

# Scottish Beekeepers' Association

Education and Examination Committee



**Syllabus**

**of Examination in Apiculture**

**SCOTTISH JUNIOR BEEKEEPER CERTIFICATE**

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## AIMS

Issue April 2023

1. To encourage young people to become interested in bees and beekeeping and their contribution to the natural environment.
2. To provide a starting point for beekeeper education for young people and to meet the requirements of schools and groups such as scouts and guides.

## CONDITIONS OF ENTRY

1. The appropriate application form and fees shall have been received by the Education Convener prior to the deadline published in the Scottish Beekeeper Magazine and on the SBA Website. The candidates shall have reached their 10<sup>th</sup> birthday but not yet reached their 16<sup>th</sup> birthday on the 1<sup>st</sup> of January of the year during which the examination is to be taken and shall be either a member or family member of the SBA.
2. The examination shall consist of 4 parts:
  - (a) The Candidate shall be asked to open and examine a single brood chamber colony of bees and answer any questions asked by the examiner. 60 marks
  - (b) The candidate shall be asked to assemble a brood frame and fit it with wired foundation 10 marks
  - (c) The Candidate shall provide the examiner with a written record of work done during the active season, when working with their own bees or bees owned by another beekeeper or beekeeping association. 20 marks
  - (d) The Candidate shall answer the multiple-choice examination paper. Up to twenty minutes shall be allowed for completion of the paper. 10 marks

## AWARD OF CERTIFICATE

The SCOTTISH JUNIOR BEEKEEPER CERTIFICATE will be awarded to Candidates at 3 levels –Pass (60%), Credit (70%), and Distinction (80%). Candidates gaining the Certificate can enter the SBA further education programme (Modules, Microscopy, Intermediate Practical).

## SYLLABUS

### 1.0 MANIPULATION OF A COLONY OF HONEYBEES

The Candidate will be aware of:

- 1.1 the care needed when handling a colony of honeybees;
- 1.2 the reactions of honeybees to smoke;
- 1.3 the personal equipment needed to open a colony of honeybees and the importance of its cleanliness;
- 1.4 the reasons for opening a colony;
- 1.5 the importance of record keeping; demonstration records shall include details of medicines administered for varroa treatments, swarm prevention actions, feeding details and notes of observations made during manipulations .

The Candidate will be able to:

- 1.6 demonstrate lighting and the use of a smoker;
- 1.7 demonstrate the use of the hive tool;
- 1.8 open a colony of honeybees and keep it under control;
- 1.9 identify workers, drones and queen;
- 1.10 identify eggs, larvae and sealed brood;
- 1.11 identify stored honey and pollen.

## 2.0 EQUIPMENT

The Candidate will be able to:

- 2.1 name and explain the function of the principal parts of a modern beehive;
- 2.2 discuss the concept of bee space;
- 2.3 point out a method of frame spacing;
- 2.4 explain when to add supers to a colony;
- 2.5 explain how to remove a honey super;
- 2.6 outline how honey can be extracted from super combs;
- 2.7 show a method of feeding bees;
- 2.8 explain how to unite two colonies of bees.

## 3.0 PRACTICE OF BEEKEEPING

The Candidate will be able to:

- 3.1 explain what to do if they get a bee sting;
- 3.2 give an elementary description of the annual cycle of work in the apiary;
- 3.3 describe how to prepare sugar syrup for autumn and for spring feeding;
- 3.4 explain why bees swarm and the need for beekeepers to try to prevent that happening;
- 3.5 explain how poor beekeeping practice could encourage bees to become robbers;
- 3.6 explain hygiene measures which should be taken to reduce the spread of bee diseases.

#### 4.0 NATURAL HISTORY OF THE HONEYBEE

The candidate will be able to:

- 4.1 outline, briefly the active season duties of worker bees from the time of hatching until they become foragers;
- 4.2 name the four things which foragers collect and the means by which they bring them back to their hive;
- 4.3 explain how bees spend the winter;
- 4.4 tell where beeswax comes from;
- 4.5 name the main sources of local nectar and pollen;
- 4.6 explain why pollen is necessary for the life of a bee colony;
- 4.7 explain what is meant by pollination and why it is important to the fruit grower and to the environment in general.

