

THE ROYAL COLLEGE OF VETERINARY SURGEONS
DIPLOMA IN VETERINARY PUBLIC HEALTH (MEAT HYGIENE)
THURSDAY 17 JULY 2003

PAPER I
(3 hours)

Candidates are required to answer **FOUR** of the following **five** questions.

Allow 45 minutes per question.

Illegible handwriting or failure to answer the question in the form required may result in examiners being unable to award marks for information which candidates intended to convey.

1. Describe the measures currently in place in the United Kingdom in respect of Transmissible Spongiform Encephalopathies (TSEs) of animals.

Discuss in your answer the current TSE testing of cattle and sheep in the United Kingdom abattoirs.

2. **List** the types of residues that may be found in food of animal origin. Indicate **briefly** the controls that are in place to reduce or eliminate the risk of residues being present and how the consumer can be assured.

In addition describe the requirements of the European Directive on Veterinary Residue Surveillance Scheme applicable in the Member States. **Outline** how these requirements relating to meat animals are achieved in Great Britain.

3. Many systems for the production of food of animal origin emphasise the importance of a "farm to fork" holistic approach to food safety and quality. Discuss the advantages of such a system over that currently in use and how it might operate in the United Kingdom.

4. *"No matter how hygienically meat is produced there is no such thing as zero risk of pathogens being present."*

Describe the requirements for the growth of bacteria in food that are relevant to meat (both red and poultry meat) and discuss the relevance of the requirements in meat product manufacture and subsequent storage in different forms.

P.T.O. FOR QUESTION 5

5. *“Currently control for most meat borne parasitic zoonoses control is at post mortem meat inspection.”*

Describe **briefly** the specific actions at meat inspection of red meat animals that are intended to identify the presence of parasitic zoonoses as part of the judgement as fit for human consumption. Discuss the effectiveness of the current system and how the controls could be moved back to the production stage, using where possible examples of specific parasites to indicate how necessary and or effective these controls might be.

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Allow 45 minutes per question.

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1. You have been asked to advise a food business that is planning to start a new full throughput meat cutting plant to produce health marked minced meat for the export market. **Outline** your advice to the plant operator *to assure food safety* in terms of minced meat produced in the premises. Indicated the legislative requirements relating to the use of raw materials for production of minced meat and microbiological testing of minced meat.
 2. What methods can be used to assess the efficiency of electrical stunning in broiler chickens under commercial conditions? **Outline** the difficulties associated with the methods.
 3. **Briefly outline** the legislative requirements of post mortem inspection procedures and healthmarking for wild and farmed deer carcasses in the United Kingdom.
 4. From a public health perspective discuss the risk of food being a vector of members of the *Mycobacteria* spp and the controls currently in place in the United Kingdom.
 5. **Briefly** describe the steps in a cleaning and disinfection protocol for a large red meat slaughterhouse. Discuss the methods available to a plant operator to check the efficiency of cleaning and disinfection.
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WEDNESDAY 8 AUGUST 2001

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(3 hours)

Candidates are required to answer **FOUR** out of **five** questions only.

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If insufficient time is available to answer a question fully, it will be acceptable to complete in note form

1. Concerns have been raised about residues of antibiotics in meat. How do these residues most commonly arise and what threat, if any, do they pose to human health? Discuss current control measures in the UK with reference to the legislative basis, their effectiveness and areas in need of improvement.
2. Outline the options available to an abattoir owner for the disposal of lairage waste, ruminal contents, and blood from an abattoir. **Outline** the advantages and problems associated with each method. Discuss the on-site options for the treatment of waste water.
3. Discuss the limitations of current post-mortem inspection procedures for bovines. In your answer detail what practices should be discarded, what practices must be retained and what additional procedures could usefully be introduced in order to protect animal and public health.
4. List the options available for the electrical stunning of cattle, pigs and poultry giving the advantages and disadvantages of each. Describe the signs of an effective stun and how this can be assessed scientifically.
5. Discuss the advantages and disadvantages of irradiation as a means of meat preservation.

