



PROGRAM : BET - MINING ENGINEERING

SUBJECT : UNDERGROUND MINING METHOD 2A

CODE : UMMMNA2

DATE : SUPPLEMENTARY EXAMINATION
17th JULY 2019

DURATION : 11:30 TO 14:30 HOURS

TOTAL MARKS : 100

EXAMINER : MR N NDIWENI

MODERATOR : MR T MMOLA

NUMBER OF PAGES : THREE PAGES (incl. cover page)

INSTRUCTIONS :

1. ANSWER ALL QUESTIONS
2. AN ANSWER TO A QUESTION WHEN STARTED SHOULD BE COMPLETED BEFORE ANOTHER ANSWER FOR THE FOLLOWING QUESTION BEGINS

QUESTION 1

- 1.1 By use of a diagram show the difference between a seam height and mining height. [2]
- 1.2 Describe a resin bolt installation procedure. [4]
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QUESTION 2

- 2.1 Show by use of a diagram; a snook, fender and goaf in coal stooping. (6)
- 2.2 Draw a split and fender coal mining method. (6)
- [12]
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QUESTION 3

A new coal reserve has been bought by a company. You are appointed project manager and have decided to extract this coal by utilising a stooping method. Sketch and describe a panel lay-out. Detail cutting sequence, breaker-line support and ventilation. [15]

QUESTION 4

Discuss spontaneous combustion under the following:-

- 4.1 Prevention
- 4.2 Detection
- 4.3 Extinguish
- 4.4 Qualities, propensity of the particular coal.
- 4.5 Ventilation design.
- 4.6 Speed of mining. [12]
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QUESTION 5

State your understanding of productivity factors in underground coal mining under the following:-

- 5.1 Thickness of seam [5]
- 5.2 Roof and floor [5]
- 5.3 Quantity of annual production [5]
- 5.4 Age of workings [5]
- 5.5 Market requirements [5]
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QUESTION 6

Choose and discuss any **four** categories as shown below on design considerations for a cutting sequence for a development panel in bord and pillar mining.

- a) Equipment
- b) Manpower
- c) Geology
- d) Geometry
- e) Loading rate
- f) Delays
- g) Cycle times
- h) Production
- i) Mining rate
- j) Ventilation
- k) Industry standards

[16]

QUESTION 7

What are the suitable conditions for a Continuous Miner usage under the following:-

- a) Geology
- b) Mining Features
- c) Infrastructure
- d) Services

[14]

TOTAL =100