#### 5.0 DISEASES AND PESTS OF THE HONEYBEE

The Candidate will be able to:

- 5.1 describe the appearance of healthy brood;
- 5.2 tell that bee colonies can have brood disease and the bees themselves can get diseases;
- 5.3 tell that bees are susceptible to the Varroa mite and that it can be controlled;
- 5.4 describe a method of storing honeycomb to prevent wax moth damage;
- 5.5 describe how to prevent mice from gaining access to hives in winter.

#### 6.0 MULTIPLE CHOICE PAPER

- 6.1 The multiple choice paper shall contain **10 questions** selected from the following list of Questions.
- 6.2 The candidate shall select the appropriate answer by placing a cross in the relevant square.

#### MULTIPLE CHOICE QUESTION LIST

**Examiners shall compose a multiple choice paper containing 10 questions typically taken from the following list.**

**The candidate shall be allowed up to 15 minutes to answer the 10 questions.**

1) How many queens usually live in a bee colony?

- 1
- 2
- 3
- 4

2) How many days does the egg stage last?

- 2
- 3
- 4

5

3) How many wings does a bee have?

- 2
- 3
- 4
- 5

4) How does the bee carry the pollen back to its colony?

- In its body
- On its front legs
- On its middle legs
- On its rear legs

5) Which organ prevents the nectar collected, being passed through into the bee's digestive system in order that it can be regurgitated back at the hive?

- Honey bladder
- Gut
- Proventriculus valve
- Gullet

6) What colour is the bee's blood?

- Red
- White
- Clear
- Black

7) What does pollen consist of mainly?

- Carbohydrates
- Protein
- Fat
- None of the three

8) How long does a worker bee live in the summer?

- about 2 weeks
- about 2 months
- about 4 months
- about 6 months

9) What is varroa?

- a fungus
- a bacterium
- an insect
- an arachnid mite

10) Where are the most varroa usually found?

- in the cells of developing workers
- in the cells of developing queens

- in the cells of developing drones
- on the adult bee

11) Where is the surplus honey stored in the bee colony?

- under the offspring or brood nest
- above the brood nest
- in the brood nest
- in front of the brood nest

12) What does the bee use to orientate itself when flying during overcast weather without sunshine?

- 3 simple eyes
- the 2 compound eyes
- antennae
- legs

13) How many worker bees make up about 1 kilo?

- 32,000 bees
- 24,000 bees
- 17,000 bees
- 11,000 bees

14) What colour can the honey bee not see?

- Red
- Blue
- Green
- Yellow

15) How many segments are there in the abdomen of the worker bee?

- 2
- 4
- 6
- 8

16) Does the sting of the queen have sharply barbed hooks which prevent it being withdrawn?

- yes
- no

17) Does the male bee have a sting?

- yes
- no

18) What does the beekeeper feed the bees with?

- Milk

- Herbs
- Sugar
- Fruit

19) What is the International Association of Beekeepers called?

- FIS
- FIFA
- IOC
- Apimondia

20) What is not a bee product?

- Honey
- Beeswax
- Nectar
- Bee poison

21) How many sides (or corners) does a honeycomb cell have?

- 4
- 5
- 6
- 8

22) Do bees have hair?

- yes
- no

23) What is the name of the bees' dance when nectar can be collected in fewer than 100 metres?

- Round dance
- Wag-Tail dance

24) How long does the development of a **worker** bee take from laying of egg to emerging as a fully formed adult?

- 16 days
- 19 days
- 21 days
- 24 days

25) How long does the development of a male bee (drone) take?

- 16 days
- 19 days
- 21 days
- 24 days

26) How long does the development of a queen take?

- 16 days
- 19 days

- 21 days
- 24 days

27) What is the maximum life of a queen?

- 6 months
- 1 year
- 3 years
- 5 years

28) How many eggs can a queen lay one day?

- 500
- 1000
- 1500
- 2000

29) Do drones also collect nectar?

- yes
- no

30) How many legs does a bee have?

- 2
- 4
- 6
- 8

31) What is the name given to a colony of bees

- A Supergrass
- A Superorganism
- A Collective
- A Family

#### Recommended Reading List

An Introduction to Bees & Beekeeping – Scottish Beekeepers Association edited by PJ Browne

Beginner's Bee Book by Ted Hooper (updated by Clive de Bruyn & Margaret Thomas)

Haynes Bee Manual by Claire & Adrian Waring

Beekeeping Study Notes: Basic by JD & BD Yates

Practical Beekeeping by Clive de Bruyn

A B Riach SBA Education Officer Apr 2023