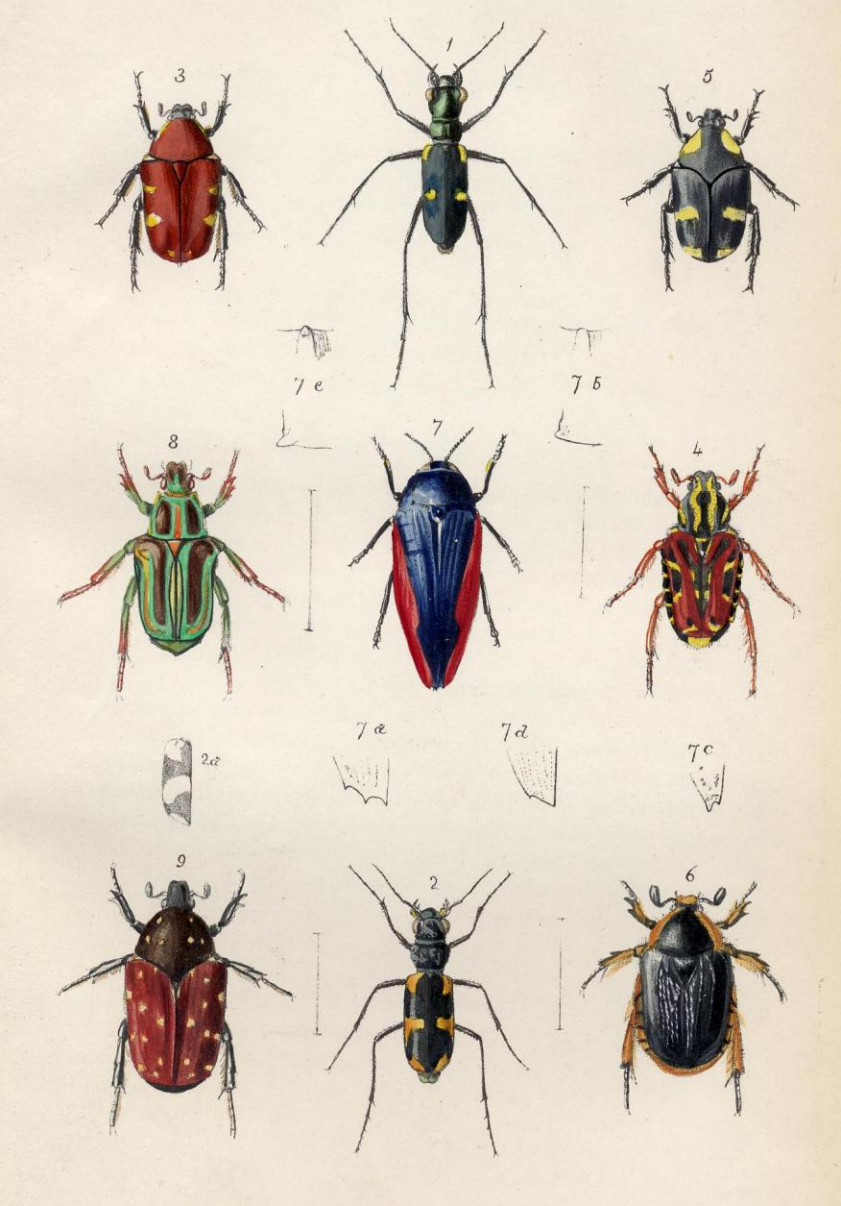
SCIENCE OLYMPIAD SUMMER STUDY SESSION

TWIRLFS' 2014 ENTOMOLOGY TEST KEY

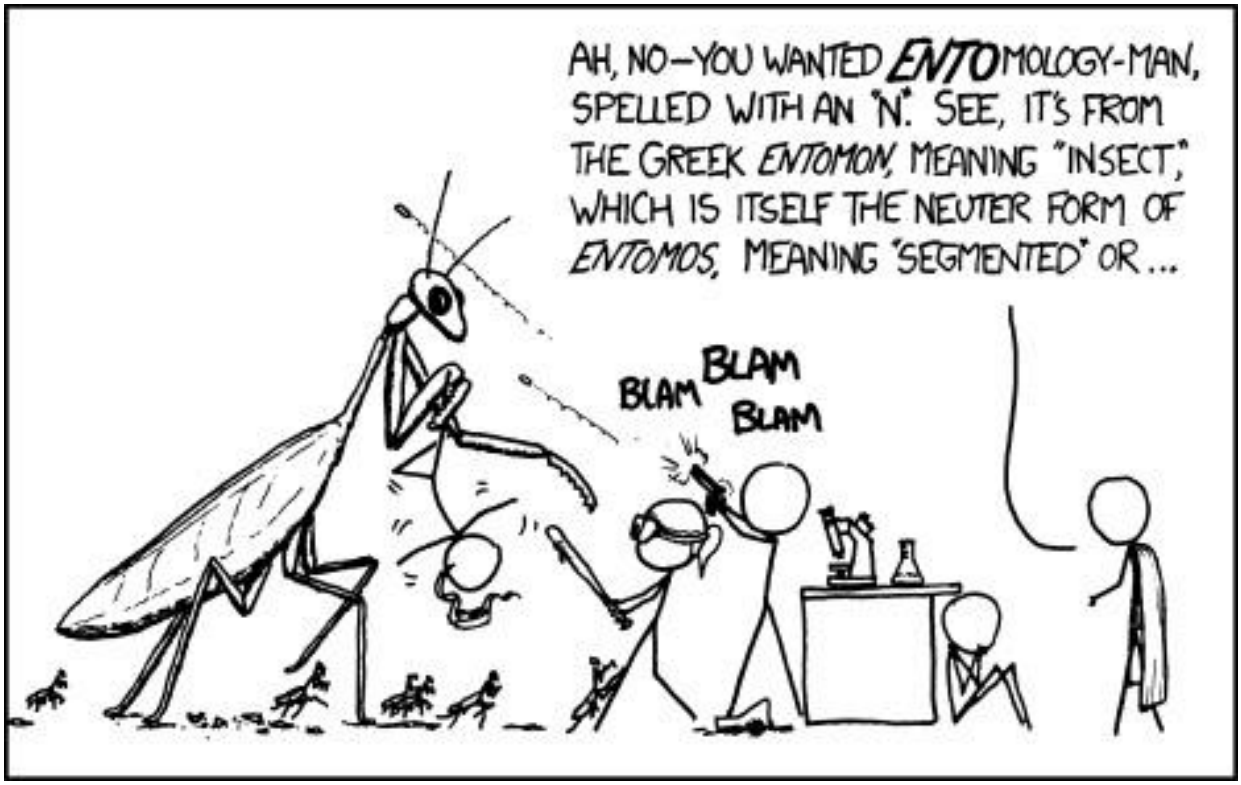


Name:_____ Score(Out of 105):_____

Instructions:

Welcome to the wonderful world of Entomology!

- This test is a station-based test and you will have 3 minutes to work at every station.
- There are a total of 16 stations.
- Follow the instructions every station has posted.
- Point values will vary per question.
- Enjoy!



Station #1

Every question is worth one point. Please circle your answer for multiple choice and true or false questions. There is only one correct answer per question.

1. What function do quinine cross-linkages have in the exoskeleton?

A. They make membranes more flexible
B. They darken the color of the exoskeleton
C. They make the sclerites rigid
D. They make it impermeable to water

2. Rigid, inflexible regions of an insect's exoskeleton are called:

A. Apodemes
B. Sclerites
C. Segments
D. Sutures

3. (T /F) Caterpillars are insects.

4. (T /F) All ants have a bend in their antennae.

5. (T /F) A butterfly will die if you touch its wings.

