swazian are placed in several sequences and groups.
5.1 Name and briefly discuss the three Swazian Sequences.
5.2 Name the groups in the Swazian. (10)

QUESTION 6

“Palaeontology” is the study of ancient life, thus deals with fossils. Discuss Palaeontology in detail. (10)

QUESTION 7

Discuss the uses, location, characteristics and major constituents of Sapropelic (Cannel) coal. (10)

QUESTION 8

The attached plan , on 10 level horizon , shows fault X which has displaced a reef. The direction of movement on fault X is shown on the plan.

Graphically determine (in metre's) the amount of :

- a) True movement.
- b) The vertical component of movement.
- c) The horizontal component of movement. (20)

TOTAL 100

QUESTION 3

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EXAM NO.

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

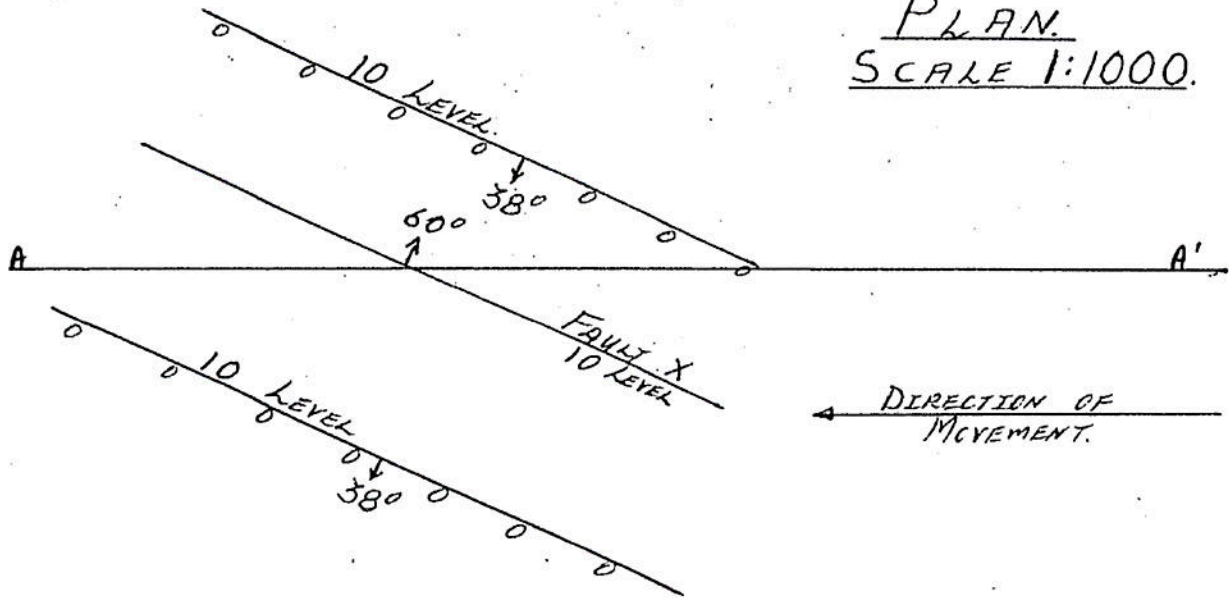
(20 Marks)

QUESTION 8

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PLAN.
SCALE 1:1000.



10 LEV ELEV

11 LEV ELEV

SECTION A-A' ON DIRECTION OF MOVEMENT