FINAL EXTERNAL INTEGRATED SUMMATIVE ASSESSMENT

OCCUPATIONAL CERTIFICATE: MILLER NQF 5

SAQA ID: 97204 **CREDITS: 401**

Date: **Marks: 200**

Time: 09h00 – 12h00 **Duration: 3 hours**

Instructions

This paper consists of seven (7) pages including the cover page. Candidates may use their own calculators.

Use the provided A4 exercise book as your answer book.

All questions are compulsory with a minimum pass mark of 70% for each question.
Question 1 (80 Marks)
Question 2 (30 Marks)
Question 3 (70 Marks)
Question 4 (20 Marks)

This is a closed book assessment.
Read the instructions for each question before answering.
Answer the questions to each number. Clearly specify each question number in the middle of the page and draw a horizontal line after each question.
Structure all written answers logically. Use the mark allocation for each written question to guide the length of your answer.
Candidates are not allowed any form of assistance and must always adhere to the invigilator's instructions .
Any attempt at cheating will lead to disqualification.
No cell phones are allowed

QUESTION 1
Read the following scenarios for each question thoroughly before answering
Complete the questions on the scenarios outlined below:

1.1. Scenario
Grain is conditioned according to several factors based on certain aspects found in the grain.
The following information is extracted from the screens room records for a 24hour period:

	Good	Medium	Poor

Name: …… Signature: ……

	Quality	Quality	Quality
Opening stock	96 ton	175 ton	75 ton
Quantity conditioned in 24 hours	50 ton	95 ton	70 ton
Closing stock after 24 hours	98 ton	150 ton	73 ton

Answer the questions based on the scenario (a) above.
Determine the following:

1..1. Individual grains in tons and total feed to mill in tons in 24 hours. individual grains in t.p.h. and total grain in t.p.h. (6)
1..2. Percentage of each quality in the blend. (3)
1..3. Maximum lying time for each quality. (3)

1.2. Scenario

The intake department receives a number of consignments of grain in a day.
The information below is derived from a delivery of grain,

1.2.1. determine the nett mass of grain offloaded.

First Mass	72000kg
Tare	20000kg
Nett Mass?	

(5)

1.3. Scenario

The Intake department at a mill receives a consignment of raw material:

Complete the following questions:

1.3.1. What deviations could cause the consignment to be rejected? (3)
1.3.2. What equipment is used to take a sample from the truck? (3)
1.3.3. What documentation should accompany the consignment? (3)

1.4. Scenario

With a consignment of raw material, various tests need to be carried out on the grain received.

1.4.1. What equipment is used to test the hectolitre mass of the grain? (3)
1.4.2. What equipment is used to separate the screenings and broken seeds? (3)

1.5. Scenario:

The transfer rate of grain from silo to screen room is 20 t.p.h. The natural moisture of the grain is 11,6%. It is intended to raise the final conditioned moisture level to 16%. This will be done in two stages viz. first conditioning to 14,5% and second conditioning to 16%.

Calculate the following:

1.5.1. The quantity of water, in litres per hour, which must be added in both instances to reach the target level of 16%. (6)
1.5.2. The final mass of grain after both water additions. (6)

Name: …… Signature: ……

1.6. Answer the question below on grain impurities

1.6.1. Give the reasons why a milling separator is not suitable for the separation of oats, barley and small seeds from grain. (6)

1.7. Scenario

A silo has a diameter of 18 metre and a cylindrical section of 33 metres and an outlet hopper of 6 metre Complete the question on the scenario above.

1.7.1. Determine the total volume of the silo in m³. (2)

1.7.2. Determine the total tonnage that the silo can hold if the average hectolitre mass is 78kg. (3)

1.7.3. Determine the total holding mass if a tape measure indicates 16 metre empty space. (2)

1.8. Scenario

Proper setting of the mill machinery is vital for the balance of the feed to the subsequent machines in the process flow. Answer the following questions on break release settings.

