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

DATE: 16 April 2004 (Friday) TOTAL MARKS: **100**
TIME: 12:30 to 14:30 (2 Hours) TO PASS: **50**

GEOLOGY

Note: (1) Answer all questions

QUESTION 1

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 2

Write short notes on the following Geophysical prospecting methods :
2.1 Gravimetric Surveying
2.2 Magnetometric Surveying
2.3 Seismic Methods
2.4 Radiometric Surveying (10)

QUESTION 3

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

QUESTION 4

Igneous Rocks can be divided into five family groups.
4.1 Name the five family groups.
4.2 Give a South African example where each of these family groups occur. (10)

QUESTION 5

"Cleavage" is a physical characteristic of a mineral.
Discuss and name some of the more important cleavages. (5)

QUESTION 6

Name and describe the different types of coal. (12)

QUESTION 7

7.1 Explain what is meant by "denudation of the earth's crust".
7.2 Describe fully the agents which are responsible for the denudation of the earth's crust considering both the mechanical and the chemical processes. (10)

QUESTION 8

Discuss "Asbestos" in South Africa with reference to the following:
8.1 Uses and properties.
8.2 The location of major Asbestos deposits. (10)

QUESTION 9

South Africa is divided into a number of stratigraphic sub-divisions.
The rocks in the Swazian are placed in several sequences and groups.
9.1 Name and briefly discuss the three Swazian sequences.
9.2 Name the groups in the Swazian. (8)

