

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

DATE: 14 October 2005 (Friday)
TIME: 12:30 to 14:30 (2 Hours)

TOTAL MARKS: 100
TO PASS: 50

GEOLOGY

Note: (1) Answer all questions

QUESTION 1

Plot the second level horizon showing all construction lines of intersection.

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

- (a) Explain what is meant by “Denudation of the earth’s crust”.
- (b) 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

Name and describe the different types of coal.

(12)

QUESTION 5

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

(5)

QUESTION 6

Discuss volcanic eruptions under the following headings:

- (a) Describe how a volcano is formed.
- (b) Types of volcanic eruptions (name and discuss).
- (c) Products produced from a volcanic eruption.

(10)

QUESTION 7

Lustre is a physical characteristic of a mineral.

Name the eight common descriptive terms associated when describing lustre.

Discuss and give an example of a mineral for each term.

(8)

QUESTION 8

Name five metals of the Platinum Group, their uses, and where they occur in South Africa.

(5)

QUESTION 9

Regarding the formation of economic deposits, name five deposits formed by mechanical concentration. Give an example of a mineral associated with each deposit.

(5)

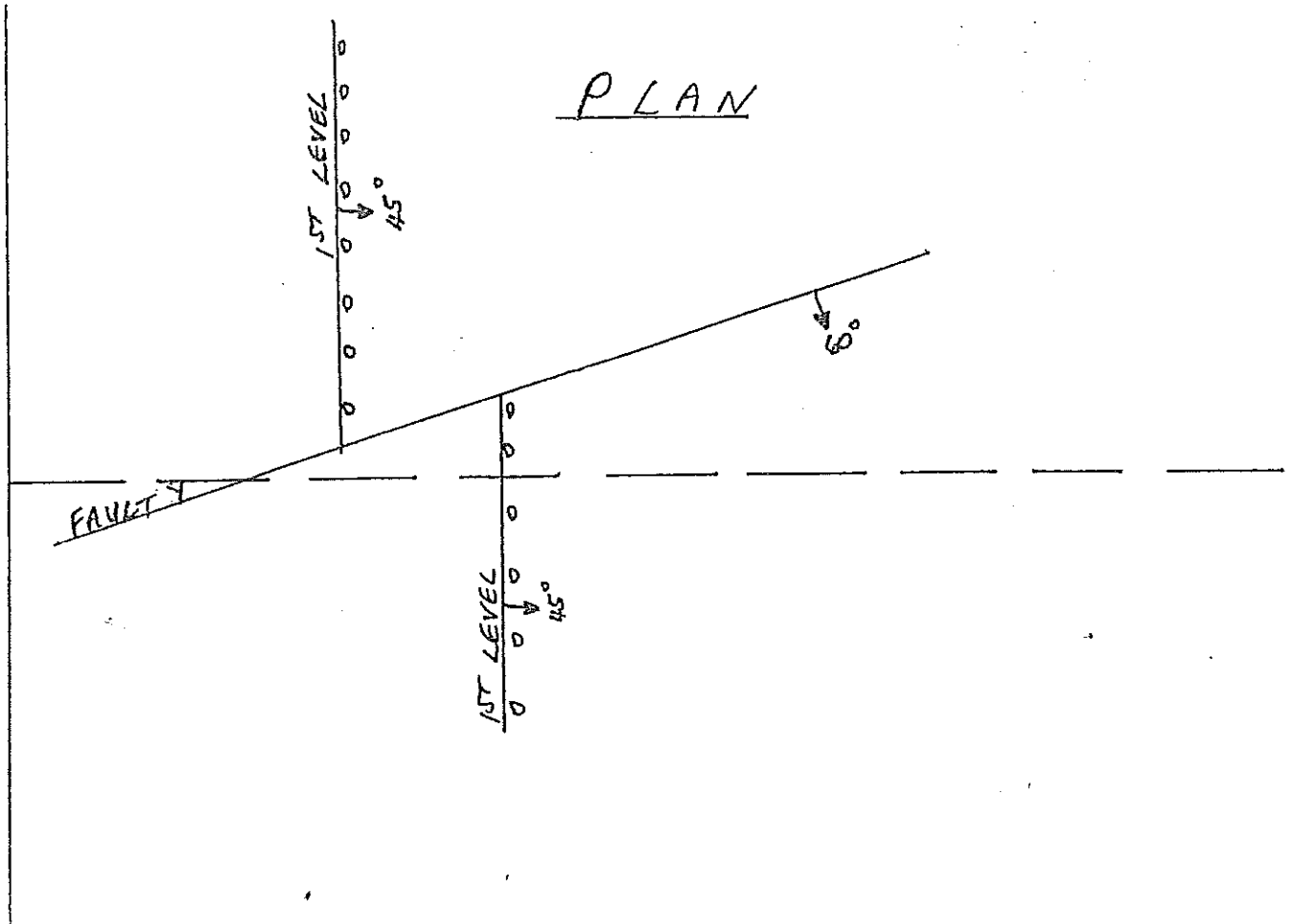
QUESTION 10

Give a brief description of the occurrence of Manganese under the following:

- (a) The distribution of Manganese in South Africa
- (b) The most common Manganese mined.
- (c) The types and uses of Manganese.

(10)

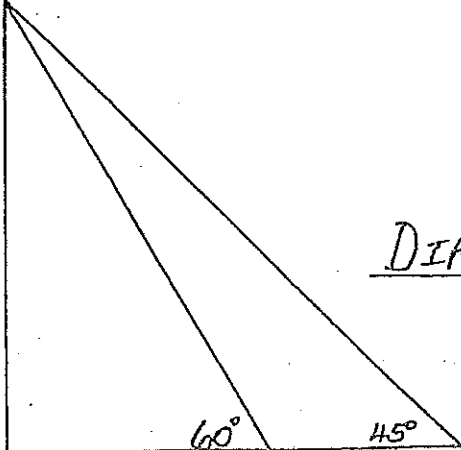
[TOTAL 100]



SECTION A-B

1ST LEVEL

2ND LEVEL



DIP DIAGRAM

QUESTION 3

Oct-05

EXAM NO.

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

(15)