EAS MASTER BEEKEEPER LAB EXAM 2017 Univ of DE

THE EAS Lab Exam contains 24 STATIONS each with one or more items. There are 2 to 4 questions related to the items at each station each worth 1 or 2 points. Total exam value = 100 pts. Passing Grade = 85.

Read the questions carefully. Do NOT assume anything and answer the question as it is asked. You may touch, pick up and closely examine each of the items – do not MOVE any labels or move any item to a different station. If unclear ASK for clarification.

STATION 1. Before you are 5 pages from the Penn State FIELD GUIDE to Honey Bees and their Maladies by Frazier, Caron and vanEngelsdorp. Answer the questions for each page.

1. Sheet 1 Cover photo - What does this photo depict? ____healthy brood__________

2. 2 pts Sheet 1 Photo Pg 25 – What do these 3 photos illustrate? ___BEE PMS__________
   What is name of malady of brood shown in top photo? ___snot or cruddy brood;IBDS__

3. Sheet 2 Photo Pg 29 –What malady is shown? ___Tracheal mites _________________
   What is significance of difference in top 2 photos? _top healthy, lower infested ______

4. Sheet 2 Pg 31. What is malady shown? ___AFB____________________ As specifically as possible what is pathogenic cause of this malady? ___bacteria Paenibacillus larvae___

5. 2 pts Sheet 2 Pg 39. What maladies are shown in 2 photos? ___EFB top;Chalkbrood lower ____ For bottom photo what dead brood stage is shown? _larva ____________

STATION 2. There is an assortment of Tools (all related) here. Queen rearing items

6. (2pts) What is name of Item 2 A _____ A. Chinese grafting tool ____ and what specifically does it do? ___ transfer larvae to cup ____

7. Describe how you would use Item 2 B ____ B capture queen push against string to mark her __

8. What is name of Item 2 C _____ C. plastic cup______________? If you wished to save money and not purchase what could you use as substitute for 2 C? ____make your own_____

9. What specifically is needed from a bee colony to use these Tools A,C&D? ___day-old worker larvae_____________ _________________ 2D queen catcher; 6Ewax cups and wooden holders; 6F Cell protector
STATION 3. Before you are two tools frequently used to inspect a bee colony  

A smoker  
B Hive tool

10. What is missing in Tool 3 A that is needed for proper use of this tool?  _bottom grate_____

11. What specific bee material does Tool 3 B help a beekeeper open a colony?  free propolis seal

12. (2pts) For Tool 3 A or 3 B (Circle one) give two specific uses tool helps facilitate frame inspection?
   1. _______HT: lifting frame & freeing of propolis __________________________________________________________________
   2. _SM: reducing colony guarding/dispersing bees from top bar/moving bees to see more clearly

STATION 4. There is a Tool some beekeepers are using before you  

Varroa fumigator

13. This tool uses a/an __acid (oxalic)__ to kill mites. The killing material naturally is found in vegetables such as _spinach/leafy veg/brassicas _ and _ rhubarb & legumes_

14. (2 pts) Describe specifically what time of year to use this tool (if used 1 single time ONLY?)  _winter_________ and what hive condition would indicate it is most advantageous to be used at this time?_________broodless_________

15. (2 pts) What specific personal protective equipment is REQUIRED for use?  
   ___goggles, respirator, gloves, protective clothing ______________________________________

STATION 5. There is a specific Tool before you?  

Light box for judging honey.

16. What specifically (name) is Tool 5 __polarscope ____________________________

17. (2 pts). Name two things Tool 5 is used to detect. 1. ___floaters-lint or beeswax _____ 2. ____crystals forming ___________________________.

18. Name another companion Tool to question 16. __refractometer____________________

STATION 6. There are different tools (syrup feeders) before you.  

