

KNOWLEDGE REVIEW #1

This questionnaire will identify your starting knowledge base.

* Indicates required question

1. Email *
-



2. Number ID assigned *

⌵ Dropdown

Mark only one oval.

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- 0134
- 0135
- 0136
- Other

3. Full Name *

4. 1. I received beekeeping instruction from, mark all that apply. *

Check all that apply.

- YCBA 101 class
- CABA 101 class
- Lancaster 101 class
- Keys to Bees 101 class
- Dawg on Bees 101
- Penn State Online 101
- Horn Farm 101
- Walnut Farm 101
- Franklin County 101
- Mentorship only no formal class

5. 2. What are the 3 different castes of bees *

1 point

Mark only one oval.

- Queen - Worker - Forager
- Queen - Drone - Larvae
- Queen - Drone - Worker
- Nurse - House - Forager

6. 3. What is the scientific name of the honeybee? *

1 point

Mark only one oval.

- Apis Bombus
- Apis Dorsata
- Apis Florea
- Apis Melifera

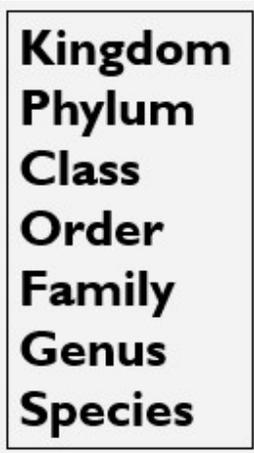
7. 4. All of the below are subspecies of honeybees except? *

1 point

Mark only one oval.

- Italian
- Russian
- Carniolan
- Buckfast
- American
- Saskatraz
- African
- German

8. 5. True or False Bees and wasps are closely related, sharing the same scientific lineage down to species. 1 point



Mark only one oval.

- True
 False

9. 6. What is the normal percentage of drones present for a healthy colony? 1 point

Mark only one oval.

- 50%
 20%-30%
 1%
 3-5%

10. 7. True or False Pennsylvania requires all beekeepers to register their colonies, even if they only have 1 colony. * 1 point

Mark only one oval.

- True
 False

11. 8. Honeybees can starve, what is the most common month for them to starve? * 1 point

Mark only one oval.

- September
- October
- November
- December
- January
- February
- March
- April

12. 9. Honeybees consume honey or sugar for energy. If they require feeding, when do we feed what? Match the below with the appropriate feed. 5 points

Mark only one oval per row.

	1:1 sugar syrup	2:1 sugar syrup	fondant or solid sugar
April-May	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
June-July	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
August- October	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
November- January	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
February- March	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. 10. What is the definition of beespace?

1 point

Mark only one oval.

- The space in which honeybees reside.
- The preferred empty space 1/4"-3/8" in which honeybees will not fill with propolis or wax comb.
- The next hive body given to a colony for them to draw wax and utilize for resources.
- This is a fictitious term.

14. 11. At what temperature do honeybees start to cluster?

1 point

Mark only one oval.

- 50 degrees
- 57 degrees
- 42 degrees
- 60 degrees

15. 12. What temperature range is brood raised at?

1 point

Mark only one oval.

- 80-85 degrees
- 92-97 degrees
- 65-70 degrees
- 74-80 degrees

16. 13. How many eyes does a honeybee have?

1 point

Mark only one oval.

- Two
- Three
- Four
- Five

17. 14. What color are honeybees unable to see?

1 point

Mark only one oval.

- Yellow
- Blue
- Violet
- Red

18. 15. Queens and Workers may come from the same egg, what is the difference that causes this fertilized egg to become a queen rather than a worker?

1 point

Mark only one oval.

- The location the egg is on the frame.
- The egg is fed only royal jelly during development.
- The egg is fed an additional substance called queen royal jelly.
- The workers will hover over the queen egg to raise its' temperature to develop into a queen.

19. 16. What are the jobs of the nurse worker bees that form a retinue around the queen? Mark all that apply. 3 points



Check all that apply.

- Feed the queen
- Spread the queens pheromones
- Show the queen where to lay
- Groom the queen

20. 17. True or False A queen bee secretes pheromones from her mandibular gland (located near her head above her jaw) and also her tarsal glands (located at the base of her feet). 1 point

Mark only one oval.

