

Name KEY

EAS Master Beekeeper Lab Exam 2023

The EAS Lab Exam consists of 11 stations each with one or more items. Point values next to questions. Total exam value = 100 pts. Passing grade = 85 points. **Read the questions carefully.**

STATION 1. Here before you are 3mystery items. Please identify the object and answer the question (2 points each).

1a. What do these models represent? Pollen grains

What is their function in real life? Male sex gamete of plant

1b. What is this? Propolized mouse

How did it get this way? Bees encased it with propolis to protect the hive from pathogens

1c. What is this? Fat body

What is one function of this tissue? Immunity

STATION 2. Name each pathogen/parasite (1 point each).

2a. Varroa mites

2b. Sac brood

2c. Small hive beetle adult

2d. Wax moth immature

STATION 3. What is the name and purpose of each tool (2 points each)

3a. Name Baby nuc frame

Purpose Mating queens

3b. Name Cell punch tool

Purpose Raising queens/transferring eggs

3c. Name _____ Wire embedder _____

Purpose _____ Embedding wire in wax foundation _____

3d. Name _____ grommet tool _____

Purpose _____ adding metal grommets to wired frames _____

STATION 4. Identify the object, and why one would use it (2 points each).

4a. Name _____ drone frame _____

Purpose _____ trap Varroa _____

4b. Name _____ shim _____

Purpose _____ create more room for feeding

4c.

Name _____ refractometer _____

Purpose _____ detecting water content of honey

4d. Name _____ frame grip _____

Purpose _____ holding frames _____

4e. Name _____ queen tags _____

Purpose _____ Numbering newly bred queens

4f. Name _____ Queen excluder cleaner

Purpose _____ cleaning propolis and wax out of queen excluder

STATION 5. Identify the object and answer associated question (2 points each).

5a. Name _____ Double nuc bottom board

How is this piece of equipment used? For increasing or running mating nucs

5b. Name _____ beetle trap _____

How would this be used? To catch adult small hive beetles inside the colony

5c. Name _____ propolis _____

How is this used in the hive? Seal cracks and act as an anti-microbial in the colony level immunity

5d. Name (be specific) _____ shallow _____

Why would you use it? Honey super

5e. Name _____ skunk scat _____

What would you do if you found this in your apiary? Make nail/skunk boards

STATION 6. Honey bees and their relatives (2 points each).

6a. Name the insect that makes this nest. _____ Bumble bee

What do they eat? Nectar and pollen

6b. What is this insect? __European hornet

Where would you find its nest? Aerial in trees

6c. What is this insect? _____Paper wasp

Where would you find its nest? Eaves/ceilings

6d. What is this insect? _____Yellowjacket

Where would you find their nest? In the ground

6e. What is this insect? _____Cicada killer

What does it eat? Cicadas

STATION 7. Identify and answer the associated question(s) (7a = 6 points, 7b = 4 points).

7a. In the order they appear 1., 2., and 3 identify the insect and state their main job/s.

1. Drone- mate with queen, transfer genetic material
2. Queen- lay eggs and social cohesion
3. Worker- tending to brood, nest construction, foraging and defense

7b. Please name these specimens (1 and 2) and tell me where they nest.

1. Carpenter bee- wood
2. Bumble bee- old mice nests, underground

STATION 8. Pests and pest management (4 points each).

8a. What is this contraption used for? **Monitoring Varroa.**

What are three different ways it can be used? **You can use it with sugar, alcohol and CO₂**

8b. What is this product? **Certain which is a wax moth larvicide. The active ingredient is Bt. It is a spray formulation that you apply to combs. It is used after honey harvest before storage.**

What is it used for and how is it used? **It is used to control wax moths.**

8c What is the active ingredient in this product? **Thymol**

How and for what is it used? **The active ingredient is impregnated into a wafer. The wafer is broken into four parts and placed on the top bars of a brood nest. Temperature thresholds are important to pay attention to on the label instructions. To control Varroa**

8d. What is the active ingredient in this product? **Amitraz**

How and why would you apply this product? **The active ingredient of this product is impregnated into a plastic strip which is placed in the brood nest. To control Varroa.**

8fe What is the active ingredient in these white strips? **Coumaphos**

Looking at the configuration of this display what is it used for? **Small hive beetle control**

STATION 9. Foraging behavior and honey (3 pts each).

9a. Please name these three types of honey.

1. Liquid

2. Chunk

3. Comb

9b. Look at the picture provided. Please match each waggle dance with its corresponding foraging source.

Foraging source 1__C_____

Foraging source 2____A_____

Foraging source 3____B_____

9c. What honey class would you call this jar?

Light amber

STATION 10. Flower biology (2.5pts each).

10a. What is the difference between pollination and fertilization?

Pollination is a pre-fertilization event and just is the movement of the male gamete (pollen grain) from anther to stigma. Fertilization happens after the pollen tube reaches the ovule and gametes are transferred.

10b. What is a benefit of cross pollination? What is a benefit of self pollination?

Cross pollination adds genetic diversity into the offspring/gene pool.

Self pollination does not require a pollinator and most self pollinated plants do not need to spend energy on floral displays and rewards.

STATION 11. Genetics (2 points each).

11a. Name two colony level benefits that result from queens mating with multiple drones.

More colony level diversity which has been shown to help mitigate pests and pathogens, increase foraging efficiency, and even increase beneficial microbes in the bee gut.

11b. What is a diploid drone?

A diploid drone is a non-viable male that results from inbreeding.

11c. What is the sex determination system of Varroa mites?

Haplodiploid

EXTRA CREDIT: (+ 5 points) 5

I am a virgin Varroa mite, do I mate with my brother or my son?

brother