UNIVERSITY OF JOHANNESBURG

PROGRAM	:	BTech *MINING ENGINEERING*
SUBJECT	:	**MINING IVB** **Examination**
CODE	:	MINB411
DATE	:	EXAM 25 November, 2019
DURATION and TIME	:	3 HOURS 12:30 to 15:30
TOTAL MARKS	:	100

EXAMINER	:	Prof. Steven Rupprecht
MODERATOR	:	Mr H Hoffman
NUMBER OF PAGES	:	4

INSTRUCTIONS

1. READ ALL QUESTIONS CAREFULLY AND ANSWER ALL THE QUESTIONS.

REQUIREMENTS : ONE EXAMINATION SCRIPTS PER STUDENT.

SECTION A
METALLIFEROUS, GENERAL & COAL MINING

QUESTION 1

Estimate the Revenue, Total Operating Cost and Profit/Loss in US Dollars for each year

Year		2020	2021	2022
Tonnes milled	tonnes	500 000	2 500 000	3 000 000
Grade in-situ (gold)	g/t	4.4	5.2	4.9
Content	grams			
Recovery		0,85	0,85	0,85
Recovered Gold	grams			
Ounces	Oz			
Price	$/oz	1500	1500	1500
Revenue	**(US$)**			
Mining ($/t)	58			
Metallurgy ($/t)	12			
G & A ($/t)	5			
Total OPEX	**(US$)**			
Profit/Loss	**(US$)**			

(15)

QUESTION 2

Each question is worth 2 points each

(a) Can a consultancy company sign off on a Mineral Resource or a Mineral Reserve for a CPR?

(b) Can a Competent Person declare a Mineral Reserve if the company does not have a water use license? Briefly Explain your answer.

(c) What is meant by a Mineral Resource having mineral reserves "exclusive" rather than "inclusive" of the mineral resources?

(d) Why is it necessary for a CP to sometimes state "Saleable Tonnage" as a point of reference rather than "ROM tonnage" when declaring a Mineral Reserve?

(e) True or False, a Competent Geologist, wishing to declare a Mineral Resource, can crush the full exploration drill core, i.e. the mineralized section of the core, for sampling purposes.

(10)

QUESTION 3

Explain how a QP determines market value of a mineral project by providing an analogy to buying a house

(10)

QUESTION 3

You have a 35m panel at a stope width of 1,3m and advance of 0.9m. The rock density is 2.8 t/m3 (Bulk) and a loose density of 1.8t/m3. If water jets, blast barricades, electronic detonators are utilized providing a straight face and smooth floor wall dipping at 30 degrees. How long, in minutes, will it take to clean the face assuming all rock is removed utilizing a 37kw face scraper winch.

(15)

QUESTION 4

(a) Provide a definition of ASM and SSM (5pts)
(b) How does ASM affect Large Scale mining is South Africa. (5pts)
(c) Explain the operation of a ASM shaft including limitations of wind and capacity of rock hoisting (10 pts)

(20)

QUESTION 5

Discuss the workings of a Dragline operation explaining aspects such as "chop down "method; box cut development and "key cut". Your answer should include a written description as well as a sketch to assist in your discussion.

(30)

TOTAL = 100