UNIVERSITY OF JOHANNESBURG

PROGRAM	:	BTech *MINING ENGINEERING*
SUBJECT	:	**MINING IVA**
CODE	:	MINA411
DATE	:	June 6, 2015
DURATION and TIME	:	12:30 – 15:30
WEIGHT	:	70:30
TOTAL MARKS	:	100

EXAMINER	:	Dr. Steven Rupprecht & Dr. Andre Dougall
MODERATOR	:	Mr. H Hoffman
NUMBER OF PAGES	:	4

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

Demonstrate your knowledge of Narrow Vein Longhole Stoping by conducting the following:-

(a) Discuss the rationale behind implementing Narrow Vein Longhole Stoping in the Witwatersrand Gold Mining environment. (5)

(b) Sketch the Narrow Vein Longhole Stoping layout demonstrating the drill direction and length, size of mining block, size and type of support, associated size of gullies, and direction of blast. (5)

(c) Discuss the equipment used to develop the mining layout, conduct production drilling, stope cleaning and hauling of broken ore (4)

(d) Discuss the technical reasons that why Narrow Vein Longhole Stoping has failed in the South African mining Environment and provide at least one example where Narrow Vein Longhole Stoping has been applied in South Africa. (6)

(20)

QUESTION 2

It is proposed to mine a 108Mt reserve. Utilising Taylors Rule recommend the life of mine? (5)

Provide the equation or formula to estimate Cut-off Grade (5)

(10)

QUESTION 3

Describe the various consideration for selecting a vertical shaft, incline shaft and decline shaft. Consider at least 5 areas for your discussion.

(15)

QUESTION 4

You have been promoted to Shaft Manager at a gold mine utilizing backfill and hydraulic props. Discipline is very poor in the stopes as management has neglected to conduct underground visits for the past 12 months due to attending strategy meetings.

There have been a number of fatalities on your shaft related to stope orepasses hanging up. Supposedly there are very big rocks coming out of the stope, as well as regular mud rushes from the orepasses. Locomotives are often unavailable for several days at a time. Development of the orepasses are poorly done with no supervision and rumors are that the miner doesn't make use of survey notes. Note you have orepasses serving up the raise line as high as the No. 4 gully.

Based on the above comments and your vast knowledge of orepass management from your days at UJ You have been excused from the meeting to implement a plan of action to prevent in-stope orepasses from hanging up and guidelines on what action to take in the unlikely event of a hang-up/blockage taking place after the implementation of your action plan.

(25)

SUB-TOTAL SECTION 70

SECTION B: TO BE DONE IN SEPARATE SCRIPT

Answer only 1 of the 2 questions provided

QUESTION 1

What are the factors that impact on the choice of a mining method. Give an example of a mechanism that could be used to assist a team making such a critical decision.

(30)

OR

QUESTION 2

Analyse Thin seam mining of coal, gives definitions, methods with explanation, and determine where and when it could be used or was historically applied.

(30)

SUB-TOTAL SECTION B = 30

TOTAL = 100

INFORMATION SHEET (IF APPLICABLE)