Mastership in Chemical Analysis

Part B Examination

Paper 1

Online

Wednesday 14th October 2020

1230 - 1530
Instructions

Answer five questions out of eight.

The answers to each question must be returned in the examination envelope provided. All examination scripts must be handed in at the end of the examination.

The marks allocated to each question are given.

Unless otherwise stated, references to Statutes in England include the equivalent alternatives for Scotland, Wales and Northern Ireland.

Unless otherwise stated, any reference to Statutes includes the EU regulations that they enforce.

1. 
   a) Define ‘meat’ within a legal context.  
      4 marks
   
   b) Outline the analysis required to determine the meat content of a pork sausage.  
      8 marks
   
   c) How would you then calculate the meat content? Include any assumptions you have made.  
      8 marks

2. Write an account of the different food preservation techniques in use today and discuss their relative merits. Include in your answer examples of foodstuffs to which the techniques described are applicable.  
   20 marks
3. 
   a) Describe the approach to testing a formal sample of a lamb curry and pilau rice meal for permitted artificial colours and peanut protein. Explain how the analytical results should be assessed and reported. 
      10 marks 
   b) Describe the required method for taking a formal sample of canned tuna in brine, to be tested for histamine content and explain how the sample should be analysed and assessed for compliance with regulatory requirements. 
      10 marks 

4. 
   a) Section 14 of The Food Safety Act 1990 prohibits selling food not of the nature or substance or quality demanded by the purchaser. Discuss each of the meanings of 'nature', 'substance' and 'quality' using examples to illustrate your answer. 
      9 marks 
   b) Regulation (EC) No 178/2002 does not permit a food being placed on the market if it is unsafe. Discuss the meaning of 'unsafe' as defined. 
      5 marks 
   c) Give two of the main compositional requirements in legislation for a spirit drink described/sold as the following? 
      I. Vodka 
      II. Brandy 
      III. Whisky 
      (2 marks each) 
      6 marks 

5. For the following, discuss the assessment of their compliance against regulatory requirements using an analytical strategy from sample receipt to final reporting. 
   Formal samples of: 
   a) Dried vine fruit for aflatoxins 
      10 marks 
   b) Smoked salmon for polycyclic aromatic hydrocarbons 
      10 marks
6. 
   a) Outline the provisions of The Food Supplement (England) Regulations 2003
      
   b) Discuss any compositional and/or labelling requirements for a sports supplement that makes a:
      
      I. Generic health claim
      II. High fibre claim
      III. Good source of vitamin B1 claim
      IV. Magnesium improves heart function claim
      V. Vegan claim
      
      (2 marks each)

6 marks

7. 
   a) Outline the technical guidance on nutrition labelling of food published by the Department of Health
      
   b) What are the conditions laid down in law for use of each of the following nutrition claims:

      I. Low fat
      II. High polyunsaturated fat
      III. Source of fibre
      IV. Low energy
      V. With no added sugars
      
      (2 marks each)

6 marks

8. Discuss the risks for each of the following micro-organisms in ready to eat (RTE) foods and how they behave under different conditions in the food. Describe their effects if ingested, including symptoms of infection, incubation time and any maximum permitted limits.

   I. *Campylobacter*
   II. *Listeria monocytogenes*
   III. *Bacillus cereus*
   IV. *Staphylococcus aureus*

   (5 marks each)

10 marks

END OF PAPER