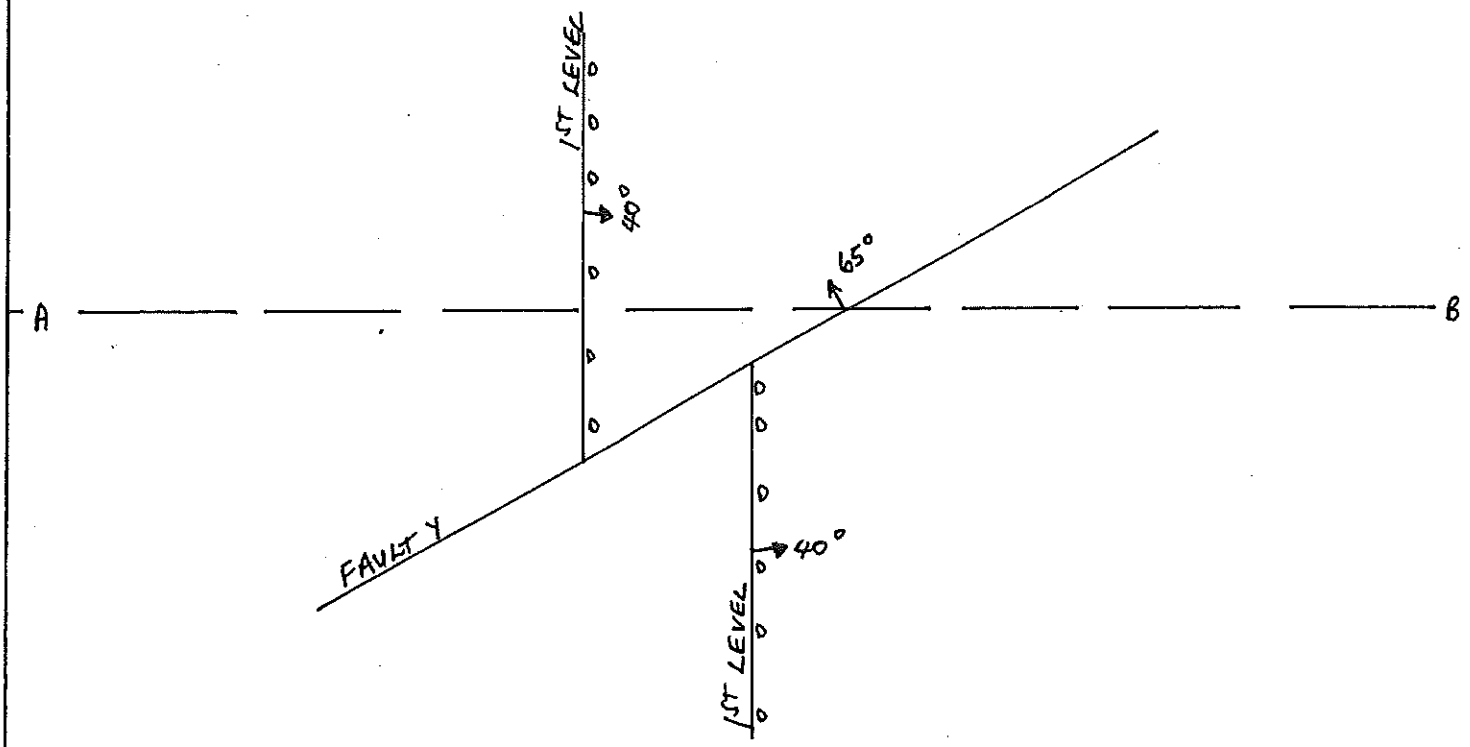
Total 100

QUESTION 3 **EXAM NO.**

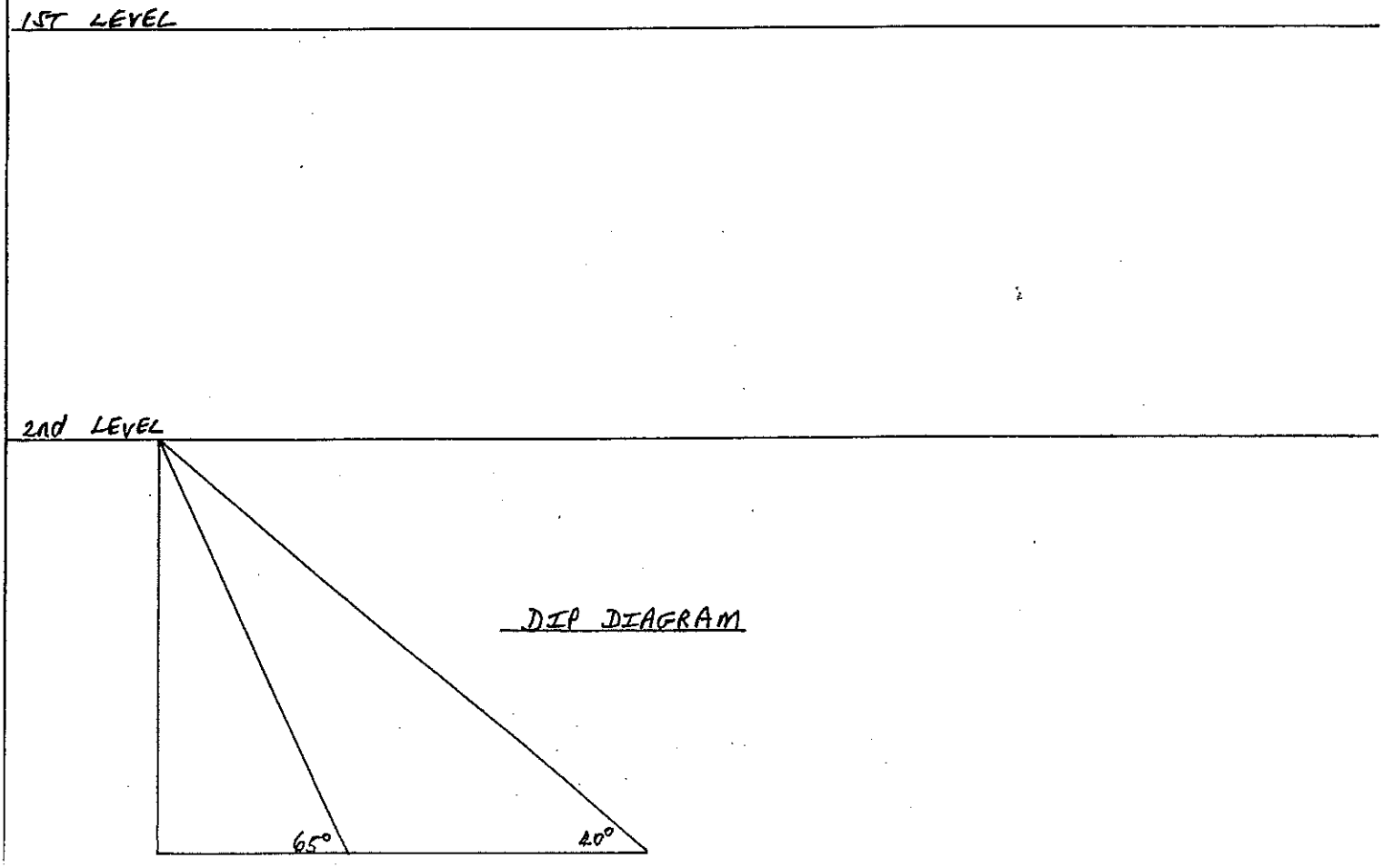
MINERAL					
Physical Properties	Graphite	Pyrite	Galena	Cassiterite	Bornite
Hardness					
Colour					
Lustre					
Density					
Use					
Common South-African occurrence					

SCALE 1:1000 APRIL 2004 QUESTION 1 EXAM NO.

PLAN



SECTION A-B



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