

NAME: _____ Time: _____

EAS Master Beekeeper Written Exam 2015 Ontario

The EAS written exam has 47 questions totaling 100 points. The passing grade is 85 percent or better. Read questions carefully and do not assume anything intended or implied Answer the question as asked. IF unclear **Ask for Clarification**.

TRUE FALSE (2 points each). Indicate by checking first box if entire statement is TRUE, 2nd box if any portion is FALSE. You may write a short statement if you feel it necessary to qualify your answer.

- TRUE FALSE 1. The most significant field symptom of CCD is lack of dead adults but stored reserves still present.
- TRUE FALSE 2. Ultra filtration of liquid honey usually insures a clear, non-cloudy liquid that is slower to granulate in storage/sale container.
- TRUE FALSE 3. Nectar from a flower often has high amounts of sucrose. This sugar is reduced to simpler sugars so fully ripened honey totally lacks sucrose. *Small amt sucrose left*
- TRUE FALSE 4. The bee dance for a newly discovered nectar source is usually only performed on combs of the honey super in the bee hive. *Dance on lower brood combs*
- TRUE FALSE 5. Neonicotinoid insecticides have been shown to prematurely age workers and cause losses in short-term bee memory. In addition they are believed, at least by some, to be responsible for extensive colony losses.
- TRUE FALSE 6. Africanized honey bees, unlike European bees, do not store large honey reserves.
- TRUE FALSE 7. Almond pollination currently requires over 2.5 million colonies as stocking rate is 2 or more colonies/acre. *~1.7 mill colonies*
- TRUE FALSE 8. Colonies given 3 or more supers of drawn comb will store more food reserves than colonies given one super with additional supers added as "needed". This supering technique is not recommended however in areas of heavy Small Hive Beetle pressure.
- TRUE FALSE 9. Food supplements (such as Honey-B-Healthy) that contain essential oils or essential oil droplets added to sugar syrup are effective for varroa mite control. *Not strong enough & not registered*
- TRUE FALSE 10. Keeping bees in a top bar hive is legal in all US States and Canadian Provinces, as long as the top bar frames are removable.

- TRUE FALSE 11. Reversing hive bodies in the spring assists colony buildup but reversing hive bodies in the fall may be ill-advised for overwintering success
- TRUE FALSE 12. L.L. Langstroth is called the Father of Modern Beekeeping. He is so recognized because of his patented hive, his book *The Hive and The Honey Bee* and his advocacy of Italian queens.
- TRUE FALSE 13. An extractor with tangential (opposed to radial) frame placement requires realigning uncapped honey filled frames 180 degrees to fully extract..
- TRUE FALSE 14. Drones eggs are unfertilized, placed in comb cells with a larger diameter and require additional development hours to transform into the larval stage. *same time*
- TRUE FALSE 15. The swarm bivouac needs presence of a queen to remain as a swarm cluster. Swarms with queens may remain for only hours or extend their stay into days.

MULTIPLE CHOICE (2 Pts each). CIRCLE the letter of the one best alternative of the selections. You may write a short statement if you feel it necessary to qualify your answer in margin.

16. What adult worker bee force produces and uses secretion material from the hypopharyngeal glands [CIRCLE ONE]

- a. Guard bees
- b. Foragers
- c. Nurse bees
- d. House cleaning bees
- e. Comb building bees

17. In September bee hives, the most characteristic symptom of Bee PMS (Parasitic Mite Syndrome) is seeing

- a. Strong too-populous colonies
- b. A spotty capped brood pattern
- c. Pesticide damage result
- d. Russian queen stock
- e. Lack of open brood

18. Apivar is the trade name of which legal mite killing compound?

- a. fluvalinate
- b. thymol
- c. Apistan
- d. Honey-B-Healthy
- e. amitraz

19. Which of the following miticides has a Section 18 registration (not a Section C general use)

- a. MAQS
- b. Apiguard
- c. Hopguard II
- d. Apivar
- e. Apistan

20. A robbing screen is best used to modify the colony entrance to help guard bees guard against

- a. bears
- b. skunks
- c. small hive beetle
- d. ants
- e. honey bees

21. Drawing natural comb means use of wooden frames that lack

- a. shoulders
- b. pre-wired foundation
- c. end and bottom bars
- d. drone comb
- e. rabbet ledge

22. Feeding a bee colony a solid sugar cake is best done in

- a. spring
- b. fall
- c. winter
- d. for surplus honey
- e. never – it is never a good management option

23. The honey bee most easily kept by beekeepers around the world is

- a. *Apis cerana*
- b. *Apis mellifera scutellata*
- c. *Apis mellifera ligustica*
- d. *Apis dorsata*
- e. *Apis mellifera capensis*

24. Mite treatment chemicals may have negative effects – of the following which material may impart an off-taste to uncapped honey?