B Boardman, A= Division  C=Top;D can:Fplastic entrance feeder

19. Identify as specifically as possible Feeder 6 A ___Division Board Feeder ___but Mann lake sells them as _______pro feeders __________________

20. (2pts) Feeder 6 B would be the least desirable choice for fall feeding of 2:1 syrup - give 2 reasons why. 1___holes too small ______ 2 _attract predators _____

21. Which of these feeders would you want to have a working smoker available to replenish when emptied ___________ A=Division board _______________
STATION 7. Before you is a diagram of honey bee dance language

22. (2pts) What portion of dance is code for direction? __body orientation re: gravity________. What portion is code for distance to foraging site? ____time waggling ____________________.

23. (2pts) What information is bee 7 B likely to be receiving in addition to direction and distance? ___smell/taste/richness__________. What is bee 7 A likely to do at the conclusion of her dance? __refuel & return to field ____________________

24. What comb cell condition is preferred for dancing? ___empty brood cells of lowest box __

STATION 8. Before you is a special tool important to some beekeepers.

25. When specifically would this tool be used? __when YOU are experiencing allergic reaction

26. What is next thing you need do following its use? __go to medical professional _____

STATION 9. Relative nests and Castes

27. What bee relative uses Nest 9A? __bald-faced hornet ______________________________

28. What bee relative uses Nest 9 B? ___Osmia Mason bee ______________________________

29. (2pts) Identify the letter that indicates a queen cup ____9K or F ________________, a capped queen cell ___9E__________, a queen cell from which queen emerged ___9H_____________ and queen cell destroyed before virgin queen emergence ________________9D_____________

30. What is official color marking for 2017 queens? ___yellow____________________________

STATION 10. View the swarm photo and (old) USDA drawing depicting swarm capture. (Swarm photo)

31. At time of photo what group of bees might be entering/exiting the swarm? ___scouts_____

32. What one factor insures successful capture of a swarm? ____queen in container _____

33. (2pts) Complete this 17th Century apicultural proverb:

   A swarm in May is worth a __load of hay_____________

   A swarm in June is worth a silver spoon,

   A swarm in July is __not worth a fly_________________.

Station 11. Photo shows bees ready for commercial pollination within 100 miles of here.

34. What is the most likely target crop to be pollinated? ___fruit trees (apples) _____________

35. What is the range of fee that beekeeper might have received? ___$35-$60__________________
STATION 12. Before you is a specialized type of hive. Mating nuc plastic hive

36. What is this hive type used for? ___mating of queen _____________________________

37. If you do not have this hive type, describe how you might modify a standard hive box to accomplish the same management objective as this hive serves? __partition into 2 4 frame or 3 3 frame partitions (Queen castle) _____________________________

38. (2 pts) Specifically what is stocked in this hive 1. in bees __nurse age bees + capped brood __________ and 2 in food __min one frame _____________________________

STATION 13. Before you is a life cycle diagram courtesy of EAS MB Jon Zawislak

39. In Life Cycle what number(s) might include phoretic mites? __13A, 13B 13I ___________.

40. (2pts) In Life Cycle, name a chemical treatment that specifically targets mites in 13 B? ___Oxalic/Hoguard II ____________ and 13 H __MAQS _____________________________

41. (2 pts). What mite life stages/sexes can be seen in the cell Insert 13 F? __adult female ______

STATION 14. There are several foundations/frames of foundation before you.

42. Can you identify a drone foundation/drone frame? __14A ____________-

43. Are the drawn cells in comb drawn from 14 B likely to be BIGGER, the SAME or SMALLER size (CIRCLE 1) compared to cells started from a sheet of commercial foundation?

44. (2 pts) If you elect to use 14 C in place of 14 D what might be two negative consequences?
   1. __higher number drone cells in natural comb ____________________________ and
   2. __comb not strong or not aligned within frame outline _______________________

STATION 15. A selection of Bee antibiotics and mite chemicals are shown at this station.

45. Remembering the label is the law – which of these materials is illegal? __drug store PDB __

46. Which one(s) is/are a legal application for an active brood disease infestation? __none____

47. Which one(s) are permitted for organic honey production? __ApiLife Var_____________
48. (2pts) What material of these selections would you advise not using when supers are in place? All except Hopguard. Why? ApiVarLife _honey taste or Apivar (synthetic in honey)  15a Apiguard; 15b Apilife Var; 15cApivar;15d Apistan; 15e Fumidil B; 15f illegal PDB; 15g Hopguard

5STATION 16. There is a frame before you. Using the indicated markers answer 3 questions.

