

THE BRITISH BEEKEEPERS' ASSOCIATION

Founded in 1874

Registered Charity No. 212025

EXAMINATION FOR PROFICIENCY IN APICULTURE

MODULE 7 SELECTION AND BREEDING OF HONEYBEES

21st March 2015

Time Allowed 1½ hours

Candidate Number:

Instructions to Candidates

Read the questions carefully. Answer All Sections. It is recommended not to spend more than 10 minutes on Section A, 50 minutes on Section B or 30 minutes on Section C.

Unless stated otherwise questions apply to Honeybees.

Use **BLACK** pen for text. **Black** pencil may only be used for diagrams. **DO NOT USE COLOURS.**

Examiner Use Only

Question	Sec A	B11	B12	B13	B14	B15	C16	C17	Total
Mark									
Moderated									

SECTION A (10 marks, 1 for each question)

Answer **ALL** the questions in this section. Use one or two word or short phrase answers. Please write your answers on the question paper.

- Q1 Give the full scientific name of the pheromone that attracts drones to a queen.
- Q2 What gas is used in instrumental insemination?
- Q3 What type of bee results from parthenogenesis?
- Q4 Which sub-species of *Apis mellifera* originated in the area of the former Yugoslavia?
- Q5 What is the name for the type of cell division that produces normal cells during the growth of an organism?
- Q6 What is the scientific term for one of the tubes that makes up the ovary?
- Q7 At what age from emergence are drones sexually mature?
- Q8 Give the name for a chemical emitted by one organism that has an effect on another organism of the same species.
- Q9 How long after emergence is a virgin queen considered to be too old to mate?
- Q10 Name a virus associated with Nosema which might affect a queen rearing programme.

PLEASE HAND IN THIS SHEET AT THE END OF THE EXAMINATION

MODULE 7 SELECTION AND BREEDING OF HONEYBEES

21st March 2015

SECTION B (60 marks, 15 for each question)

Answer any **FOUR** questions from this section. Write short notes for your answers.

Marks

- | | | | |
|-----|-----|--|----|
| Q11 | (a) | Draw a table to show the similarities and differences between the signs of laying workers and a drone laying queen. | 8 |
| | (b) | Briefly describe, with reasons, how to deal with laying workers. | 7 |
| Q12 | | List the advantages and disadvantages of the following mating nuclei: | |
| | (a) | the mininuc; | 7 |
| | (b) | the half standard frame nuc; | 4 |
| | (c) | the full frame nuc. | 4 |
| Q13 | (a) | Label a to h on the diagram provided. | 8 |
| | (b) | State the functions of items b to h. | 7 |
| Q14 | | Indicate how to distinguish between emergency, swarm and supersedure queen cells, and outline what conditions lead to each of these types of cell. | 15 |
| Q15 | (a) | Describe how to clip a queen's wings. | 10 |
| | (b) | List the reasons this practise is used by beekeepers. | 5 |

SECTION C (30 marks)

Answer **ONE** question from this section. Give *labelled* diagrams where applicable.

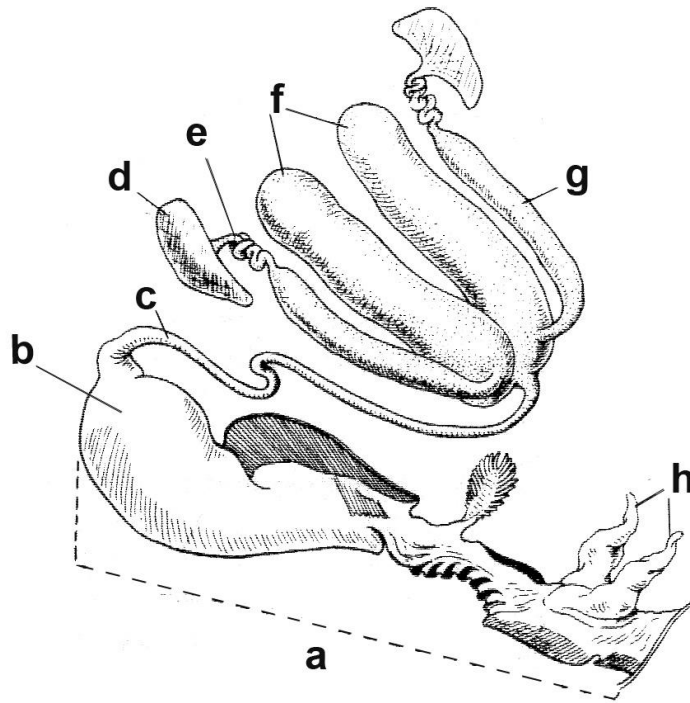
- | | | | |
|-----|-----|--|----|
| Q16 | | Describe in detail an efficient method of rearing sufficient queens for the needs of a beekeeper with 10 colonies. Discuss assessment and selection, method of queen cell production and cell raising, mating sites and hives. | 30 |
| Q17 | (a) | What is meant by the terms inbreeding and outbreeding? | 2 |
| | (b) | Discuss the advantages and disadvantages of each for a bee breeding programme, and how the results of each might be assessed. Include in your answer the problems inherent in cross breeding subspecies of honeybee. | 20 |
| | (c) | What is known as the Buckfast bee? | 2 |
| | (d) | What are the advantages and disadvantages of using a strain of honeybee such as Buckfast? | 6 |

MODULE 7 SELECTION AND BREEDING OF HONEYBEES

21st March 2015

- Q13 (a) Label a to h on the diagram below.
(b) State the functions of items b to h.

8
7



- a
- b
- c
- d
- e
- f
- g
- h

PLEASE HAND IN THIS SHEET AT THE END OF THE EXAMINATION