1.8.1. initial checking procedure (can be 6 or more checks); (3)
1.8.2. taking the sample; (3)
1.8.3. selecting the test sieve; (2)
1.8.4. sieving the sample and interpretation (3)
1.8.5. roll adjustment. (2)

1.9. Scenario

Various quality tests are done to check quality of finished products, answer question below on quality of the product.

Answer the questions based on the scenario above.

1.9.1. Describe the method of determining finished product moistures by using the long oven test method (8)

1.10. Answer the questions on machine settings.

1.10.1. Why are the impact detachers only installed on certain reduction passages? (2)

SUB-TOTAL: 80

Name: …… Signature: ……

QUESTION 2

Read the questions and answer accordingly.

2.1. Explain why the purity of product (free from bran contamination) from the first covers in a batch is better than that from the last covers in the same batch. (6)

2.2. Describe the grinding action of a pair of rolls having blunt flutes in comparison to a pair having normal flutes. (6)

2.3. Scenario

The term 'mill balance' is often used to describe the settings and general running efficiency of a mill.

2.3.1. Discuss how you as a shift miller would endeavour to attain optimum mill balance (1)
2.3.2. What is meant by the term 'starch damage' and what factors affect the amount of starch damage? (8)

SUB-TOTAL: 30

Name: ……. Signature: ……

QUESTION 3

Read the following information for each question thoroughly before answering

3.1. Complete the questions on the information outlined below:
Information:
The following results are available from your mill log (quantities in kg):

	08:00 to 10:00	10:00 to 12:00
Product 1	2 218	2 343
Product 2	12 889	13 330
Offal	5 035	5 042
Feed to 1 Bk	20 553	21 084

3.1.1. Analyse the results by comparing the milling loss in both cases. (3)
3.1.2. Analyse the results by comparing the overall extraction in both cases. (3)
3.1.3. Analyse the results by comparing the feed to mill in tons/hour in both cases. (3)
3.1.4. Assuming grain quality and machine settings remain unchanged, describe with reasons, the likely outcome on product quality. (6)

3.2. Fortification of finished products is mandatory as per regulations.

Answer the question below on fortification.

3.2.1. Give any five of the nine ingredients included in the fortification. (5)
3.2.2. On shift, how would you check that the amount of fortification is correct? (5)
3.2.3. What is the regulated dosage of fortification per ton? (3)
3.2.4. Why is the fortification of the finished products important in most African countries? (2)

3.3. Scenario

A user of machinery shall provide and maintain sufficient safety standards to enable work to be carried out without danger to persons.

Answer the question with regards to the scenario above.

3.3.1. Why should a sprinkler system be installed and how does it work? (10)
3.3.2. Explain in your own words the regulations dealing with Revolving machinery and Rolls. (10)

3.4. Answer the below question on raw material.

3.4.1. What are the advantages of buying grain in bulk? (10)
3.4.2. What precautions should be taken when grain with high moisture content is stored in bulk? (8)
3.4.3. What system of measurement do we use in die Republic of South Africa? (2)

SUB-TOTAL: 70

Name: …… Signature: ……

QUESTION 4

Read thoroughly and answer the question below.

4.1. Uniform test methods are essential when using the Inframatic (NIR). Name three important aspects that may affect the accuracy of the results. (6)

4.2. Answer the question on SOP's and SWP's below.

4.2.1. List 5 examples of the general duties of employees at work. (5)

4.2.2. What is the most important rule for an operator when he is working with moving machinery? (5)

Read the following information for each question thoroughly before answering

4.3. Complete the questions on the information outlined below:

Information:

4.3.1. State the function and purpose of the following parts of a plant sifter:

4.3.1.1. Spacer (1)

4.3.1.2. Clamping device (1)

4.3.1.3. Eccentric weights (1)

4.3.1.4. Fall through or change over tray (1)

SUB-TOTAL: 20

GRAND TOTAL: 200

Name: …… Signature: ……