6. (T /F) Beetles are important and early pollinators

7. What insect causes the most human deaths? _____ Mosquito

Station #2

Point values vary and are printed beside questions. This section consists of fill-in questions, short answers, and multiple choice.

8. What is the major chemical component of an insect's exoskeleton? (1)

A. Lipid
B. Protein
C. Cellulose
D. Chitin

9. What part of the exoskeleton is made up of living cells? (1)

A. Epidermis
B. Procuticle
C. Cuticulin Layer
D. Basement Membrane

10. The cuticle is the upper portion of insect integument and contains two segments: _____ and _____. (2)

Answers: Epicuticle and Procuticle

11. What are some helpful adaptations/traits that let insects survive? Please give at least 2 examples. (2)

_____

_____

Possible Answers: Adaptable exoskeletons, Small body size, and short generation time.

12. What are some ways that insects can benefit humans? Please give at least 2 examples. (2)

_____

_____

Possible Answers: They serve as pollinizers and make products such as honey and silk, food source, biological control, etc.

Station #3

Point values vary and are printed beside questions. This section consists of short answers and one listing question.

13. Name four physical characteristics of arthropods. (4)

_____

_____

_____

_____

Possible Answers: They have an exoskeleton that must shed to grow; They're segmented; They have jointed appendages; Ventral Nerve Chord; Open circulatory System

14. Name the three thorax divisions (3):

1. _____
2. _____
3. _____

Answer: Prothorax, Mesothorax, Metathorax

15. Name five functions of an exoskeleton (5):

_____

_____

_____

_____

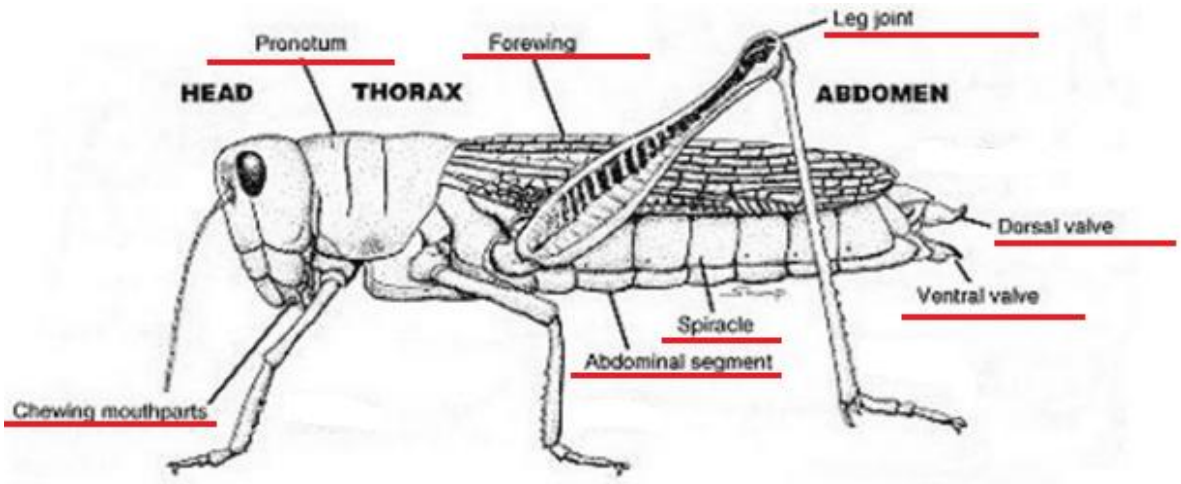
_____

Possible Answers: Internal support and muscle attachment; feeding, locomotion, reproduction; barrier to water loss; disease prevention; camouflage & warning coloration; receptors for environmental stimuli; shape and size; molting and ecdysis

Station #4

Label the following insect parts. Each fill-in is worth one point. Then, write the letter of the word that matches the definitions in #17-21. Use the wordbank to help you. Each word is worth one point.