- True
 False

21. 18. How many days does it take a queen to develop (egg to emerging virgin queen)? 1 point

Mark only one oval.

- 10 days
 12 days
 16 days
 21 days
 25 days

22. 19. What is the common maximum foraging radius of a honeybee? 1 point

Mark only one oval.

- 1/2 mile radius
 1 mile radius
 2 mile radius
 3 mile radius

23. 20. How do forager bees carry pollen?

1 point

Mark only one oval.

- Pollen is collected in the hair of the honeybee, collected, and mixed with small amounts of saliva to pack into their pollen baskets (the divot on the hind leg).
- Pollen is collected in the hair of the honeybee and ingested for the flight back to the nest.
- Pollen is collected in the hair of the honeybee and held in their feet for the flight back to the nest.
- Not all forager bees have pollen baskets and those that do not have these will only collect nectar.

24. 21. During mating flights queens and drones leave their nests. What is the correct statement?

1 point

Mark only one oval.

- Virgin queens and drones of the same colony often fly to the same Drone Congregation Areas (DCA).
- Drones will fly further away from the nest site than their virgin queens (often 1.5-3.0 miles away) to find a DCA.
- Virgin queens will fly further away from the nest site than the drones of their colony (often 1.5-3.0 miles away).
- Virgin queens will take orientation flights after she emerges, but she mates with drone nest mates.

25. 22. What is the cause for honeybees' reduction in numbers?

1 point

Mark only one oval.

- Varroa mites
- Reduction in habitats
- Pesticides
- Farming practices
- Diseases - virus & bacteria
- All of the above

26. 23. Mark the true statement

1 point

Mark only one oval.

- You must always find the queen to know you have a healthy laying queen.
- You do not always need to find the queen to know you have a healthy laying queen.

27. 24. Why are queens marked with specific colors?

1 point

Mark only one oval.

- Colors signify a specific trait or genetic.
- The colors do not mean anything specific; they are simply the preference of the beekeeper.
- The color identifies the year the queen first emerged (different colors for different years)..
- Queens are marked mostly to help those purchasing a colony find the queen with ease.

28. 25. Identify what is seen in the picture below and if any action is needed. (The adult bees have been removed from the frame so we can see the brood).

1 point



Mark only one oval.

- Very spotty brood. The queen should be found and replaced with younger healthy queen.
- Very spotty brood indicating the hive is ventilating itself, offer additional ventilation to the hive.
- Recently mated queen, she has not gotten up to quality laying yet. No action needed at this time.
- Brood are all drones an indicator of laying workers. Immediate action is required to remove the laying workers and requeen.

30. 27. Identify the correct statement about the picture below.

1 point



Mark only one oval.

- The larvae are suffocating in an abundance of royal jelly.
- The larvae are being fed very well as they swim in a pool of royal jelly.
- The cells should be dry when the larvae is developing, directly fed by nurse worker bees.
- Only the queen is fed royal jelly, these larvae float in beebread.

31. 28. Varroa mites are problematic for honeybees, but what time of year routinely poses a higher risk to the honeybee? 1 point

Mark only one oval.

- Spring (February, March, April)
- Summer (May, June, July)
- Fall (August, September, October)
- Winter (November, December, January)

32. 29. Varroa mites eat _____ from the honeybee.

1 point

Mark only one oval.

- fat bodies
- hemoglobin
- amino acids
- neuron receptors

33. 30. What common spice can be used to keep ants away from the hive?

1 point

Mark only one oval.

- Cinnamon
- Ginger
- Nutmeg
- Clove
- Cumin

34. 31. Identify the one following statement that is accurate.

1 point

Mark only one oval.

- Diploid drones are a result of inbreeding and are cannibalized by the worker bees.
- Haploid drones are a result of inbreeding and are cannibalized by the worker bees.
- Inbreeding is a preferred trade with honeybees.
- Drones are neither haploid nor diploid.

35. 32. If you see a capped queen-cell (QC), she will emerge in what range of days?

1 point

Mark only one oval.

