



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

MINE SURVEYOR'S CERTIFICATE OF COMPETENCY EXAMINATION

GEOLOGY

DATE: 01 October 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

Define and discuss the Coalification Process. (10)

QUESTION 3

Minerals can be classified by their various properties.

Complete the attached tabulation to indicate some of these properties. (15)

QUESTION 4

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 5

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

QUESTION 6

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

QUESTION 7

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

01 OCTOBER 2015

EXAM NO.

MINERAL					
Physical Properties	Graphite	Cuprite	Cassiterite	Calcite	Malachite
<i>Crystal System</i>					
<i>Streak</i>					
<i>Lustre</i>					
<i>Fracture</i>					
<i>Cleavage</i>					
<i>Hardness</i>					

(15)

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)

QUESTION 9

Discuss volcanic eruptions under the following headings:

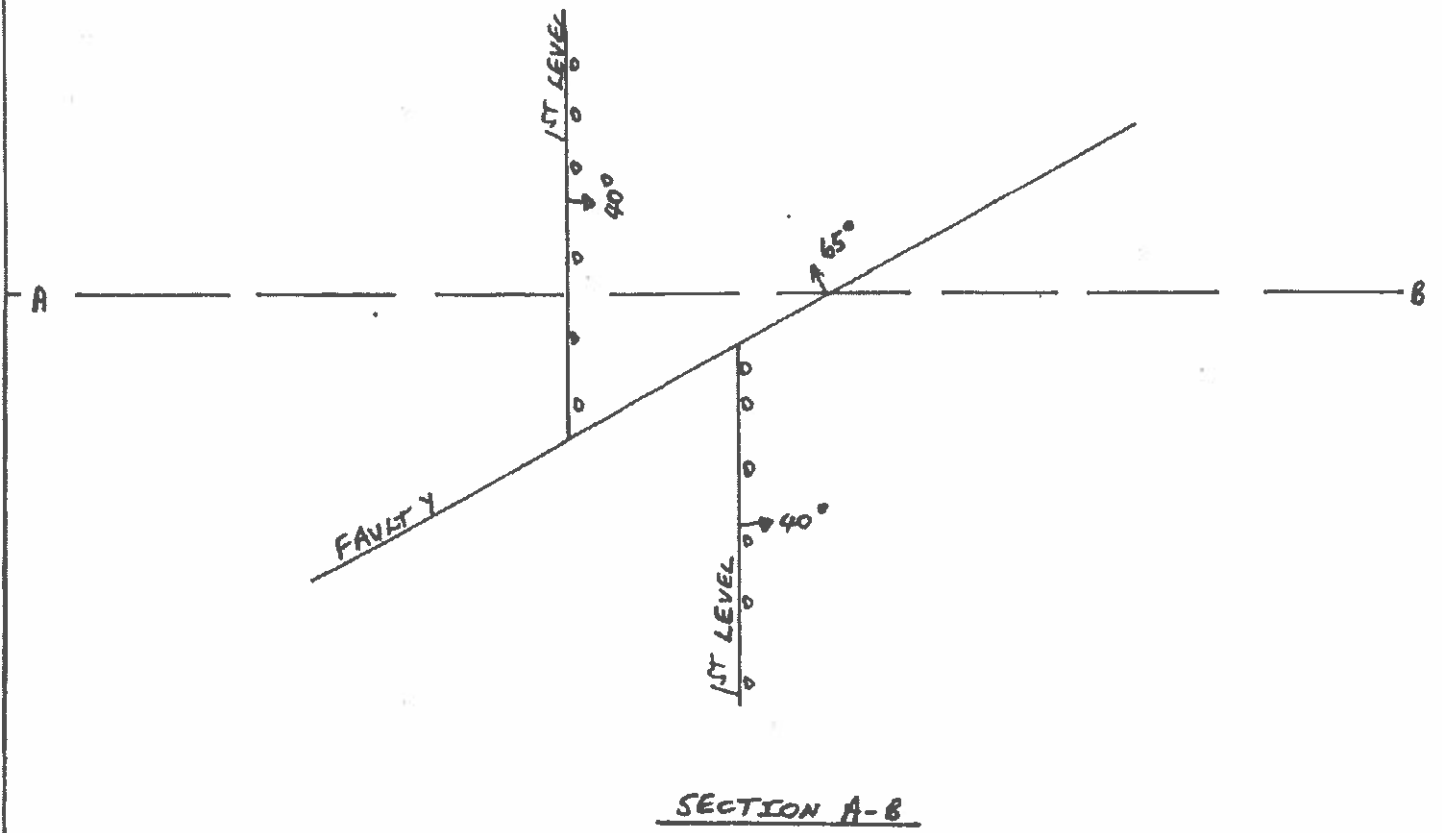
9.1 Describe how a volcano is formed.

9.2 Name and discuss the types of volcanic eruptions.

9.3 Products produced from a volcanic eruption.

(5)

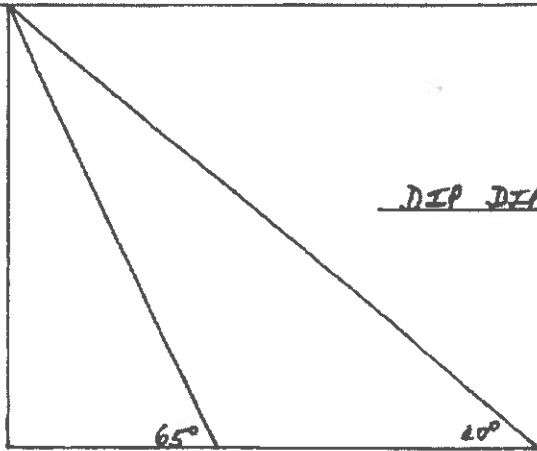
TOTAL 100



SECTION A-B

1ST LEVEL

2ND LEVEL



DIP DIAGRAM