16. Answers:



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17. Feeding on blood E

18. Having incomplete metamorphosis, that is, showing gradual change from molt to molt, with externally developing wing pads. A

19. Having complete metamorphosis, passing through egg, larval, pupal, and adult stages. C

20.The second, usually small, segment of the antenna. D

21. The dorsal, often shieldlike sclerite of the prothorax. F

A. Hemimetabolous B. Proprioreceptor C. Holometabolous D. Pedicel
E. Hematophagous F. Protonum G. Rhabdom H. Chitin

Station #5

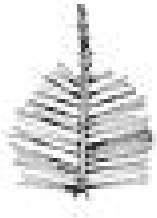
Fill-in the insect antenna type. Use the word bank to help you. Every question is worth 2 points.

Word Bank: Filiform, Setaceous, Capitate, Pectinate, Plumose, Stylate, Moniliform, Ciavate, Lamellate, Bipectinate, Aristate, Serrate

22. Lamellate

23. Setaceous

24. Aristate



25. Plumose

26. Ciavate

27. Stylate

Station #6

Point values vary. Answer the following identification questions below, as they pertain to the selected specimen.

28. To what order (Division B) or family (Division C) does this insect belong to? (2)

_____

Answer: Order Hymenoptera (Division B) or Family Apidae (Division C)

29. What is the name of the organ that connects the hindwings to the forewings in winged members of this order? (2) _____ Answer: Hamulus

30. What type of metamorphosis does this insect display- Simple or Complete? (1)

_____ Answer: Complete

Station #7

Point values vary. Answer the following identification questions below, as they pertain to the selected specimen.

31. To what order (Division B) or family (Division C) does this insect belong to? (2)

_____

Answer: Order Orthoptera (Division B) or Family Acrididae (Division C).

32. The name of the order that this insect belongs to translates from Greek to: (1)

A. straight winged
B. round winged
C. red winged
D. gross bug

33. What type of metamorphosis does this insect display- Simple or Complete? (1)

_____ Answer: Simple

Station #8

Point values vary. Answer the following identification questions below, as they pertain to the selected specimen.

34. To what order (Division B) or family (Division C) does this insect belong to? (2)

_____

Answer: Order (Division B) is Diptera or Family (Division C) is Sarcophagidae

35. Flies in this order usually have how many pair(s) of membranous wings (besides the few parasitic species that are wingless)? (1)_____ Answer: one pair

36. Which of the following insects is included in this order? (1)

A. Whitefly
B. Fruit Fly
C. Sawfly
D. Dragonfly
E. Bill Nye the Science Fly

Station #9

Point values vary. Answer the following identification questions below, as they pertain to the selected specimen.

37. To what order (Division B) or family (Division C) does this insect belong to? (2)

_____

Answer: Order Neuroptera and family Mantispidae

38. What is the common name used to describe these net-winged insects? (1):

_____ Answer: Lacewings

39. The name of the order that this insect belongs to translates from Greek to: (1)

A. Neuron fly
B. Brain wings
C. Nervous wings
D. Vein wings
E. Nerve wings

Station #10

Point values vary. Answer the following identification questions below, as they pertain to the selected specimen.

40. To what order (Division B) or family (Division C) does this insect belong to? (2)

_____

Answer: Order Lepidoptera and family Nymphalidae

41. What are the larvae of this order destructive towards? Give two examples. (2) _____

_____

_____

Answer: Agricultural crops and forest trees

42. The name of the order this insect is in comes from the latin word for _____? (1) Answer: Scaly Wing

Station #11

Point values vary. Answer the following identification questions below, as they pertain to the selected specimen.

43. To what order (Division B) or family (Division C) does this insect belong to? (2)

_____

Answer: Order (Division B) is Thysanura or Family (Division C) is Lepismatidae

44. How do domestic species like in this order cause extensive damage to household goods? Give two examples. (2)_____

_____

Answer: They often feed on wallpaper paste, bookbindings, and the starch sizing of some textiles. Cardboard and other paper products may also be damaged.

