



Question Paper

Module 3:	Mill Processes and Performance	
Date: 5 May 2016	Time: 09:30 – 12:00	Duration: 2½ hours

You should have the following for this examination: **one answer book; calculator, 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) State the unit of measurement for roll surface. (1 mark)
b) In a 500t/24hr wheat mill, calculate the surface in mm of the following passages (*show all workings*):
 - i) 1BK 4 x 1250mm rolls; (3 marks)
 - ii) 4BKf 2 x 1000mm rolls. (3 marks)
- c) State FIVE factors that affect the extent to which endosperm is scraped from bran in the break system. (5 marks)
2. a) Explain the main purpose of the milling process. (6 marks)
b) State the THREE elements of stock within the feed to a purifier. (3 marks)
c) Outline the destination of TWO of the above elements of stock. (2 marks)
d) State the type of flour for which purifierless mills may be used. (1 mark)
3. a) Sketch and label a flow diagram of a 5 break system in a typical milling process. (8 marks)
b) Describe how reduction rolls crush and simultaneously shear the endosperm particles. (4 marks)
4. a) Describe briefly the operation of a rotary seal/airlock. (4 marks)
b) Describe briefly the operation of a Quiver sifter. (4 marks)
c) Describe the FOUR basic elements of a PeriTec debranning system. (4 marks)
5. a) Sketch and label a typical wheatfeed pelleting system. (9 marks)
b) List THREE disadvantages of pelleting. (3 marks)

continued overleaf

6. a) Describe briefly the terms:
- i) Scalping; (2 marks)
 - ii) Grading; (2 marks)
 - iii) Dusting. (2 marks)
- b) State in microns the minimum size of the following:
- i) Broad bran; (1 mark)
 - ii) Ordinary bran; (1 mark)
 - iii) Fine bran. (1 mark)
- c) List the nutrients that are removed during the milling process when producing white flours. (3 marks)
7. a) State FOUR reasons for installing computerised roll gap adjustment. (4 marks)
- b) Explain the importance of maintaining the correct tension in plansifter covers. (6 marks)
- c) State where a drum detacher would be found in the mill flow. (2 marks)
8. a) Explain why extraction is important to the miller. (3 marks)
- b) For EACH of the following, give THREE factors that have an effect on extraction rate:
- i) Wheat; (3 marks)
 - ii) Plant design; (3 marks)
 - iii) Operational. (3 marks)
9. Describe briefly SIX points that should be considered in order to maintain good mill balance. (12 marks)
10. a) Explain the term 'mill performance'. (4 marks)
- b) In order to maintain optimum mill performance, outline FOUR factors the miller should consider. (8 marks)