



Question Paper

Module 3:	Mill Processes and Performance	
Date: 7 May 2015	Time: 09:30 – 12:00	Duration: 2½ hours

You should have the following for this examination: **one answer book; pencil, pen and ruler.**

All questions carry equal marks. The maximum marks for each section within a question are shown. Answer **ALL TEN** questions, starting each question (1-10) on a **new** page of the answer book.

1. a) Explain briefly the purpose of:
 - i) The reduction system; (3 marks)
 - ii) Flour dressing. (3 marks)
 - b) Explain briefly the purpose of flute spiral on break rolls. (2 marks)
 - c) Explain what is meant by 1 in 50 (2%) spiral cut. (2 marks)
 - d) i) Explain the term 'differential' as applied to a break roll. (1 mark)
ii) State the purpose of roll differential. (1 mark)
-
2. a) Explain the main purpose of the milling process. (6 marks)
 - b) State FIVE conditions that must be fulfilled if purifiers are to work efficiently. (5 marks)
 - c) State the main purpose of a purifier. (1 mark)
-
3. a) Sketch and label a flow diagram of a typical mill operation. (8 marks)
 - b) Describe briefly the purpose of a:
 - i) Bran finisher; (2 marks)
 - ii) Flake disrupter. (2 marks)
-
4. a) Outline SIX details of each rollermill passage that should be shown on a typical flow sheet. (6 marks)
 - b) Describe briefly the purpose and operation of infestation destroyers in a typical final product system for flour. (6 marks)

continued overleaf

5. a) Describe briefly the terms:
- i) Conveying speed; (2 marks)
 - ii) Phase density. (2 marks)
- b) Describe the operation of a blowline pressure switch. (6 marks)
- c) Explain the term “roll tram”. (2 marks)
6. a) List FOUR factors that should be considered for the correct care and maintenance of sieve covers. (4 marks)
- b) Describe briefly the method of operation of a disc mill. (4 marks)
- c) Describe briefly why reduction rolls have a taper or camber. (4 marks)
7. a) Sketch and label a flow diagram of a typical 1 tonne per hour wholemeal plant including stones. (9 marks)
- b) List THREE main passages in the mill flow from which germ can be extracted. (3 marks)
8. List TWELVE effects on mill balance of the inefficient operation of coarse semolina purifiers due to blinded covers and/or excessive use of air. (12 marks)
9. For EACH purpose below, list SIX factors that should be checked and, if necessary, adjusted:
- a) Reduce starch damage; (6 marks)
 - b) Improve germ quality. (6 marks)
10. a) Outline FOUR records that should be kept when any changes are made to the mill flow. (4 marks)
- b) Outline FIVE effects that high atmospheric humidity has on the milling process. (5 marks)
- c) Explain the term “invisible loss”. (1 mark)
- d) Give TWO examples of where invisible loss can occur. (2 marks)