

Name \_\_\_\_\_ KEY \_\_\_\_\_

**EAS Master Beekeeper Lab Exam 2022**

The EAS Lab Exam consists of ? stations each with one or more items. There are 2-5 questions per station each worth 1 or 2 points. Total exam value = 100 pts. Passing grade = 85 points. **Read the questions carefully.**

**STATION 1. Here before you are 6 mystery items. Please identify the object (1 point each).**

- 1a \_\_\_\_\_ corbicula
- 1b \_\_\_\_\_ nematodes
- 1c \_\_\_\_\_ spermatheca
- 1d \_\_\_\_\_ pollen
- 1e \_\_\_\_\_ antenna cleaner
- 1f \_\_\_\_\_ Sting with poison sac

**Station 2. Name each pathogen/parasite (1 point each).**

- 2a. \_\_\_\_\_ American Foulbrood
- 2b. \_\_\_\_\_ Wax moth adult
- 2c. \_\_\_\_\_ European Foulbrood
- 2d. \_\_\_\_\_ Varroa mites
- 2e. \_\_\_\_\_ Small Hive Beetle adult

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

- 3a. \_\_\_\_\_ propolis trap  
\_\_\_\_\_ trapping propolis
- 3b. \_\_\_\_\_ decapper scratcher  
\_\_\_\_\_ removing wax caps
- 3c. \_\_\_\_\_ frame scraper  
\_\_\_\_\_ scraping out frame grooves
- 3d. \_\_\_\_\_ beetle blaster  
\_\_\_\_\_ trap small hive beetles

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

4a. \_\_\_\_\_ drone frame

\_\_\_\_\_ trap varroa

4b. \_\_\_\_\_ frame feeder

\_\_\_\_\_ in hive feeding

4c. \_\_\_\_\_ polariscope

\_\_\_\_\_ to detect imperfections or particles in honey

4d. \_\_\_\_\_ wiring tool

\_\_\_\_\_ for wiring frames

4e. \_\_\_\_\_ varroa sampler

\_\_\_\_\_ -varroa alcohol wash

4f. \_\_\_\_\_ plastic queen cups

\_\_\_\_\_ grafting

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

5a. \_\_\_\_\_ queen cage frame

How could you use it? Caging queen to lay? \_\_\_\_\_

5b. \_\_\_\_\_ flow hive frame

When would one use this tool \_\_\_\_\_ for honey in a flow hive

5c. \_\_\_\_\_ propolis

How is this used in the hive? \_\_\_\_\_

5d. Name this equipment \_\_\_\_\_ vaporizer

When would one use this piece of equipment \_\_\_\_\_ used to fumigate varroa mites

5e. What is this object? \_\_\_\_\_ When and how would one use it? epi-pen

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

6a. Name the insect that makes this nest. \_mud dauber \_\_\_\_\_

What do they eat? spiders

6b. What is this insect? \_Spotted Lantern Fly\_\_\_\_\_

What is its possible influence on beekeeping?\_\_\_\_\_They produce honey dew which is a sweet sugary fluid that many insects collect including honey bees.\_\_\_\_\_

6c. What insect is this? hover fly\_\_\_\_\_

What ecosystem service does it provide?\_Pollination\_\_\_\_\_

6d. What insect is this?\_sweat bee\_\_\_\_\_

Where would you find their nest?\_\_\_In the ground\_\_\_\_\_

**Station 7. Identify the structure in the picture and answer the associated question(s). (2pts)**

7a. What structures are the arrows pointing to and what do they hold? Seminal vesicles and they hold sperm



7b. What is this a picture of, specifically the hooks? What are the hooks used for? Hamuli. Hamuli help to increase the surface area of the wing by coupling the front and hind

wing.



7c. What is this picture showing on the underside of this honey bee abdomen? How old is this bee? Wax scales on the under side of a worker who is days old.



on the under side of a between 12 and 18

### **Station 8. Pests and pest management**

**8a.** What does an alcohol wash measure? How would you measure the reproductive rate of mites?

(4 pts) Alcohol wash measures the amount of mites on a sample of adult bees at that particular moment in the colony. To measure reproductive rates of mites one would have to uncap purple eyed pupae and count the number of adult females, deutonymphs and protonymphs. The more cells uncapped the better idea of reproductive rate. Taking these measures over time also gives you a better understanding of the reproductive rate.

**8b.** Name two products currently registered for Varroa management that cannot be used during a nectar flow name the active ingredient in each (6pt) Apivar- Amitraz, oxalic acid

**8c.** What is this pathogen? How does it affect a colony. DWV

**8d.** What is this disease called? Where would you find evidence of this disease? chalkbrood

**8e.** Prior to 2016 beekeepers could readily get antibiotics to treat bacterial pathogens in their colonies. What changed in 2016 and what brought about this change? A beekeeper must get a prescription from a vet for antibiotics. This was put in place because of the overuse of the antibiotics and the development of resistant bacterial strains.

**8f.** AFB photo

### **Station 9. Foraging behavior and honey (3 pts each)**

**9a.** Name two plants that produce nectar that is toxic if ingested by humans.

Mountain Laurel

Rhododendron

**9b.** What is honeydew? Is the excretia from phloem feeding insects such as aphids, Spotted Lantern flies ect...

9c. What three things are required on a honey label? (3pts)

- 1.common name of product
- 2.net weight
- 3.contact information

**Station 10. Flower biology (5pts)**

10a.What is the difference between a pollinator and a flower visitor?

Pollinator moves pollen from the anther to a stigma. A flower visitor just visits the flower and may never come in contact with pollen or touch a stigma.

10b.Describe three characteristics of flowers that attract visitors.

Scent, color, shape

**Station 11. Genetics**

11a. What are two ways to conduct controlled mating's with honey bees (specific male and female mating)

Artificial insemination

Drone flooding

Quarantined or remote mating area

11b. How many chromosomes do drones have? How many do workers have?

Drones have 16, workers have 32

11c. Why are inbred lines difficult to maintain?

Because you lose diversity selecting for specific traits which makes the organism more vulnerable to pests and pathogens and less adaptable to any changes in the environment.

**Extra Credit:**

What is a gynandromorph?

**Sexual mosaics, a mix of male and female**