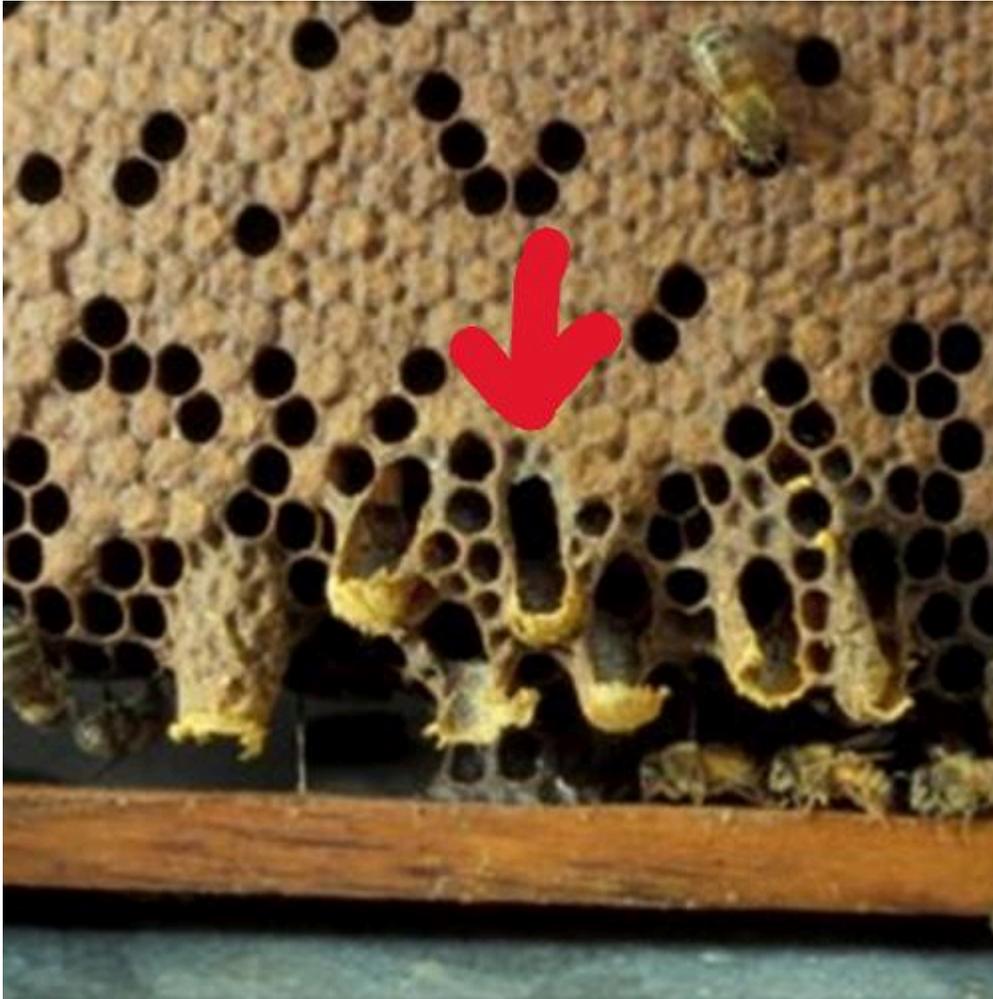
1-7 days

21 days

16 days

1-10 days

36. 33. True or False The queen cell identified with the red arrow shows signs of a healthy adult queen that has emerged. 1 point
- healthy adult queen that has emerged.



Mark only one oval.

- True
- False

37. 34. What is a brood break?

