

Candidate Number.....

The Institute of Animal Technology



FELLOWSHIP EXAMINATION 2001

Section A - ANIMAL TECHNOLOGY

Morning, Wednesday 13th June

(TOTAL TIME: 3 HOURS)

Part I & Part II

Long Answer Questions

Part III

Short Answer Questions

Write your candidate number in the top right hand corner of this cover sheet

Read the instructions for each part carefully

Part I

Long Answer Questions

Attempt ONE of the two questions

Write your answers on the paper provided

*Start each new answer on a fresh sheet of paper
Write on one side of the paper only*

Write your candidate number in the top right hand corner and the question number in the top left hand corner of every answer sheet

You are advised to spend one and a half hours on each question

Equal marks are available for each question. The approximate percentage of marks available for each section of the question is indicated

Credit will be given for suitable illustration

You must hand in all answer sheets at the end of the examination

Please turn over

Attempt ONE question only

1. Over the past few decades great efforts have been made to increase the standardisation of laboratory rodents.

a) State what is meant by the term 'standardised' laboratory rodent. **(10%)**

b) Discuss those aspects of animal house design and systems of management that facilitate the production of such animals. **(90%)**

2. Discuss the use of non-human primates in biomedical research. **(100%)**

End of Part I

Part II

Long Answer Questions

Attempt TWO of the four questions

Write your answers on the paper provided

*Start each new answer on a fresh sheet of paper
Write on one side of the paper only*

Write your candidate number in the top right hand corner and the question number in the top left hand corner of every answer sheet

You are advised to spend half an hour on each question

Equal marks are available for each question. The approximate percentage of marks available for each section of the question is indicated

Credit will be given for suitable illustration

You must hand in all answer sheets at the end of the examination

Please turn over

Attempt TWO questions

3. Explain the factors to be considered in the choice of species for experimental procedures.

(100%)

4. Give the advantages and disadvantages of group housing rabbits in floor pens as compared with housing them individually in cages.

(100%)

5. Describe the ways in which communication between staff can affect animal unit management.

(100%)

6. Explain the factors that determine the amount of blood that may be withdrawn from an animal.

(100%)

End of Part II

Part III

Short Answer Questions

Attempt ALL Questions

Write your answers in the spaces provided

Numbers in brackets indicate the marks available for each question

You are advised to spend half an hour on this part

Hand in this book, together with your answers to Parts I and II, at the end of the examination

Attempt all questions

1. Distinguish between the following terms:

congenic.....

.....

isogenic.....

.....

transgenic.....

.....

(3)

2. What is a recombinant inbred strain?

.....

.....

(2)

How do F1 hybrids differ from recombinant inbred strains?

.....

.....

(1)

3. What benefits are derived from cryopreservation of embryos?

.....

.....

.....

(3)

4. The Home Office prescribes training for those holding responsibilities under the Animals (Scientific Procedures) Act 1986.

Which modules of an approved training course would each of the following be required to take?

Personal licensee undertaking surgical procedures.....

.....

Project Licence Holder.....

.....

Certificate of Designation Holder.....

.....

(Total:5)

5. In addition to the Animals (Scientific Procedures) Act 1986 state the full title of other legislation that regulates each of the following situations:

inoculation of pigs with anthrax.....

.....

(1)

administering morphine to dogs for pain relief following surgery

.....

(1)

injecting rats with radio-active isotopes

.....

(1)

castrating sheep prior to the commencement of a long-term study

.....

(1)

transporting vasectomised mice to another establishment

.....

(1)

6. State **two** reasons why new staff must undergo regular assessments whilst employed in a probationary post.

.....
.....

(2)

7. List **three** methods that are used to collect semen samples from vertebrates. For each method name one appropriate species.

METHOD	SPECIES

(6)

8. List **three** ways in which the quality of a semen sample may be assessed using a microscope.

.....
.....
.....

(3)

9. List **three** methods for obtaining a urine sample from a bitch.

.....
.....
.....

(3)

10. State **one** major disadvantage of the following:

irradiated diet for dogs

.....
(1)

'fun tunnels' (e.g. cardboard tubes) for experimental mice

.....
(1)

automated drinking valves for breeding mice

.....
(1)

collars to identify cats

.....
(1)

water bottles for large rabbits

.....
(1)

tattooing hamsters

.....
(1)

hay nets for goats

.....
(1)

11. Why are the numbers of coliform bacteria a useful assessment of the quality of food or water?

.....
.....
(1)

12. State **two** methods for the detection of parasite eggs in faeces.

.....
.....
(2)

How may the parasite burden be assessed?

.....
.....
(2)

13. Expand the following acronyms:

SCID
.....
(1)

GLP
.....
(1)

COSHH
.....
(1)

ACDP
.....
(1)

PCR.....
.....
(1)

14. Name **three** pieces of equipment used in monitoring animals under anaesthesia, and state the function of each.

NAME	FUNCTION

(6)

15. Name this piece of equipment.

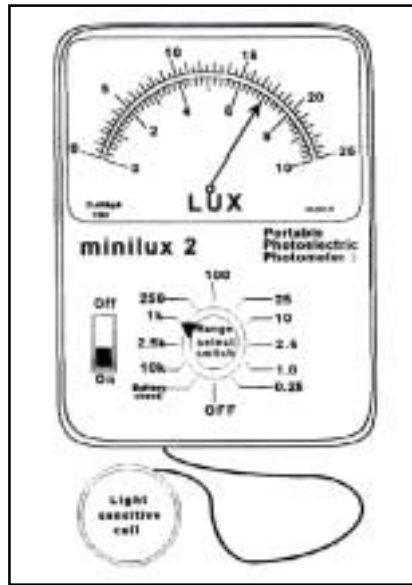


..... (1)

What is it used for?

..... (1)

16. The diagram shows a light meter. What light intensity is it indicating?



.....
(1)

17. Which function of a thermohygrograph is likely to require recalibration most often?

.....
(1)

Why is this the case?

.....
(1)

18. State **five** methods of limiting personal exposure to irradiation when using radioisotopes in biomedical research.

.....
.....
.....
.....
.....
(5)

19. 12 rats of mean bodyweight 240g are fed a diet containing 400ppm of compound X. The total food consumed in one week was 1.092kg. What was the average dose of X in mg/kg/day?

(Show your workings)

(4)

End of Part III