45. What two environments do organisms of this order live in? (2) _____

_____

Answer: Moist, humid environments or dry conditions

Station #12

Point values vary. Answer the following identification questions below, as they pertain to the selected specimen.

46. To what order (Division B) or family (Division C) does this insect belong to? (2)

_____

Answer: Order (Division B) is Blattodea or Family (Division C) is Blattidae

47. What type of climate does this insect live in? (1)_____

_____

Answer: They are most abundant in tropical or subtropical climates, but they also inhabit temperate and boreal regions

48. Name two ways this insect is a common pest. (2)_____

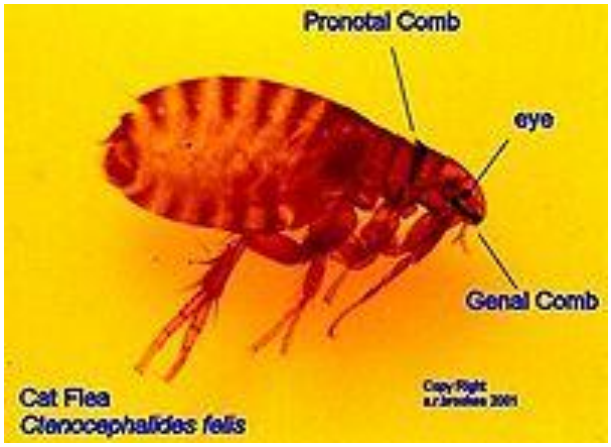
_____

_____

Answer: They feed on pet and human food, can leave an offensive odor and passively transport microbes on their body surfaces (like in hospitals).

Station #13

Point values vary. Answer the following identification questions below, as they pertain to the selected specimen.



49. To what order (Division B) or family (Division C) does this insect belong to? (2)

_____

Answer: Order (Division B) is Siphonaptera or Family (Division C) is Pulicidae

50. The mouthparts of insects in this order are adapted for what two actions? (2)

_____

Answers: Piercing skin and sucking blood

51. Name a common brand of treatment to get rid of this parasite (2): _____

_____

Possible Answers: Frontline, Advantage, K9 Advantix, Capstar, Program, Revolution, Biospot, Sentinel or Vectra

Station #14

Point values vary. Answer the following identification questions below, as they pertain to the selected specimen.

52. To what order (Division B) or family (Division C) does this insect belong to? (2)

_____

Answer: Order (Division B) is Ephemeroptera or Family (Division C) is Heptageniidae

53. What type of metamorphosis do the organisms in this order perform? (1)

_____

Answer: Simple Metamorphosis

54. The order name of these insects indicates what about their life-spans? (1) _____

_____

Answer: Short-lived (ephemeral)

Station #15

Point values vary. Answer the following identification questions below, as they pertain to the selected specimen.

55. To what order (Division B) or family (Division C) does this insect belong to? (2)

_____

Answer: Order Mecoptera and family Panorpidae

56. Around how many species worldwide exist in this order? (1) _____

Answer: 550; Accept anywhere from 500-600

57. Which of the following statements is false? (2)

A. None of the insects of this order are considered pests
B. Some females of this order will accept a male suitor only if he brings her a gift of prey
C. Insects of this order have been known to rob freshly caught prey from spider webs.
D. The common name of this order refers to the distinctive appearance of male genitalia in members of a family in this order.
E. None of the above

Station #16

Point values vary. Answer the following identification questions below, as they pertain to the selected specimen.

58. To what order (Division B) or family (Division C) does this insect belong to? (2)

_____

Answer: Order (Division B) is Plecoptera or Family (Division C) is Eustheniidae

59. What is the common name for insects in this order? (1) _____

Answer: Stoneflies

60. Insects in this order are found the following locations: (circle all that are correct) (2)

A. N. America
B. S. America
C. Asia
D. Europe
E. Africa
F. Australia
G. Antarctica