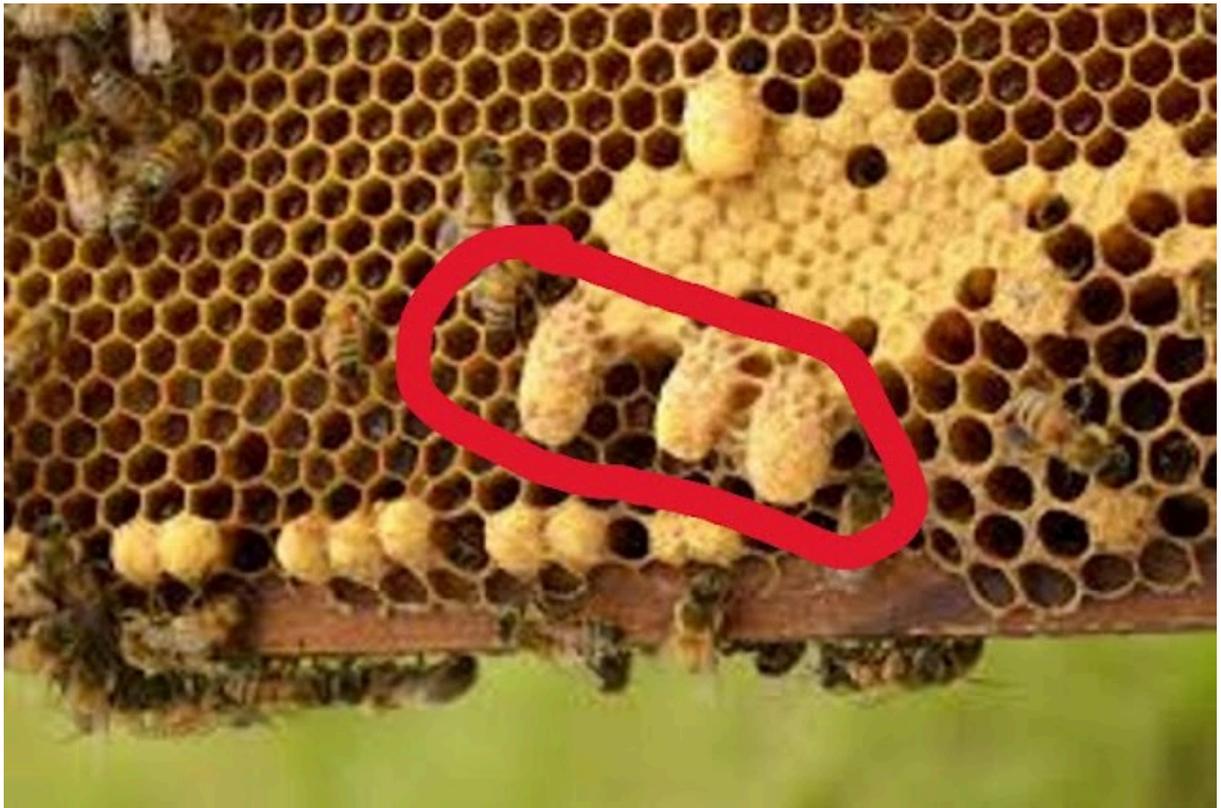
1 point

Mark only one oval.

- When there is no brood being developed in the colony (routinely occurs with the absence of a laying queen).
- When the brood is sickly and a brood wash is necessary to cleanse the hive.
- This refers to the queen refusing to lay eggs due not being cared for by the worker bees.
- This refers to all the brood perishing (routinely occurs when the temperatures get below 60 degrees).

38. 35. What are the circled cells below?

1 point



Mark only one oval.

- Enlarged worker bee cells
- Drone cells
- Queen swarm cells
- Queen emergency cells

39. 36. When a colony re-queens itself, how long will it normally take before this colony has a laying queen (if everything goes according to plan)? 1 point

Mark only one oval.

- 10 days
 16 days
 3 weeks
 4 weeks

40. 37. True or False The mother queen is among the bees that leave during a primary swarm. 1 point

Mark only one oval.

- True
 False

41. 38. Mark all that apply. What measures can you take to reduce swarming behavior 5 points

Check all that apply.

- Provide additional space (add a hive body with frames).
 Take out brood frames (give to a weaker colony) and replace with empty frames.
 Increase the ventilation within the hive.
 Make a split.
 Increase the queen pheromone by replacing the queen with a younger queen.

42. 39. What is this colony doing and is action needed?

1 point



Mark only one oval.

- This colony is preparing to swarm and measures should be taken to catch them before they swarm.
- This colony is defending itself by protecting the landing board and reduction of the entrance should be taken.
- This colony is bearding and measures should be taken to ventilate the hive.
- This colony has been poisoned and measures should be taken to remove the affected bees.

