

ROYAL COLLEGE OF VETERINARY SURGEONS  
DIPLOMA EXAMINATION IN LABORATORY ANIMAL SCIENCE

TUESDAY 30 JULY 2002

PAPER I

GENERAL

(3 hours)

**This paper is in two Sections (A and B)  
instructions relating to the number of questions to be answered  
are given at the head of each Section.**

SECTION A

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

Allow 45 minutes per question.

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

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

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1. **Outline** the main considerations when designing experiments using animals and discuss how good experimental design may contribute to valid results.
  2. Define and explain the term "replacement" with regard to animal experimentation and discuss the various categories of replacement alternatives currently available.
  3. **Outline** the legal requirements for the importation of live animals and embryos from the United States of America and discuss critically their relevance to laboratory rodents.
  4. Discuss the main points to consider when setting up a scheme for phenotype assessment of genetically modified mice.

**P.T.O. for SECTION B**

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PAPER I

GENERAL  
(3 hours)

SECTION B

Candidates are required to answer **ALL SIX** of the following questions.

Allow 15 minutes per question.

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1. What is the role of the Animal Procedures Committee (APC)? How well do you believe the APC discharges its role?
  2. Write **brief** notes on Aleutian disease of ferrets.
  3. **Outline** the skills or attributes you would recommend for a lay-person for an ethical review process in a designated scientific procedure establishment. What do you view as the pros and cons of the inclusion of external lay-persons in such a process?
  4. **List** the most likely health and welfare problems seen in ageing rodents used on long-term carcinogenicity studies.
  5. Discuss the problems associated with breeding, housing and use of primates under the Animals (Scientific Procedures) Act (1986).
  6. What causes laboratory animal allergy (LAA)? Discuss the methods which can be used to prevent and control LAA in a rodent facility?
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ROYAL COLLEGE OF VETERINARY SURGEONS  
DIPLOMA EXAMINATION IN LABORATORY ANIMAL SCIENCE

TUESDAY 30 JULY 2002

PAPER II

**SPECIAL SUBJECT: Infectious Diseases of Rodents and Rabbits**

(3 hours)

**This paper is in two Sections (A and B)  
instructions relating to the number of questions to be answered  
are given at the head of each Section.**

SECTION A

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

Allow 45 minutes per question.

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1. Compare and contrast traditional methods with molecular biology techniques for the screening and diagnosis of infectious agents in rodents, indicating the advantages and disadvantages of each.
2. How would you approach the issue of screening populations of rodents held in microisolator cages? What effect does this method of housing have on matters such as sample size?
3. **Outline** recent changes in The Federation of European Laboratory Animal Science Association (FELASA) recommendations for microbiological monitoring of rodent breeding units.
4. Discuss the importance of Helicobacter infections in rats and mice.

**P.T.O. FOR SECTION B**

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**DIPLOMA EXAMINATION IN LABORATORY ANIMAL SCIENCE**

**TUESDAY 30 JULY 2002**

**PAPER II**

**SPECIAL SUBJECT: Infectious Diseases of Rodents and Rabbits**

**SECTION B**

Candidates are required to answer **ALL SIX** of the following questions.

Allow 15 minutes per question.

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5. Write **brief** notes on haemorrhagic disease of rabbits.
  6. **List** the main parvoviral infections of rats and mice, and indicate the main significance of each of the agents in research animals.
  7. **Outline** the significance of *Pseudomonas aeruginosa* in
    - (a) an immunocompetent mouse
    - (b) an immunodeficient mouse (e.g. athymic )
  8. A breeding colony of mice shows a drop in reproductive performance. **List** the infectious agents you would include in your list of differential diagnoses.
  9. What is *Pneumocystis carinii*? What is its significance, and how can it be controlled?
  10. **List** the main causes of enteritis in rabbits? What steps can be taken to control and prevent this problem?
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ROYAL COLLEGE OF VETERINARY SURGEONS

