



FACULTY : ENGINEERING AND BUILT ENVIRONMENT

DEPARTMENT : Mining Engineering and Mine Survey

CAMPUS : DFC

MODULE : ENVMNA1
ENVIRONMENTAL MANAGEMENT 1A

SEMESTER : First

EXAM : FSA May 2019

DATE : 29 May 2019 **SESSION** : 08:30-11:30

ASSESSOR(S) : MR P MALATJI/ MISS K MUNYAI

MODERATORS : MISS P NELWAMONDO

DURATION : 3 HOURS **MARKS** : 120

NUMBER OF PAGES: 3 PAGES

INSTRUCTIONS:

1. This Paper Consist of Six Questions
2. Answer All Questions
3. Underline each question after you completed

4. Write your name on all answer books
 5. Write your lecturer's name on your answer book
 6. Number your answers correctly
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QUESTION 1

- 1.1 Define: Air pollution (2)
 - 1.2 List four (4) natural sources of air pollution (4)
 - 1.3 Briefly explain how toxic materials that pollute the soil can get into the human body (4)
 - 1.4 List six measures of preventing water pollution (6)
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- [16]**

QUESTION 2

- 2.1 Define erosion (1)
 - 2.2 Briefly explain three modes of subsidence (6)
 - 2.3 Briefly explain how productivity of the following is measured:
 - 2.3.1 Herbaceous species (2)
 - 2.3.2 Woody plants (2)
 - 2.4 List 5 principal factors causing mass wasting at mine and process waste pile. (5)
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- [16]**

QUESTION 3

- 3.1 Define effective mine rehabilitation. (2)
 - 3.2 Discuss the procedure of how shafts are sealed during mine rehabilitation. (5)
 - 3.3 List five objectives of revegetation. (5)
 - 3.4 List and explain three methods of establishing vegetation used during mine rehabilitation. (6)
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- [18]**

QUESTION 4

- 4.1 Define Environmental Management using your own words. (4)
- 4.2 Briefly explain the concept of clean coal technology. (6)
- 4.3 Mining methods consist of surface mining methods and underground methods, however surface mining are perceived as high impact mining method socially and environmentally.

List and explain two factors that leads to a change from surface mining method to underground method. (6)

4.4 Identify the longest activity during exploration process and describe at least one environmental impact and negative social impact as a result of this activity in each case. (4)

[20]

QUESTION 5

5.1 Contrast between third industrial revolution and fourth industrial revolution (4)

5.2 Identify second stage during mine planning and design and describe activities taking place on this phase. (4)

5.3 There are four factors important influencing population density. This factors can be used to ensure that point of crisis should not be reached. Explain how this factors can be applied. The use of examples is highly recommended. (8)

5.4 Contrast between renewable and non-renewable resources. (4)

[20]

QUESTION 6

There is a proposal to open an opencast mine at Witbank area. The type of mineral to be mined is coal. There is a community next to a proposed mining location which is 500 meters away from the proposed area. According to statistic South Africa for 2019, Unemployment is hovering at around 50% for above mentioned area. There is about 5KM road from main road to the community. Most of people within the community still make use of wood for fire. The mining company will be using diesel-powered machines and drill and blast type of mining method. The area is further rich with wild animals and community depend more on agriculture for a living. Cases of Malaria and Cholera had been reported recently from a local clinic. Conduct environmental impact assessment covering all stages of the assessment on air pollution on the above mentioned area. (30)

[30]

GRAND-TOTAL = 120