43. 40. What conditions occur to encourage swarming behavior, mark all that apply? 5 points

Check all that apply.

- Swarm cells are present
- Established drones
- Plenty of resources (generally during a nectar flow)
- The queen is sick and the hive must re-home
- The queen has reduced queen pheromone
- Brood nest is congested lacking ventilation

44. 41. What is an artificial swarm? 1 point

Mark only one oval.

- When the colony fails to complete their swarm and returns to their original hive.
- When the beekeeper removes the queen and some flying bees from the original hive.
- When the hive is split in two with the mother queen remaining in the original hive location.
- When the swarm fails to find a new nest site and takes up residence on the external side of the hive.

45. 42. The waggle dance is performed by what bee? 1 point

Mark only one oval.

- Drone bee
- Forager bee
- Queen bee
- Nurse bee

46. 43. Honeybees pollinate using a technique of floral fidelity. Because of this method of pollination, mark those that apply. 1 point

Mark only one oval.

- Honeybees prefer large patches of flowers to pollinate.
- Honeybees prefer small patches of flowers to pollinate.
- Honeybees do not have a preference in the flower they pollinate and will jump from one species to another on the same foraging flight.
- Honeybees prefer to stick to the same color of flower during a foraging flight and encourage nest mates to pollinate this same color.

47. 44. Match the types of honey with their descriptions 7 points

Check all that apply.

	Multifloral	Sugary excrement of sap-sucking insects	Harvest from a distinct nectar source	Commonly called wildflower honoey	Commonly called Spring or Fall honey	Clover honey	Spotted lanternfly honey
Polyfloral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monofloral	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Honeydew	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

48. 45. True or False Honey should never be fed to infants under 1 year of age. 1 point

Mark only one oval.

- True
- False

49. 46. When does honey go bad and expire?

2 points

Check all that apply.

- Honey never expires, never goes bad.
- Honey can go bad if it is not sealed properly and moisture is added (it will ferment).
- Honey has expired when it solidifies (crystalizes).

50. 47. Raw honey may continue with the beneficial enzymes as long as it is not heated past what temperature?

1 point

Mark only one oval.

- 120 degrees
- 145 degrees
- 100 degrees
- 150 degrees

51. 48. Mark all that apply, What information is required on a honey label if you sell less than 100,000 units?

3 points

Check all that apply.

- Flavor of the honey
- HONEY must be prominently displayed
- Net Weight in pounds/ounces and also in metric units
- Beekeepers contact information
- Year it was harvested
- Warning label for infants

52. 49. Winter dead outs occur when all the bees within a hive die. What one answer identifies the reason for dead outs? 1 point

Mark only one oval.

- Varroa mites
- Quantity of bees is too small
- Starvation
- Moisture collecting within the hive
- All of the above

53. 50. Identify the condition of this bee. 1 point



Mark only one oval.

- This is a pre-mature emerged bee.
- This bee has deformed wing virus.
- This bee has been attacked by nestmates.
- This bee is missing most of her hair in a condition known as sacbrood virus.

54. 51. At what threshold should a colony be treated for varroa mites in June? 1 point

Mark only one oval.

- 5 mites per 100 bees
- 3 mites per 100 bees
- 1 mite per 100 bees
- 7 mites per 100 bees

55. 52. How frequently should colonies be inspected during the swarm season of spring? 1 point

Mark only one oval.

- Every 7-10 days
- Every 2 weeks
- Every 5 days
- At least 1 x per month

56. 53. What are things you should consider when deciding on a mite treatment. 4 points
Mark all that apply.

Check all that apply.

- Ambient temperature
- Is there brood present
- Is there honey present
- Is there pollen present
- Is it a new queen (under 2 months laying)
- Screened bottom board in use
- Ratio of drones present

57. 54. SCENARIO: During an inspection you discover multiple queen cells. What 3 points
are some factors you consider before making a decision on your next action?
Mark all that apply.



Check all that apply.

- The age of the swarm cell (capped vs. uncapped vs. emerged).
- It is early morning.
- You saw queen in this colony during last inspection (10 days prior).
- It is July (normal swarm season is May-mid June and again in September).
- What type of queen cells are found.
- The strength & health of this colony.

