Candidate Number……..

The Institute of Animal Technology

FELLOWSHIP EXAMINATION 2002

Section A - ANIMAL TECHNOLOGY

Morning, Wednesday 12th 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. There has been an increase in the number of accidents reported from the animal unit.

a) Explain the factors that could have influenced this.

(80%)

b) State the remedial actions to be taken.

(20%)

2. The increasing use of clean animals and the need to protect personnel from possible hazards arising from animals and/or the procedures associated with them, has led to an increase in the development of technical devices aimed at increasing and maintaining greater separation between animals and staff.

Compare and contrast the devices that can be used for this purpose.

(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. Describe ways of minimising inbreeding in colonies of outbred rodents.

(100%)

4. Discuss the restraint of animals.

(100%)

5. What factors need to be taken into account when choosing between the use of pigs and rabbits for a drug assessment study involving surgical cannulation?

(100%)

6. It is proposed to test the effects of feeding a diet containing 20% of a novel compound, which has no food value, to guinea pigs. The usual pellets are to be reground and autoclaved before adding the compound.

Outline the nutritional problems posed by the proposal.

(100%)

End of Part II

Part III

Short Answer Questions

Attempt ALL Questions

Write your answers in the spaces provided

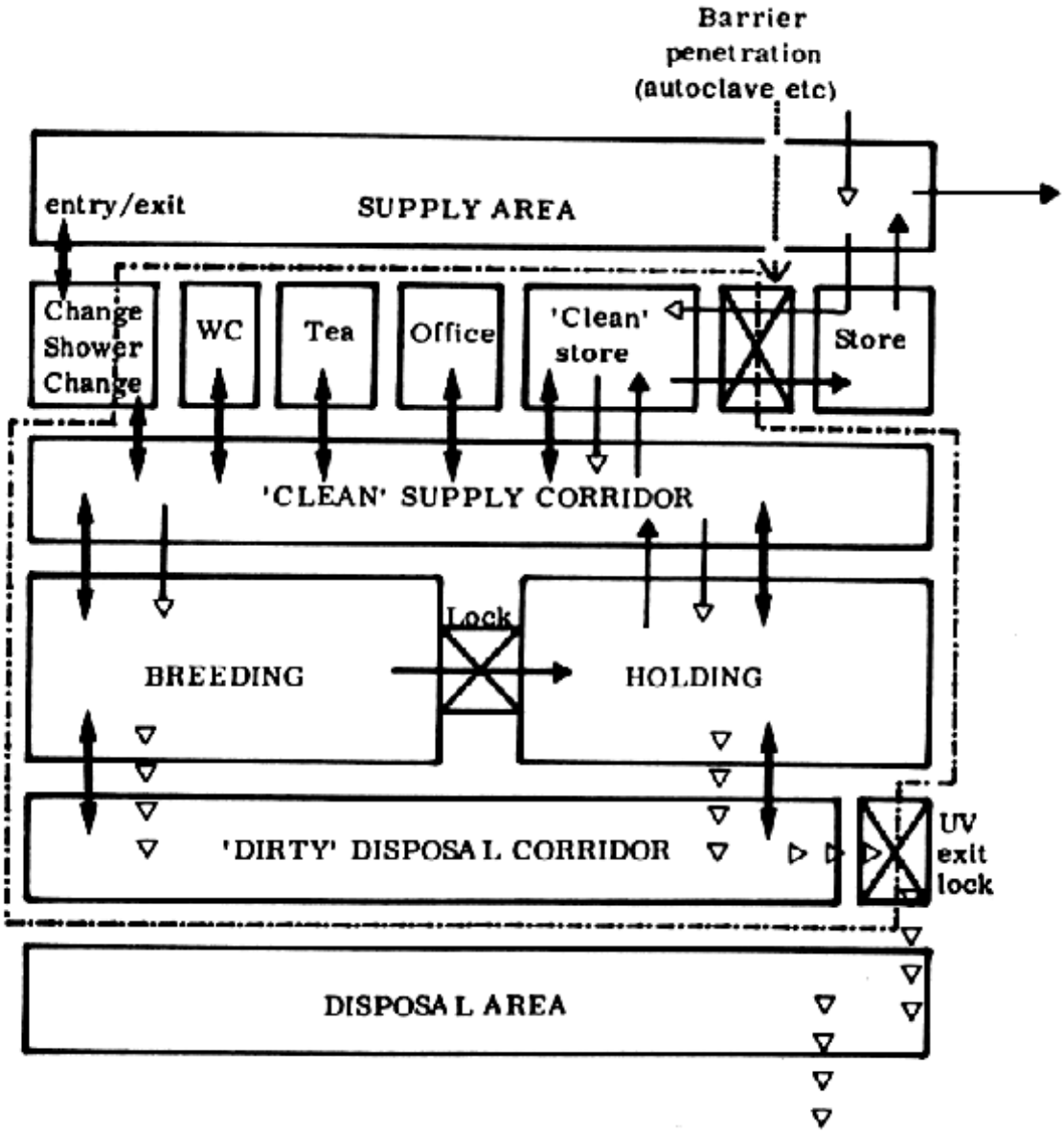
Numbers in brackets indicate the marks available for each question

