



**PROGRAM** : NATIONAL DIPLOMA  
IN EXTRACTION METALLURGY  
**SUBJECT** : **MINERAL PROCESSING II**

**CODE** : **MPR 2A20**

**DATE** : SUMMER EXAMINATION  
13/11/2014

**DURATION** : (SESSION 1) 08:30 - 10:30

**WEIGHT** : 50:50

**FULL MARKS** : 82

**TOTAL MARKS** : 100

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**EXAMINER** : Dr. W. NHETA

**MODERATOR** : MR M. HENDERSON

**NUMBER OF PAGES** : 2 PAGES

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**INSTRUCTIONS TO STUDENTS:**

1. ANSWER ALL QUESTIONS.
  2. DRAW NEAT DIAGRAMS AND WRITE CLEARLY, MARKS CAN BE DEDUCTED FOR UNTIDY WORK.
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### Question 1

For the following possible problems with conveyors listed below:

- i. Give the possible causes
- ii. Describe what would happen if no action is taken
- iii. What action should be taken to solve the problem

- 1.1 The belt moves sideways as well as forward (8)
  - 1.2 There is a tear in the centre of the belt (11)
  - 1.3 The conveyor suddenly stops (6)
- [25]**
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### Question 2

- 2.1 What is meant by critical size building up in an autogenous mill? (4)
  - 2.2 Why is it a problem? (2)
  - 2.3 What can be done to solve this problem? (5)
- [11]**
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### Question 3

Cyclones are often used as a classifier in milling circuit.

- 3.1 Explain why they are not always ideal in this application. (5)
  - 3.2 What are the benefits of using cyclones in milling circuits? (13)
- [18]**
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### Question 4

- 4.1 Give the three processes that are used in solid/liquid separation in the order that they are used. (3)
- 4.2 For what reasons are they used in the sequence given? (7)

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4.3 Define the following terms as they are used in thickening

- i. Clarification
- ii. Sedimentation (4)

**[14]**

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### Question 5

If a vacuum filter is not operating efficiently, this can result in a thin cake with a high moisture content being produced. At the same time, the filter can be dirty.

5.1 Explain what could be causing these symptoms (5)

5.2 What action will you take to remedy the problems (9)

**[14]**

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**Total Marks 82**