58. 55. What is the average life expectancy of a summer bee vs. winter bee.

1 point

Mark only one oval.

3-5 weeks vs. 3-4 months

4-6 weeks vs. 4-5 months

5-8 weeks vs. 5-6 months

3-5 weeks vs. 5-6 months

59. 56. What pest has infested these frames?

1 point



Mark only one oval.

- Small Hive Beetle
- Wax Moth
- Nosema
- Foulbrood

60. 57. Which description defines Colony Collapse Disorder (CCD)?

1 point

Mark only one oval.

- CCD is when all of the bees in a colony die and are found on the bottom board of the hive.
- CCD is when all of the bees within the colony abscond and the hive is found empty.
- CCD is when the entire colony absconds but a tiny cluster of bees surrounding the queen and all honey resources remain intact.
- CCD is when the queen lays contaminated eggs affecting the health of the entire colony.

61. 58. True / False Colony Collapse Disorder (CCD) continues to be a huge concern and regularly impact beekeepers.

1 point

Mark only one oval.

- True
- False

62. 59. True or False Only the female developing bees are fed royal jelly, the drones are only fed bee bread.

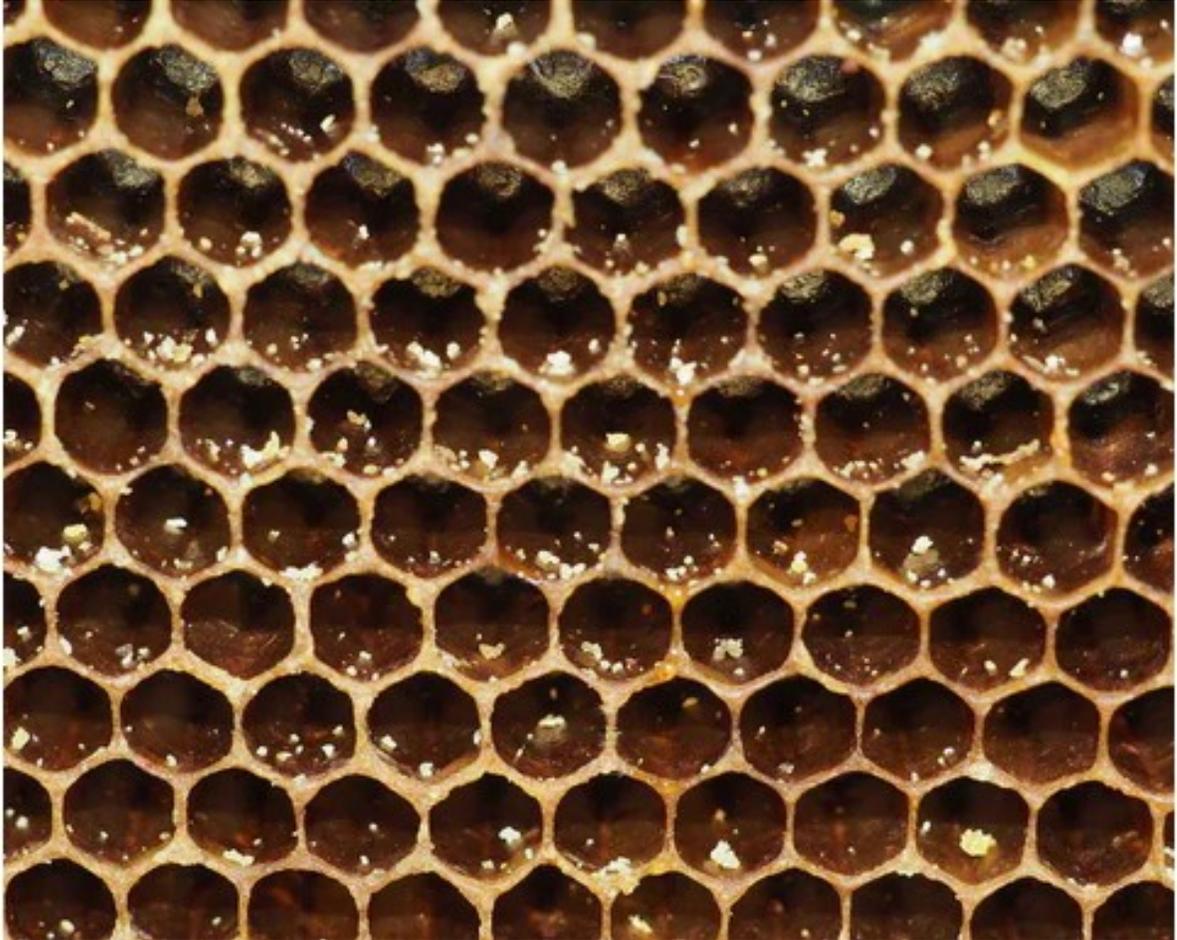
1 point

Mark only one oval.

- True
- False

63. 60. In the below picture, what are the white flakes?

1 point



Mark only one oval.

- Wax flakes that were not utilized.
- Crystallized sugar.
- Varroa mite poop.
- Wax moth eggs.

64. 61. True or False All honey will eventually crystallize.

1 point

Mark only one oval.

- True
- False

65. 62. True or False Microwaving honey to decrystalize it will not affect the honey. 1 point

Mark only one oval.

True

False

66. 63. The cause of death for this bee was poisoning; how do we know this? 1 point



Mark only one oval.

The pollen is a shade of red/orange from the poisonous foxglove

The pollen was collected from the poisonous rhododendron bush.

The curvature of the bee indicates she suffocated from poisoning

The bees proboscis is sticking out, this is an indicator of poisoning.

67. 64. Match the behavior to the description below.

3 points

Mark only one oval per row.

	Bees of all ages fly out of the hive flying in large circles, noisily until they cluster together on a near by object.	Bees use their forearms to grab one another attempting to bite and sting, generally occurs on the landing board of the hive.	Bees will fly out of the hive making small circles and hovering in front of the hive looking towards the hive.
