



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

MINE SURVEYOR'S CERTIFICATE OF COMPETENCY EXAMINATION

GEOLOGY

DATE: 13 April 2016

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

- 2.1 Explain what is meant by "Denudation of the earth's crust".
2.2 Describe fully the agents which are responsible for the Denudation of the earth's crust. (10)

QUESTION 3

Minerals can be classified by their various properties.
Complete the attached tabulation to indicate some of these properties. (15)

QUESTION 4

- Give a brief description of the occurrence of Manganese under the following :
4.1 The distribution of Manganese in South Africa
4.2 The most common Manganese mined.
4.3 The types and uses of Manganese. (10)

QUESTION 5

Discuss the Characteristics of Igneous Rocks under the following headings: Mode of Occurrence and Textures. (10)

QUESTION 6

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

QUESTION 7

In regards to the Physical characteristics of a mineral, define or describe the following terms:

- 7.1 Tenacity
- 7.2 Brittle
- 7.3 Flexible
- 7.4 Fusibility
- 7.5 Malleable

(10)

QUESTION 8

8.1 Draw a section along the line A – B on the attached plan, which must be returned with your answer books.

8.2 Give a brief description of the geological history of the area. (20)

QUESTION 9

Name the five groups into which common sedimentary rocks can be classified. (5)

TOTAL 100

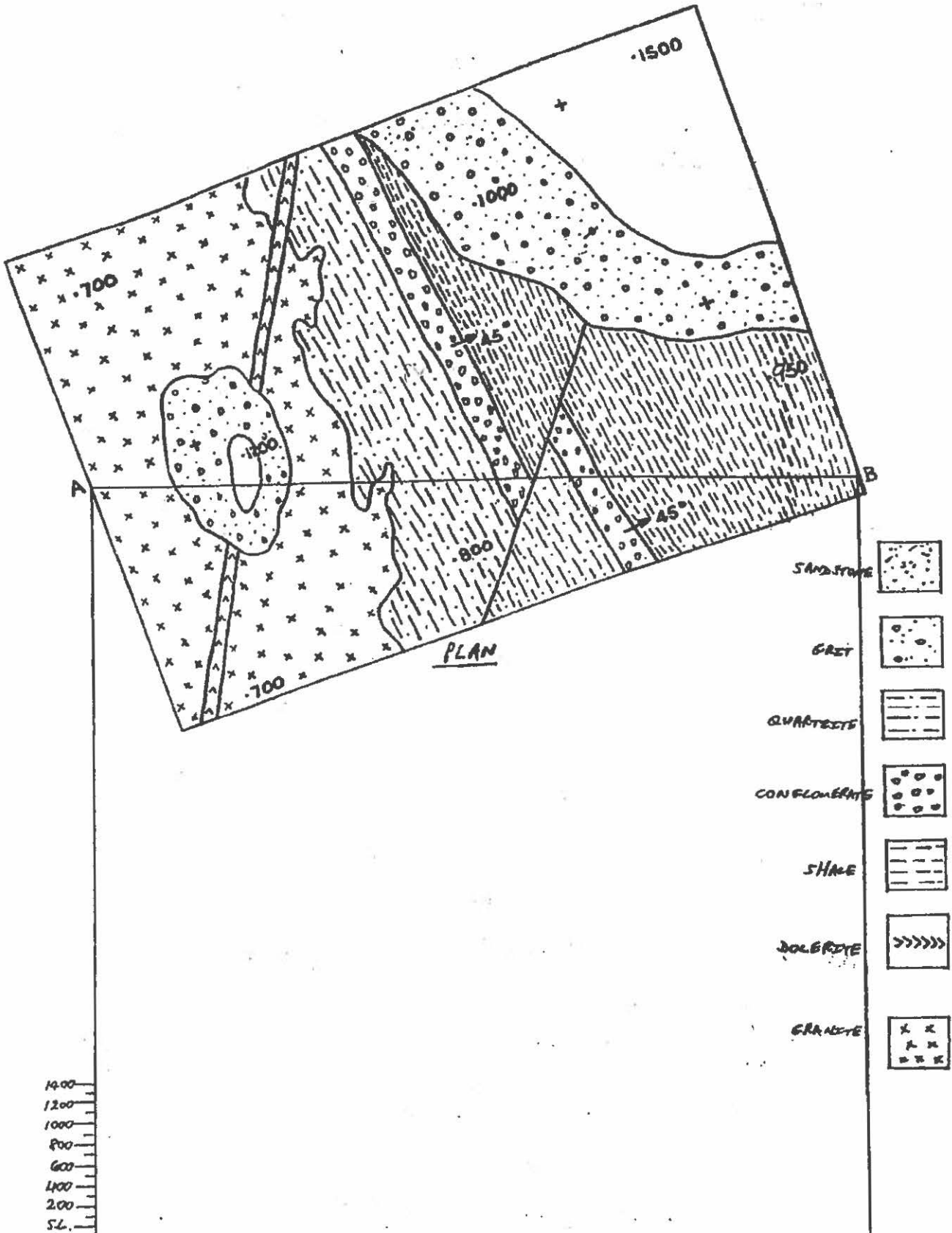
QUESTION 3

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EXAM NO.

MINERAL					
Physical Properties	<i>Diamond</i>	<i>Copper</i>	<i>Galena</i>	<i>Halite</i>	<i>Apatite</i>
<i>Crystal System</i>					
<i>Colour</i>					
<i>Lustre</i>					
<i>Hardness</i>					
<i>Density</i>					
<i>Properties \ Uses</i>					







(15)



1400
1200
1000
800
600
400
200
S.L.

ELEVATIONS ABOVE
SEA LEVEL

SECTION ON A-B

- SANDSTONE 
- GRIT 
- QUARTZITE 
- CONGLOMERATE 
- SHALE 
- DOLomite 
- GRANITE 