- a. Apiguard
- b. Apistan
- c. Hopguard II
- d. MAQS
- e. none of above, they all can be used immediately following super removal

25. Pure beeswax thin foundation is best choice to use in wooden frames if you plan to produce/sell

- a. extracted honey
- b. varietal honey
- c. pure, natural, non-chemical contaminated honey
- d. cut-comb honey
- e. water white or light amber-colored honey

26. During spring buildup, the management technique of ____ can be used to slow varroa mite buildup without potential negative effects on building populous colonies for surplus honey?

- a. upper entrance
- b. drone brood removal
- c. brood cycle interruption
- d. requeening
- e. all of the above may potentially negatively impact colony buildup

27. The worker scent gland is often used by bees outside the hive entrance to communicate

- a. hive scent
- b. entrance location
- c. queen's presence
- d. forager return
- e. hive defense

28. Spiracles are the external body opening for

- a. tergal glands
- b. liquid circulatory system
- c. alimentary tract
- d. respiratory system - where oxygen and carbon dioxide gasses are exchanged
- e. malpighian tubules

29. Honey bee flight muscles

- a. do not connect directly to the wing
- b. indirectly connect to the base of the bee wing
- c. also move the wings in a figure 8 pattern during up and down strokes
- d. all of the above
- e. none of the above

30. A triangle escape board is used to

- a. remove honey filled supers
- b. get bees out of a bee tree
- c. monitor beneath hives for varroa mites
- d. to administer Apiguard at top of a colony
- e. none of the above.

FILL INS (2 Pts each). Supply the one or several words in every blank that makes for a complete and accurate statement.

31. Pollen collected by foragers (bee worker force) from flowers outside the hive is removed from the 3rd pair of legs and placed into comb cells in the hive. Once in place, it goes through hydrolysis to be converted into bee bread.

32. Small hive beetles were accidentally brought to the US from So Africa (what part of the world)? The most effective SHB population reduction tool for in-hive use is bait trapping

33. To requeen a queenright colony, you 1st need to dequeen the colony (you wish to requeen). A new queen is put into a cage before introduction to her new colony because directly introducing her may not succeed due to her distinct pheromone signature

34. In diagram 34 below what is yellow material? MAQS pads.
What is difference in the middle diagram compared to those to left and right? no super or Qn Ex

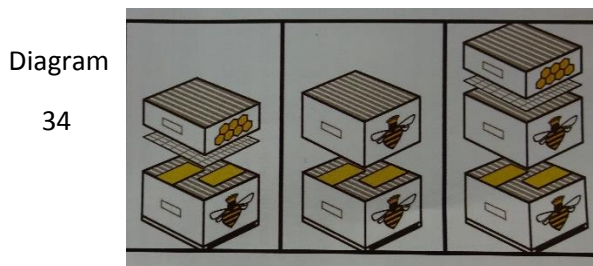


photo 35

35. Shown in photo is an artwork with honey bees (Pierre Huyghe artist, currently on display at MOCA (Museum of Modern Art), 53rd Ave NYC.) Is this encaustic painting? YES or NO [CIRCLE ONE] Is this batik? (YES or NO) [CIRCLE ONE] Is this lost wax casting technique? YES or NO [CIRCLE ONE]. If no, indicated for any answer above, explain what medium (what material from a bee hive) is used for all those for which you answered no. ALL NO ALL use beeswax

35. European foulbrood is caused by the specific pathogen in genus Melisococcus. It CAN or CAN NOT [CIRCLE ONE] be legally treated with an antibiotic.

If you answered CAN what antibiotic is effective? Terramycin (Oxytetracycline)

If you answered CAN NOT, why is there no antibiotic effective against EFB. _____

36. Russian queen stock and VSH bees have demonstrated greater success for suppression of varroa mites. This is useful for beekeepers because with such stock the beekeeper might spend less time/money using treatments/chemicals.