Orientation flight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Robbing activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Swarm activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

68. 65. Identify the life cycle and normal role aging process of a worker bee.

1 point

Mark only one oval.

- Egg - Pupa - Larva - Nurse Bee - Forager Bee - House Bee
- Egg - Larva - Pupa - House Bee - Nurse Bee - Forager Bee
- Egg - Larva - Pupa - Nurse Bee - House Bee - Forager Bee
- Egg - Pupa - Larva - House Bee - Nurse Bee - Forager Bee
- Other: _____

69. 66. True or False Many diseases inflicted by the honey bee can be passed on to other wild bees. 1 point

Mark only one oval.

- True
 False

70. 67. SCENARIO identify all appropriate answers. You have four colonies in the same yard. Colony A (smallest of the four colonies) has been docile throughout the season. It is now July and inspections are challenging because the colony has become aggressive. What may be reasons for the change in behavior? 7 points

Check all that apply.

- High varroa mite count
 Colony is queenless
 Colony has a skunk visiting it nightly
 Colony has been robbed by the other colonies
 It is the nectar dearth and the colony is defending itself
 You have started using a different perfume/cologne
 Ground vibrations affecting the colony due to close proximity construction

71. 68. Which of the below statements is true? 1 point

Mark only one oval.

- Moisture is a greater concern to honeybees during the winter season over the temperatures we reach in Pennsylvania.
 The cold temperatures in Pennsylvania are a greater concern to honeybees over moisture concerns during the winter season.

72. 69. SCENARIO identify the best action to take. Your colony has survived the winter, it is the first week of May. The colony has three (3) hive bodies. Majority of the bees (including the queen) are in levels two & three. Level one has drawn comb but not being utilized much. Your foragers are bringing in the start of the nectar flow and your queen has started to lay some drones. 1 point

Mark only one oval.

- No need to add an additional hive body, the queen will rotate down into level one.
- Add a fourth hive body between the current level two & three.
- Add a forth hive body at level four.
- Rotate level one above the current level two.

73. 70. How confident did you feel about the majority of these questions? *

Mark only one oval.

- Very confident
- Confident
- Not very confident
- I need help

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