SUPPLEMENT EXAMINATION

PROGRAM	:	BTech *MINING ENGINEERING*
SUBJECT	:	**MINING IVA**
CODE	:	MINA411
DATE	:	17 July , 2018
DURATION and TIME	:	11:30 – 14:30
WEIGHT	:	70:30
TOTAL MARKS	:	100

EXAMINER	:	Dr. Steven Rupprecht
MODERATOR	:	Mr. H Hoffman
NUMBER OF PAGES	:	3

INSTRUCTIONS

1. READ ALL QUESTIONS CAREFULLY AND ANSWER ALL THE QUESTIONS.
2. COMPLETE SECTIONS A AND B IN SEPARATE EXAMINATION SCRIPTS.

REQUIREMENTS : TWO EXAMINATION SCRIPTS PER STUDENT.

SECTION A
METALLIFEROUS MINING

QUESTION 1

1a. Draw a cross Section of a Shaft demonstrating how the orepass system would be aligned in different strength/types of rock or ground conditions.   (10 pts)

1b. Explain why the tripass rock system has never been successfully implemented on a South African deep level mine   (10 pts)

1c. What is the largest rock you should tip into a 2.4 diameter rock Pass   (5 pts)

                                                                                      (25)

QUESTION 2

2a. What is a Bank Feasibility Study and what does the mining engineer use the study for. Include in your answer the level of accuracy for Opex and Capex. Also explain why the term "Bank" is used in this type of study   (15 pts)

2b. Provide the formula for Taylors Law and explain what the law is used for in mining engineering   (10 pts)

                                                                                      (25)

QUESTION 3

Sketch a shrinkage stope mining layout (5pts). Explain under what circumstances you would recommend shrinkage stoping (5pts) and what are the dangers associated with shrinkage stoping (10pts).

                                                                                      (20)

                                                                SUB-TOTAL SECTION A = 70

COAL Section

QUESTION 5

Calculate the instantaneous cutting rate in tonnes per hour for a continuous miner with the following parameters:

- Drum diameter 1.0m
- Sump depth 1.0m
- Sump rate 0.5m/min
- Cutting rate 0.8m/ min
- Reverse/ raise cutter 1.0m/min
- Coal height 3.0m
- Width of cut 4.2m
- Density of coal $1.6t/m^3$

(20)

QUESTION 6

Explain briefly the importance of CV and Volatiles for an ESKOM power plants

(10)

SUB-TOTAL SECTION B = 30

TOTAL = 100