**DIPLOMA EXAMINATION IN LABORATORY ANIMAL SCIENCE**

**THURSDAY 17 JULY 2003**

**PAPER I  
GENERAL  
(3 hours)**

**This paper is in two Sections (A and B)  
instructions relating to the number of questions to be answered  
are given at the head of each Section.**

**SECTION A**

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

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1. The Animals Procedures Committee is currently debating a revision of Schedule 1 methods of euthanasia. **Outline** the methods currently authorised by Schedule 1, and discuss areas of actual or potential concern where you believe improvements might be possible.
2. Discuss The Federation of European Laboratory Animal Science Association's (FELASA) recommendations for training of categories of staff working with laboratory animals. In the United Kingdom context, what are the main current issues relating to training and education?
3. Discuss your main considerations in advising licensees on methodology for blood sampling rodents.
4. Discuss the main features you would expect to see in the barrier systems of a specific pathogen free rodent breeding unit. What building design concepts would help in the implementation of the barrier systems?

**P.T.O. for SECTION B**

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THURSDAY 17 JULY 2003

**PAPER I**  
**GENERAL**  
(3 hours)

**SECTION B**

Candidates are required to answer **ALL SIX** of the following questions.

Allow 15 minutes per question.

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1. Write **short notes** on anaesthesia for:
  - a. Thoracotomy in dogs.
  - b. Collection of oocytes in *Xenopus*.
  - c. Implantation of mini-pumps in rats.
  
2. What key features of rat behaviour would you expect to try and satisfy with environmental enrichment? **Briefly outline** practical means of achieving this.
  
3. Write **brief notes** on:
  - a. B virus infection in primates.
  - b. Lymphocytic choriomeningitis virus infection in hamsters.
  
4. **Briefly** describe one disease model for each of the following:
  - a. Parkinsons Disease.
  - b. Type I diabetes.
  - c. Rheumatoid arthritis.
  - d. Breast cancer.
  
5. **List** the key hazards that might be found in a typical research facility housing rodents.

**P.T.O. for Question 6**

6. Define the following types of animal:

- a. Inbred strain.
  - b. Congenic Strain.
  - c. Coisogenic strain.
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ROYAL COLLEGE OF VETERINARY SURGEONS  
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THURSDAY 17 JULY 2003

**PAPER II**

**SPECIAL SUBJECT: 'Welfare and Ethics: Role of the Veterinary Profession in reduction, replacement or refinement of scientific procedures with protected animals'**

(3 hours)

**This paper is in two Sections (A and B)  
instructions relating to the number of questions to be answered  
are given at the head of each Section.**

**SECTION A**

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

Allow 45 minutes per question.

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1. Using an example of your own choice, compare and contrast deontological and utilitarian theories for decision making.
2. What qualities go towards making a good laboratory animal veterinarian?
3. How could you apply the 'Three Rs' to the production and maintenance of transgenic animals?
4. What arguments might be advanced to support research on animals and what might be the counter-arguments from an animal welfarist?

**P.T.O. FOR SECTION B**

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**DIPLOMA EXAMINATION IN LABORATORY ANIMAL SCIENCE**

**THURSDAY 17 JULY 2003**

**PAPER II**

**SPECIAL SUBJECT: 'Welfare and Ethics: Role of the Veterinary Profession in reduction, replacement or refinement of scientific procedures with protected animals'**

**SECTION B**

Candidates are required to answer **ALL SIX** of the following questions.

Allow 15 minutes per question.

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5. What specific rights are animals supposed to have from the perspective of an animal rights person?
  6. Give an example of how an experimental design of a research project might be improved given good statistical methodology and that animals have to be used?
  7. Describe the concept of 'Refinement' in the husbandry of animals with examples.
  8. Under what circumstances could you describe something as a 'Humane endpoint'?
  9. **List** the skills or persons you would recommend for an ethics committee advising on the conduct of research in a designated scientific procedure establishment.
  10. How could you apply the 'Three Rs' to toxicity testing?
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