



UNIVERSITY  
OF  
JOHANNESBURG

**PROGRAM** : NATIONAL DIPLOMA  
(MINING ENGINEERING)

**SUBJECT** : MINING III

**CODE** : MIN 32-1

**DATE** : SUMMER SSA EXAMINATION 2015  
10 DECEMBER 2015

**DURATION** : (SESSION 3) 15:00 - 18:00

**TOTAL MARKS** : 100

**WEIGHTING** : 60% OF FINAL MARK

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**EXAMINERS** : P WISSEKERKE & T MMOLA

**MODERATOR** : P BECKER

**NUMBER OF PAGES** : 2 PAGES excl. COVER PAGE

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### **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.
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### **REQUIREMENTS**

1. MINIMUM TWO SCRIPTS
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**SECTION A**  
**METALLIFEROUS AND GENERIC MINING**

**QUESTION 1**

- 1.1 State the conditions under which sublevel stoping may be applied. (5)
- 1.2 Give a brief description of the drift-and-fill mining method. (3)
- 1.3 Describe the various forms of backfill. (4)
- 1.4 List four favourable conditions and four limitations of cut-and-fill mining (8)

**[20]**

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**QUESTION 2**

- 2.1 Discuss all the development work required to bring a conventional gold mine into production. (12)
- 2.2 Describe the longwall mining method. (4)
- 2.3 State the limitations of longwall mining. (4)
- 2.4 Apart from longwall mining, name two other methods that are used to mine narrow tabular metalliferous orebodies. (2)
- 2.5 Explain what the following activities entail.
  - (a) Vamping (3)
  - (b) Reclamation (2)
  - (c) Sealing off (3)

**[30]**

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**QUESTION 3**

- 3.1 Describe briefly the sublevel caving method (4)
- 3.2 State three advantages and three disadvantages of sublevel caving (6)
- 3.3 What is the purpose of the undercut level in a block cave operation? (2)
- 3.4 Describe the contemporary undercutting strategies that can be employed to initiate a block cave (6)

**[20]**

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**TOTAL SECTION A**

**[70]**

**SECTION B**  
**COAL MINING**

**QUESTION 1**

You are currently planning to mine a low seam reserve. Sketch and discuss in some detail two methods that can be utilised to extract this reserve. The seam height is 1.1m and is 80m below surface.

[15]

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**QUESTION 2**

Describe in detail the coal getting operations in a long wall panel under the following headings.

1. Shearer
2. A.F.C
3. Self-advancing hydraulic support

[15]

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**TOTAL SECTION B**

**[30]**

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