49. What specifically is indicated at Marker 16 A? fermenting honey or SHB

50. What specifically is at Marker 16 B? moldy pollen

51. (2 pts). Give a reason you should NOT give this frame to a spring nuc? (slow spring development)

STATION 17. This station has photos of several hive types

52. What is (full) name for hive item 17 A? Kenya top bar hive

53. Of hive types shown which is/are/can not be supered for honey production (ID with number & name)? TB, tree 17c. flow hive; 17d nuc; 17elong hive; 17f warre hive 17g ceramic hive

STATION 18. Hive products

54. Why would individuals use product 18 A? propolis

55. How could you determine the specific source of product 18 B? almond pollen

56. (2pts) What products shown here are obtained from a glandular section of worker honey bees? beeswax; royal jelly and how can you increase harvest of this product? Beeswax – natural comb RJ- raise more queens

STATION 19. There are pinned Insects here (do not touch insects themselves please)

57. (2 pts) Is there a pest of honey bees here? YES or NO? If Yes which one(s) is/are pest(s)? 19 a Preying mantid, 19 c European hornet 19i dragonfly

58. If Insect 19 B was around your bee hives what would you use to reduce its impact on the colony, if anything? 19 honey bee – if robbing

59. Name insect 19 C? European hornet 19 d scolid wasp, 19 e paper wasp (& nest) 19 f green bee; 19g cicada killer wasp; 19 h carpenter (NOT Bumble) bee
Station 20. Bee Items of use by some beekeepers

60. What is **item 20 A**? ___mite monitoring (debris) boards________________________

61. What can be used as inexpensive alternative to **item 20 B**? ___plastic circular entrance reducer – make out of scrap wood/metal or wire screen________________________

62. (2 pts) ID both plastic items A. ___ Nicot (Jenter) queen confining cage____________________
B. ___ JZBZ Battery box/plastic queen carrying cage ______________________

STATION 21. See diagram from HONEY Bee BIOLOGY & BEEKEEPING and bee under the microscope.

63. What is name of body part (21 A) between thorax & abdomen? ___ wasp waist____________________

64. (2pts) How does the internal part in red (21 B) differ (2 differences) when bees are compared to humans? 1. ___aorta - no oxygen transport just food____________________
2. ___open system no branching arteries or veins________________________

65. (2 pts) The abdomen of this bee holds the major organ systems: ID 2 systems you can see in bee under microscope and give major function of organ system
1. ___various______________________________________________
2._______________________________________________________

STATION 22. Before you are 2 different (unusual) items

66. What is the material of **22 A** collected in front of a hive? ___ pollen thrown out of hive _____

67. This flag is recommended for use to mark apiary sites in several state MP3 plans? What does MP3 stand for? ___ Managed pollinator protection plan________________________

Station 23. Items used for mite sampling

68. What is liquid material of **23 A**? ___ alcohol or low sudsing soap ______________________

69. What is significance of black mark on jar **23 B**? ___ means 300 bees ______________________

70. (2 pts). We say mite sample should be below 2-3% - – 2-3% of what? ___ bee adults _____

71. What is most likely in sampling with **23 B** undercounting or overcounting (Circle one)?
   Why? ___mites stuck in PS, nectar in PS rushing the PS________________________

   2 questions from second MB exam 1982 (35 years ago)

STATION 24. What is it? **queen cage**

72. What is the full name of the **item 24 A** before you? ___ Benton Queen cage___________________
73. How is it properly positioned in a bee hive? **between frames screen side exposed**

STATION 25. Frame with brood

74. (2pts) What 2 things can you say about this frame? 1. __EFB disease_ 2. __spotty brood pattern + other reasonable answers______________________________

2017 10  PASS and 12 FAIL -- Score Range 92-57.5%