



PROGRAM : NATIONAL DIPLOMA
(MINING ENGINEERING)

SUBJECT : MINING III

CODE : MIN 32-1

DATE : SUMMER EXAMINATION 2016
23 NOVEMBER 2016

DURATION : (SESSION 2) 12:30 - 15:30

TOTAL MARKS : 100

WEIGHTING : 60% OF FINAL MARK

EXAMINERS : T MMOLA & N NDIWENI

MODERATOR : J HAIRBOTTLE

NUMBER OF PAGES : 2 PAGES excl. COVER PAGE

INSTRUCTIONS

1. ANSWER ALL QUESTIONS
2. UNDERLINE AFTER EACH QUESTION
2. COMPLETE SECTIONS A AND B IN DIFFERENT SCRIPTS
5. NO CELLPHONES (SWITCH-OFF)
6. DO NOT USE TIPPEX.

REQUIREMENTS

1. MINIMUM TWO SCRIPTS
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SECTION A
METALLIFEROUS AND GENERIC MINING

QUESTION 1

- 1.1 Name three variations of room-and-pillar mining. (3)
- 1.2 What is the purpose of a slot raise in sublevel open stoping and how is it created? (4)
- 1.3 Name the drilling patterns that can be used in sublevel stoping. (3)
- 1.4 State and describe a mining method that can be applied to exploit a high grade, flat dipping deposit with an average thickness of 30m and extending 600m on strike. The strength of the ore is considered weak and the host rock moderately strong. (10)
- [20]**
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QUESTION 2

- 2.1 Describe the phases of stoping in conventional breast mining. (20)
- 2.2 What is the purpose of a gully? Name the types of gullies found in narrow tabular mines. (5)
- 2.3 Discuss the rock handling operations using a scraper system in conventional production stoping. (5)
- [30]**
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QUESTION 3

- 3.1 Describe briefly the sublevel caving method (8)
- 3.2 Discuss any two strategies to control dilution in a sublevel caving operation. (6)
- 3.3 Describe the conditions under which block caving is done (4)
- 3.4 What is the purpose of the undercut level in a block cave operation? (2)
- [20]**
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TOTAL SECTION A

[70]

SECTION B
COAL MINING

QUESTION 1

- 1.1 Draw a diagram showing ventilation of a longwall face, in longwall retreat mining.

[15]

QUESTION 2

What are the different factors to expect in longwall mining when using a shearer versus a plough , with regards to the following:

- 2.1 Seam thickness (5)
- 2.2 Immediate roof. (5)
- 2.3 Raw coal size (5)

[15]

TOTAL SECTION B

[30]