37. In swarming and supersedure, the queen lays a/an fertilized egg in a special beeswax comb cell called a queen cup. How many days until the new queen emerges as an adult? 16 total

38. If you see bees doing what you believe to be supersedure should you intervene YES or NO [CIRCLE ONE]. Reason for your Yes or NO response: either OK with explanation

39. Festooning is worker behavior often seen when the bees are building comb in an expanding colony. Clustering is the behavior of bees during the cold nights of fall and winter.

40. The differences between bees and their close social wasp relatives include wasp larvae are not vegetarians but feed instead on meat. The wasp nest does not use beeswax for larval cells but rather uses paper/muc. The wasp worker population dies over the winter, an example of seasonal eusociality sociality.

41. Removal of supers using a chemical repellent is done via use of a fume board (specialized piece of hive equipment). If you remove honey-filled frames using bounce and brush, what is bounced? the bees. A third technique (besides fist answer and Bounce & brush) for removal of filled honey frames/supers is done with use of forced air or bee escape.

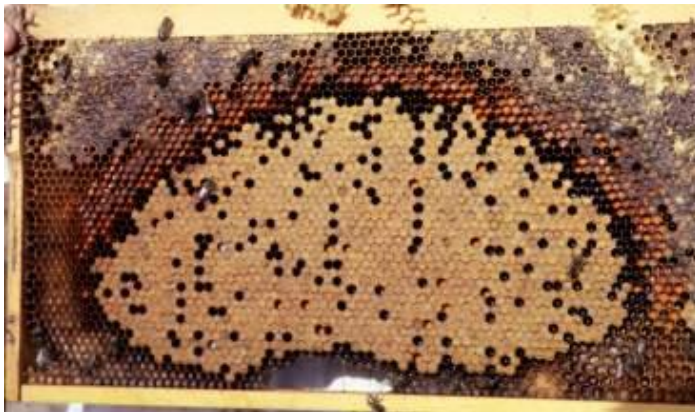
42. When we allow extracted honey to settle what item(s) settle? air bubbles, wax dirt. If we subsequently ultra-filter settled honey and remove all pollen grains from the liquid can it still be labelled pure, natural honey? YES or NO (CIRCLE ONE). Explain your (yes/no) response: either answer OK with explanation

43. When we examine capped brood cells looking for disease what disease are we seeking to detect? AFB What exactly is abnormal about cappings of this disease? sunken/perforated/off-color

44. Give two reasons for using a hive stand that elevates colonies one foot off the surface 1. your comfort and 2. protect equipment/bees from enemies

45. Almond and blueberry growers pay the highest pollination fees but more bees pollinate stone fruit or vegetables. Provide an example of a pollinated fruit berries/apples/cherries and what is "normal" price a rental colony should obtain for rental to this crop? \$ 50-70. Name a vegetable bees pollinate within a couple hundred miles of your apiary cucurbit What is the "usual" rental fee for colonies for this rental crop? 40-80

46 (5 pts) You view this frame from middle of top brood box in your colony in early September. Give minimum of three things you would "read" about this colony based on this side of this frame. Then based on this "reading" what would you do (MANAGEMENT) with this colony (mid-September), if anything, to help them prepare for winter?



Reading

1. Too little honey but check another frame
2. Too much brood but pattern compact
3. Spotty brood pattern

MANAGEMENT

1. Feed heavy syrup to push down brood to lower box & add more honey stores
2. Check for mites, control if necessary
Note: If reading indicated "issue" then management should have addressed it

47. ESSAY (5 pts). DO YOU UNDERSTAND BEEKEEPING AS A SCIENCE OR AN ART?

If you feel it is SCIENCE - ANSWER THIS QUESTION

Beekeeping has been described as “**Applied Bee Biology**”. Provide three examples of bee biology (what bees do naturally- their biology) and for each give specific example of how we might utilize bee biology knowledge to apply it for successful bee management.

If you feel it is more an ART - ANSWER THIS QUESTION

Beekeeping is “**Anticipation not Reaction.**” Based on your experience as beekeeping artist, give 3 examples of how your artistry (experience) helps insure successful management of a bee colony.

DO ONE of the 2 options above (note: you may wish to define “success’ in your response).

Either answer OK Explanation important that should support science (if selected) or art (if selected) – 9 responses science 3 for art.