UNIVERSITY OF JOHANNESBURG

PROGRAM	:	NATIONAL DIPLOMA *ENGINEERING METALLURGY*
SUBJECT	:	**METALLURGY I**
CODE	:	**MET 111 (EXTRACTION METALLURGY)**
DATE	:	SSA EXAMINATION 27 JULY 2016
DURATION	:	(SESSION 1) 08:00 - 11:00
WEIGHT	:	40 : 60
TOTAL MARKS	:	80

EXAMINER	:	MR GA COMBRINK	Sanso Number
MODERATOR	:	DR S D DU PLESSIS	File Number
NUMBER OF PAGES	:	3 PAGES	

INSTRUCTIONS : *ANSWER ALL QUESTIONS.*

ALL WORK SHALL BE HANDED IN

ALL UJ EXAMINATION REGULATIONS APPLY.

REQUIREMENTS : 1 POCKET CALCULATOR
NO CORRECTION FLUID SHALL BE USED
ONE (1) EXAM ANSWER SCRIPTS PER STUDENT

QUESTION 1:

1. *Each question below(give chemical formula and the product we get from it.*
   1.1. What is Cinnabar? *(2 marks)*
   1.2. What is Galena? *(2 marks)*
   1.3. What is Cerusite? *(2 marks)*
   1.4. What is Magnetite? *(2 marks)*

2. Name the minerals that can be exploited to extract Copper from? Also give their chemical formula. *(6 marks)*

3. Name the mineral that consists mainly of a substance that is represented by the following chemical formula *(2 marks in total)*
   3.1. $FeCr_2O_4$
   3.2. $(Co,Fe,Ni)As_3$

(16)

QUESTION 2:

Explain why minerals processing plants often make provision for ore storage facilities giving the reasons and the advantages. Also give typical locations where such ore and product storage facilities are placed.

(16)

QUESTION 3:

During liberation and comminution properties of the minerals are used to separated or concentrated specific fractions, name five of these properties that are often used for such separation and concentration processes and where appropriate give examples of the properties.

(10)

QUESTION 4:

There are several ores from which we can get Magnesium from. Name the two magnesium ores explaining what the difference between the two ore types are? Also give the chemical formula's.

(5)

QUESTION 5:

5.

5.1. Concerning a mining operation what is communition and why is it necessary (3)

5.2. How is comminution achieved in the minerals processing plant (i.e. how is it done)? (2)

5.3. Where does the comminution process begin and why does it begin where it does? (5)

(10)

QUESTION 6:

Make a labeled sketch of a typical crusher circuit showing both a closed crusher circuit as well as an Open crusher circuit. (10)

QUESTION 7:

Make a labeled sketch of a grizzly that explains how it works. (5)

QUESTION 8:

Make a schematic drawing of a sedimentation tank and label it. The sketch should clearly illustrate (show) the principle on which it works (8)

FULL MARKS FOR EXAM [80]