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1. Citing examples, outline the role of quantitative risk assessment in the production of an Hazard Analysis Critical Control Points (HACCP) plan.
2. Discuss the various methods utilised by the red meat industry to improve the tenderness of meat post-mortem. Outline the biochemical and cellular changes which occur.
3. Given the current and likely future farm structure in the United Kingdom discuss how herd health surveillance might add to the effectiveness of veterinary ante-mortem inspection of all the food producing species.
4. The United Kingdom Food Standards Agency announced its intention to enforce, from the 1st May 2001 the requirement for potable water in all aspects of poultry meat production. Discuss the implication for the industry and public health and how these challenges should be countered.
5. Vacuum and Modified Atmosphere Packaging (MAP) are widely used in chilled red meat distribution. Describe their production process and the changes that the meat undergoes at a physical, microbiological and biochemical level within these packs.

THE ROYAL COLLEGE OF VETERINARY SURGEONS
DIPLOMA EXAMINATION IN VETERINARY PUBLIC HEALTH (MEAT HYGIENE)

Thursday 18 August 1994

PAPER I

10.00 am to 1 pm

Candidates are required to answer FOUR questions only

Candidates are warned that illegible handwriting may result in examiners being unable to convey award marks for information which candidates intended to convey.

1. List 3 advantages and 3 disadvantages of a centralised meat hygiene service compared to a local authority service. What advice would you give to those responsible for running the National Meat Hygiene Services in Great Britain, to improve the efficiency of the present system?
2. What advice would you give, on design and construction, to a person who wishes to sell sliced cooked pork, manufactured from sides of pork, and wants to build a new factory?
3. Describe the National Surveillance Scheme for residues which is being operated at the present time, in the United Kingdom. How effective is the scheme in preventing harmful residues being present in the meat when it reaches the consumer?
4. What action can be taken on the farm to minimise the risk- of salmonellae being present in poultry on arrival at the slaughterhouse?
5. Detail 3 improvements that could reasonably be made to existing welfare legislation for cattle, sheep or pigs at the slaughterhouse.

THE ROYAL COLLEGE OF VETERINARY SURGEONS
DIPLOMA EXAMINATION IN VETERINARY PUBLIC HEALTH (MEAT HYGIENE)

Thursday 18 August 1994

PAPER II
2.00 pm to 5 pm

Candidates are required to answer FOUR questions only

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1. Plant Industry Assistants would appear in the future to be an integral part of meat hygiene. Detail how they should be employed, trained and supervised.
2. Discuss quality assurance schemes for meat and poultry. In your answer describe a scheme which you believe would be reasonable for beef sold to the consumer through a local retailer.
3. Discuss the new Poultry Meat Inspection system. In your answer detail the advantages and disadvantages over the previous system.
4. Write a cleaning schedule for premises killing one hundred pork pigs, fifty cattle and five hundred sheep per day. In your answer describe the type of chemicals used and how the efficiency of cleaning can be assessed.
5. Describe the sources, treatment and storage of water in a slaughterhouse. What in-plant methods may be used for the partial purification of effluent?

THE ROYAL COLLEGE OF VETERINARY SURGEONS
DIPLOMA EXAMINATION IN VETERINARY PUBLIC HEALTH (MEAT HYGIENE)

Thursday 20 August 1992

PAPER I
10.00 am to 1 pm

Candidates are required to answer FOUR questions only

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- 1). Campylobacter are the commonest cause of bacterial food poisoning in the UK. What procedures and practices could be employed to reduce the prevalence of this cause of human illness?
- 2). Write short notes on:
 - a) drug residues in beef carcasses
 - b) chlorination of water
 - c) the use of nitrites and nitrates in the chemical preservation of meat.
- 3). Discuss means of preventing contamination of beef carcasses. In your answer indicate the main sources of contamination.
- 4). Discuss casualty slaughter. In your answer suggest methods for improvement.
- 5). Discuss the methods of stunning and bleeding commonly practised in abattoirs and poultry slaughter plants in the UK. Outline relevant legislation concerning these procedures.

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PAPER II
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Candidates **are required to answer FOUR questions only**

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- 1). Describe in detail how you would carry out bacteriological monitoring of a poultry slaughterhouse to assess the efficiency of cleaning and disinfection procedures.
- 2). Describe in detail methods and materials used in the cleaning of a slaughterhall at the end of a day's kill.
- 3). Describe in detail the process of canning meat. What are the principle provisions of EC Directive 77/99?
- 4). Write an essay on the benefits of ante-mortem inspection.
- 5). Discuss how meat hygiene records may be used by farmers in the control of disease of farm animals, and the production of good quality, hygienic meat and poultry.