Examination Period 3: 2016/17

LEM204017N

Module Title: Sustainable Crop Management
Level: Five
Time Allowed: Two hours

Instructions to students:

- Enter your student number **not** your name on all answer books.
- Answer **three** out of **five** questions.
- Begin each question in a separate answer book; label each answer book clearly with the number of the question you are answering.
- All questions carry equal marks.

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Answer three out of five questions.

1. Blackgrass (*Alopecurus myosuroides*) has become a major problem for arable farmers in the UK.
   
   a. Explain why it is now a serious issue and describe its harmful effects on crops.  
      (12 marks)
   
   b. Outline a strategy of integrated crop protection that could be implemented to prevent and control the weed.  
      (13 marks)

2. 
   
   a. Identify and describe the key principles of organic crop production.  
      (10 marks)
   
   b. Explain the place of organic production within UK agriculture and the retail food market including recent trends in production and retailing.  
      (8 marks)
   
   c. Briefly discuss the relevance of organic production in terms of the concept of sustainable food production.  
      (7 marks)

3. 
   
   a. Describe the process of genetic manipulation to produce Genetically Modified (GM) crops and provide examples of GM crops grown commercially throughout the world.  
      (13 marks)
   
   b. Expand on the factors that have restricted the introduction of GM crops into the UK and outline recent GM developments in relation to photosynthesis that could have significant potential for crop production.  
      (12 marks)

Questions continue overleaf
4. Identify, with the use of examples, the major ‘precision farming’ techniques used globally and outline why precision techniques are considered to be more sustainable than conventional agricultural practices.  

   (25 marks)

5. Review the current production of bio-energy crops in the UK and discuss how the effect of government renewable energy policy, world energy costs, developing technology and carbon targets may influence the production of these crops in the future. 

   (25 marks)

End of Paper