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. The figure shows the flow chart for a building to house SPF animals. Complete the key with the appropriate symbols.



KEY:		
Barrier:	**Animals:**	**Disposal:**
Staff:	**Supply:**	

(5)

2. Name the piece of equipment shown.

……

(1)

For what purpose is it used?

……

(1)

3. Define the term “relative humidity”.

……

……

……

(3)

4. Give the unit of measurement (in full and abbreviated form) for the following environmental parameters.

Light intensity:

…… ……

(1)

Sound pressure level:

…… ……

(1)

5. State five factors that influence the design and management of a breeding system.

……

……

……

……

……

(5)

6. Which of these species should not be maintained at 21°C ± 2°C, according to the relevant Home Office Code of Practice?

(Indicate your answer by underlining the species).

Old World primate rat gerbil rabbit

pigeon ferret goat horse

(1)

7. Give three methods that are available to test the purity of the genotype of an isogenic colony of mice and state an advantage and disadvantage of each.

METHOD	ADVANTAGE	DISADVANTAGE

(9)

8. State four types of records relating to animal unit staff that a supervisory technician might be expected to maintain.

……..

……..

……..

……..

(2)

9. What is the meaning of the term “stereotypic behaviour”?

……..

……..

(2)

10. Define the following terms used to describe breeding in fish.

Oviparous:

……..

……..

Ovi-viviparous:

……..

……..

Viviparous:

……..

……..

(3)

11. List three disadvantages of relying solely on local anaesthesia for painful procedures in animals.

……..

……..

……..

(3)

12. State the circumstances under which re-use of an animal following general anaesthesia is allowed under the Animals (Scientific Procedures) Act 1986

……..

……..

……..

……..

(3)

13. List five functions of an “Ethical Review Process”.

……..

……..

……..

……..

……..

(5)

14. What is the full title of the legislation governing the use of radioisotopes in the United Kingdom?

……..

……..

(1)

15. State five measures to minimise staff exposure to ionising radiation whilst using radioisotopes.

……..

……..

……..

……..

……..

(5)

16. Give three examples of how radioisotopes are used in biomedical experiments.

……..

……..

……..

(3)

17. Name the roundworm most commonly found in rats.

……..

(1)

Why is this roundworm difficult to eradicate?

……..

(1)

18. Name a different zoonotic disease associated with each of the following.

Hamsters: ……...

Macaques: ……..

Cattle: ……..

Sheep: …….

Cats: ……

Dogs: ……...

(3)

19. Why are serological tests used to monitor animal colonies?

……..

……..

(2)

20. Indicate (by placing a **tick** in the appropriate box) whether the following statements relating to horses, cattle, sheep, goats and pigs are true or false.

STATEMENT	TRUE	FALSE
They all have oestrous cycles of approximately three weeks duration.		
They all have gestation periods longer than four months.		
Only pigs naturally breed at any time of year.		
Pigs are the only species listed in Schedule 2.		
They all have dentition that shows the “herbivore’s gap”.		
They are all susceptible to Foot and Mouth disease.		

(3)

21. The anaesthetic dose of a compound is stated to be 60mg/kg. It is provided as a 100mg/cm^3 solution.

How much solution would be necessary for the administration of twice the anaesthetic dose to kill a 900g rat?

(Show all workings)

……..

(5)

End of Part III