EAS Master Beekeeper Lab Exam 2019

The EAS Lab Exam consists of 5 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 microscopes each with a slide containing a mystery item. Please identify the object (1 point each).

1a. ____________________________ Varroa
1b. ____________________________ proboscis
1c. ____________________________ drone aedeagus
1d. ____________________________ hamulii
1e. ____________________________ Sting
1f. ____________________________ Pollen grains

Station 2. Name each pathogen/organism (1 point each).

2a. ____________________________ Wax moth adult
2b. ____________________________ AFB
2c. ____________________________ Wax moth larvae
2d. ____________________________ EFB
2e. ____________________________ Small Hive Beetle larvae

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

3a. ____________________________ pollen trap

______________________________ collecting pollen

3b. ____________________________ fume board

______________________________ harvesting honey

3c. ____________________________ Honey scratcher

______________________________ removing wax caps

3d. ____________________________ frame feeder

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

4a. __________________________ marking pen
   ____________________________ to mark queen
4b. __________________________ entrance reducer
   ____________________________ reduce robbing and intrusion into the colony
4c. __________________________ package
   ____________________________ to ship a queen and bees for sale
4d. __________________________ drone comb
   ____________________________ for drone comb removal
4e. __________________________ Queen cage
   ____________________________ to introduce a queen or protect her during moving
4f. __________________________ votive mold
   ____________________________ making candles

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

5a. __________________________ Harbo syringe
   What is this object used for? Inseminating queens
5b. __________________________ mouse guard
   When would one use this tool? In winter preparation
5c. __________________________ a wad of wax
   What type of products could one make with this substance? Candles, soap, lip balm etc...
5d. Name this equipment division board
   When would one use this piece of equipment? Raising queens, specifically to divide the brood nest
5e. What is this object? How would one use it?
Station 6. Honey bees and their relatives (2 points each)

6a. Name the insect shown in the picture? ____ Apis dorsata ________________________________

Provide a life history fact that differs from *Apis mellifera*. Live on an exposed comb nest

6b. What is the common name of this insect? ______ sweat bee

Where does it make its nest? ___________ in the ground

6c. What insect makes this type of nest? ________ andrenidae

Where would one find this nest on the landscape? ________ miner in the ground

6d. Whose nest is this? ______________________________ spider wasp

What is inside? ______________________________ baby spiders

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

7a. What is the structure and what is the difference between picture A and picture B.
   spermatheca, A- mated versus B- virgin

7b. Look at this picture of a worker honey bee and name the structure and (A) and (B).
   mouthparts, proboscis and mandibles.

7c. What structure is the arrow pointing to on the adult honey bee worker abdomen? ______________________________. What is the purpose of this structure? Nasonov gland, orientation and homing pheromone
7d. What is the name and function of this structure? _________________________________
(2pts) antennal cleaner, clear antennae of any debri

Station 8. Pests and pest management

8a. Name four methods for mite monitoring (4pts)
   1. Alcohol wash (1pt)
   2. CO2 (1pt)
   3. sticky board (1pt)
   4. Powdered sugar (1pt)
   5. Fogging (1pt)
   6. Visual inspection (1pt)

8b. Name three products currently registered for Varroa management, include and identify the one that is approved for use during nectar flows (4pt)
   1. Apivar (1pt)
   2. Oxalic acid (1pt) – “The killing material naturally is found in vegetables such as spinach/leafy veg/brassicas and rhubarb & legumes” (1pt) from 2017 exam
   3. Formic Acid (1pt) – approved for use during nectar flow (1pt) this chemical is naturally produced by what hymenopteran relative of bees? Ant. (1pt)

8c. What is this device used for? Varroa monitoring, specifically mite washes

8d. What damaged this frame? Wax moths (1 point) Name 2 ways to protect frames from this pest. 1) fumigation crystals 2) open air frame storage 3) freezing 4) Bt spray (2pts)

8e. Name four different methods for controlling small hive beetle. Include and identify the one that is considered a bio-control agent (5 points)

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

9a. What three things are required on a honey label? [a: common name of product, net weight, contact information] (3pts)
   1. Common name of product
   2. Net weight
   3. Contact information

9b. What are the three types of honey shown in the following pictures called? (3 pts)
   a. Comb
   b. Chunk
   c. Cream
9c. What type of dance would be used for each of the 3 scenarios a, b, and c?
   a. Large field of clover 1 mile away ____________________________waggle_______________
   b. Small field of clover over 2 miles away ______________________waggle_______________
   c. Small patch of sunflower 25 meters behind the apiary _____________________________round_____________________

Station 10. Flower biology (5pts)

1. Define pollination and then label the parts A, B, and C on the picture. (5 points)
   Pollination is the movement of the pollen grain (male gamete) from the stamen to the stigma.
   A. Stigma
   B. Anther
   C. Petals
   D. Where is the nectar located? The nectaries are located at the base of the petals in this particular flower.

10e. What process is letter A and B demonstrating? What process is letter C demonstrating? (2pt)
   A and B- Self pollination, C- cross pollination

10f. During pollination pollen is transferred from the anther to the___stigma__________ (1pt)

10g. What do you call this type of foraging behavior? Explain your answer.
   (3pts) This pictures demonstrates robbing behavior
Station 11. Miscellaneous

11a. Please name the malady represented in the photograph. (1pt.)
Deformed Wing Virus

11b. What is this machine called?
Artificial insemination device

11c. Describe two reasons why you would use this machine
Inseminating queens
Control mating