

**REPUBLIC OF SOUTH AFRICA
DEPARTMENT OF MINERALS AND ENERGY
EXAMINATION FOR THE MINE SURVEYORS CERTIFICATE OF COMPETENCY**

DATE: 10 October 2008 (Friday)
TIME: 12:30 to 14:30 (2 Hours)

TOTAL MARKS: 100
TO PASS: 50

GEOLOGY

Note: (1) Answer all questions

QUESTION 1

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 metres) the amount of:

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

QUESTION 2

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

QUESTION 3

Minerals can be classified by their various properties.
Complete the attached tabulation to indicate some of these properties. (10)

QUESTION 4

"Hardness" is a physical characteristic of a mineral.
Define Hardness and discuss (table form) in detail the "Moh's Hardness Scale". (10)

QUESTION 5

Discuss volcanic eruptions under the following headings:
5.1 Describe how a volcano is formed.
5.2 Name and discuss the types of volcanic eruptions.
5.3 Products produced from a volcanic eruption. (10)

QUESTION 6

Define the following terms regarding coal:

- 6.1 Calorific value (c.v.) and give its unit of measurement.
- 6.2 Ash content.
- 6.3 Moisture content.
- 6.4 Proximate analysis.
- 6.5 Coking properties.

(6)

QUESTION 7

Name the five groups into which common sedimentary rocks can be classified.

(5)

QUESTION 8

Write short notes on the following Geophysical Prospecting methods:

- 8.1 Gravimetric Surveying
- 8.2 Magnetometric Surveying
- 8.3 Seismic Methods
- 8.4 Radiometric Surveying

(8)

QUESTION 9

“Streak” is a physical characteristic of a mineral.

Define and discuss with examples.

(9)

QUESTION 10

Name and describe six (6) different types of coal.

(12)

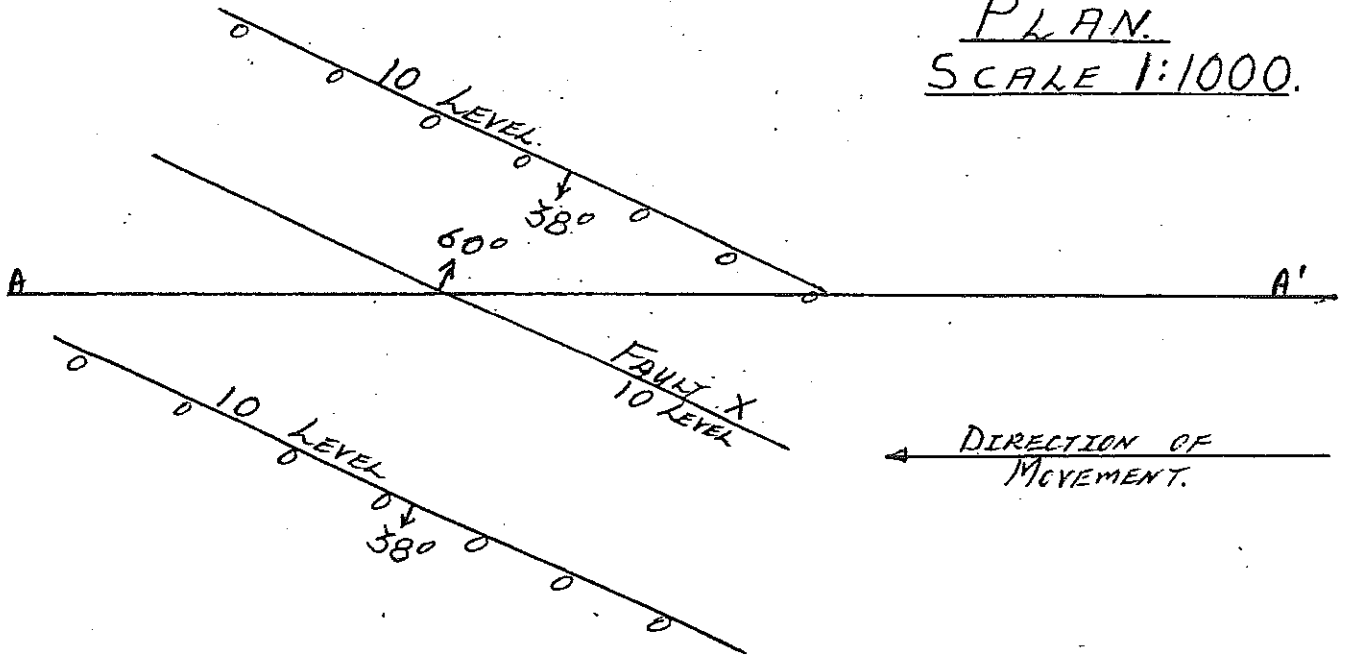
TOTAL 100

QUESTION 1

10 OCTOBER 2008

EXAM NO.

PLAN.
SCALE 1:1000.



10' LEVEL

11' LEVEL

SECTION A-A' ON DIRECTION OF MOVEMENT

QUESTION 3

Oct-08

EXAM NO.

MINERAL				
Physical Properties	Copper	Haematite	Limonite	Uraninite
<i>Colour</i>				
<i>Lustre</i>				
<i>Fracture</i>				
<i>Density</i>				

(10)