THE BRITISH BEEKEEPERS' ASSOCIATION

Founded in 1874 Registered Charity No. 212025

EXAMINATION FOR PROFICIENCY IN APICULTURE

MODULE 6 HONEYBEE BEHAVIOUR

22nd March 2014 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 an enzyme produced by the hypopharyngeal glands of the worker honeybee. ……..

Q2 At what temperature does a colony of honeybees maintain its brood nest? ……

Q3 Which honeybee pathogen affects the digestion of pollen? ……

Q4 Where in the drone are the spermatozoa stored? ……

Q5 In an emergency, at what age could a worker honeybee become a guard bee? ……..

Q6 Give the scientific name of a queen pheromone that attracts drones during mating. ……

Q7 At what time of year will the amount of brood exceed the number of nurse bees? ……..

Q8 At what temperature would a honeybee fall from the outside of a cluster? ……

Q9 When would the round dance be used? ……

Q10 Normally, at what age is a queen sexually mature? ……

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*

Q11	(a)	Draw a simple table to compare what would be seen in a colony of honeybees with a drone laying queen and a colony with laying workers.	7
	(b)	List the steps to be taken by a beekeeper to deal with each of these colonies.	8
Q12	(a)	What is homeostasis?	1
	(b)	List 3 conditions controlled by homeostasis.	3
	(c)	How do honeybees ventilate their nest in summer?	6
	(d)	How do honeybees in a hive maintain the temperature of the nest in winter?	5
Q 13	(a)	Using a graph illustrate the seasonal variations in the numbers of adult honeybees and the amount of brood.	5
	(b)	Illustrate on your graph how this would vary if a swarm issued in June.	3
	(c)	How would this change affect the honey harvest?	7
Q14	Bees collect water and propolis.		
	(a)	How is water collected and transported back to the hive?	3
	(b)	Where do bees find propolis?	1
	(c)	How is propolis collected, carried back to the hive and unloaded?	5
	(d)	Give ways in which a colony of honeybees uses propolis.	6
Q15	(a)	Describe briefly a typical drone congregation area.	10
	(b)	List the stages in the mating process of a drone.	5

SECTION C (30 marks)

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

Q16	Describe in detail the swarming behaviour of a colony of honeybees, from the conditions leading to swarming, to the colonisation of a new nest site.	30
Q17	Starting with a foraging honeybee landing on a flower, describe the process that nectar undergoes from its collection to its capping as honey.	30