

THE BRITISH BEEKEEPERS' ASSOCIATION

Founded in 1874

Registered Charity No. 212025

EXAMINATION FOR PROFICIENCY IN APICULTURE

MODULE 6 HONEYBEE BEHAVIOUR

14th November 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 Name one condition managed through homeostasis in a honeybee nest.
- Q2 How does a fertile queen determine whether she lays a worker or drone egg within a cell?
- Q3 What colony activity is believed to be associated with the Dorsoventral Abdominal Vibrating Dance?
- Q4 Is hydrolysis employed by the honeybee for evaporation of water or the breakdown of sucrose?
- Q5 Where in the colony are you most likely to find cells of pollen?
- Q6 How might a guard bee detect the presence of a mammal?
- Q7 What is the "mating sign"?
- Q8 State one honeybee behaviour that is used as an indication of the possible presence of AFB.
- Q9 Give one characteristic of a swarm cell.
- Q10 Give the full name of the queen pheromone which encourages bees to cluster in a swarm.

PLEASE HAND IN THIS SHEET AT THE END OF THE EXAMINATION

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SECTION B (60 marks, 15 for each question)

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

Marks

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| Q11 | (a) | Describe briefly 3 dances a worker honey bee could use to inform other workers of a source of nectar. | 12 |
| | (b) | Other than by dances, list 3 means of communication used within the colony? | 3 |
| Q12 | (a) | Describe water collection in terms of preferred sites and regularity of visits. | 4 |
| | (b) | How do honeybees mark a water source? | 1 |
| | (c) | How is water used in the colony? | 4 |
| | (d) | Describe the interrelationship between nectar, honey and water in the colony in summer and winter. | 6 |
| Q13 | (a) | How does learning through observation help a bee to forage? | 10 |
| | (b) | What is the theory behind the saying "either move a colony less than 3 feet or more than 3 miles"? | 3 |
| | (c) | Give an exception to this rule and how a beekeeper may take advantage of this. | 2 |
| Q14 | (a) | Draw a simple table to compare what would be seen in a colony of honeybees with a drone laying queen and one with laying workers. | 7 |
| | (b) | Under what circumstances is each condition likely to occur? | 6 |
| | (c) | Name 1 pathogen that could cause behavioural changes in a queen. | 1 |
| | (d) | Name 1 pathogen that could cause a colony to become queenless. | 1 |
| Q15 | | Describe briefly when and how a honeybee swarm builds comb in a hollow tree. | 15 |

SECTION C (30 marks)

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

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| Q16 | (a) | Why are honeybees known as good pollinators? | 8 |
| | (b) | Discuss the process of nectar collection and how it is converted into honey and stored within the nest. (description of bee dances is not required). | 22 |
| Q17 | (a) | Describe the swarm preparation activities occurring in the colony leading up to a swarm issuing. | 5 |
| | (b) | Describe the process a swarm goes through from how it organises issuing from a hive through to entering a new home. | 25 |