

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

DATE: 12 October 2007 (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.  
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**

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

**QUESTION 3**

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

**QUESTION 4**

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

**QUESTION 5**

Regarding the formation of economic deposits name five deposits formed by mechanical concentration. Discuss each deposit giving an example associated with each. (10)

## QUESTION 6

Define and discuss the Coalification Process. (5)

## QUESTION 7

Name five metals of the Platinum Group , their uses , and where they occur in South Africa. (10)

## QUESTION 8

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

8.1 Tenacity.

8.2 Brittle.

8.3 Flexible.

8.4 Fusibility.

8.5 Malleable. (5)

## QUESTION 9

When confined and subjected to immense forces that slowly build up , rocks can be folded. Name six types of folding that can occur in strata. (3)

## QUESTION 10

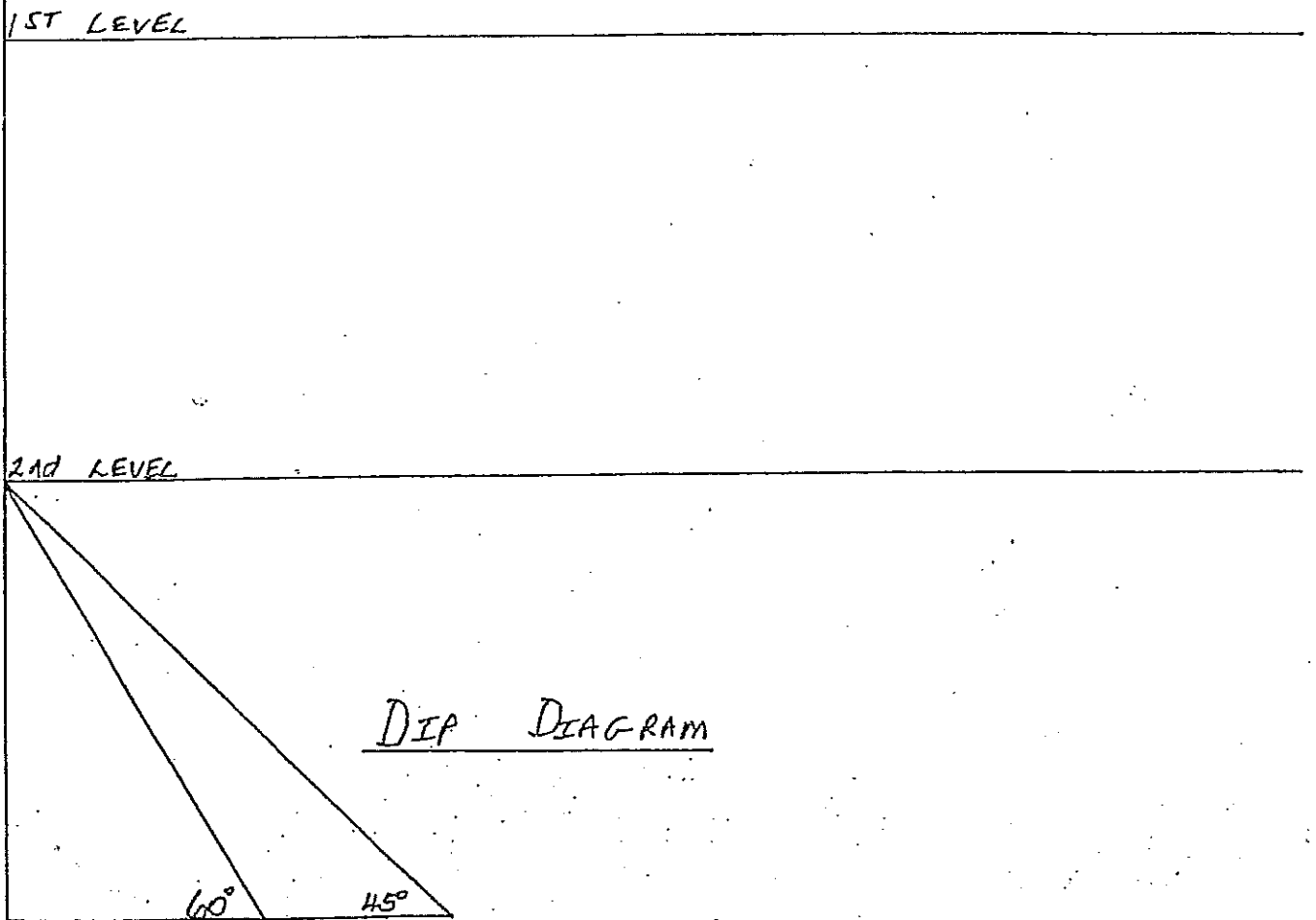
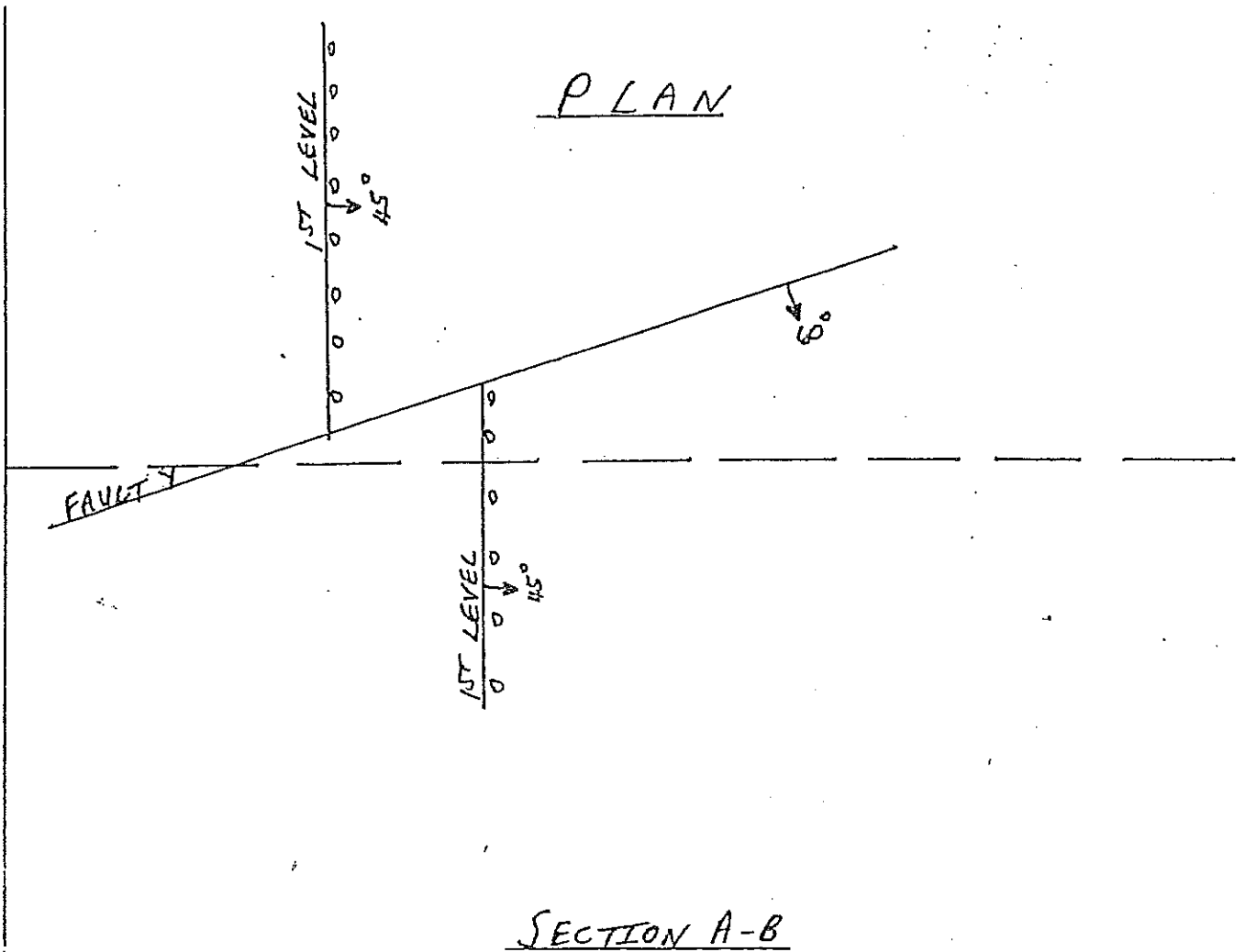
Discuss "Copper" in South Africa with reference to the following:

10.1 Uses and properties.

10.2 Main Copper ore minerals.

10.3 The location of major Copper deposits. (10)

**TOTAL 100**



QUESTION 3

OCTOBER 2007

EXAM NO.

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

(15)