Sample State 4-H Roundup Entomology Contest

I. Next to each common name, place the letter of the order in which the arthropod belongs. (25 points)

<table>
<thead>
<tr>
<th>Common name</th>
<th>Orders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunspider</td>
<td>A. Hemiptera (Sternorrhyncha)</td>
</tr>
<tr>
<td>Springtail</td>
<td>B. Plecoptera</td>
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<tr>
<td>Smoky brown cockroach</td>
<td>C. Isopoda</td>
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<tr>
<td>Crab spider</td>
<td>D. Trichoptera</td>
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<tr>
<td>Firebrat</td>
<td>E. Phthiraptera (Anoplura)</td>
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<tr>
<td>Harvestmen</td>
<td>F. Thysanura</td>
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<tr>
<td>Vinegaroon</td>
<td>G. Hymenoptera</td>
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<tr>
<td>Biting midge</td>
<td>H. Ephemeroptera</td>
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<tr>
<td>Scorpionfly</td>
<td>I. Araneae</td>
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<tr>
<td>Pillbug</td>
<td>J. Coleoptera</td>
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<tr>
<td>Caddisfly</td>
<td>K. Opiliones</td>
</tr>
<tr>
<td>Human body louse</td>
<td>L. Siphonapteria</td>
</tr>
<tr>
<td>Horntails</td>
<td>M. Diptera</td>
</tr>
<tr>
<td>Mayfly</td>
<td>N. Acarina</td>
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<tr>
<td>European earwig</td>
<td>O. Mecoptera</td>
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<tr>
<td>Human flea</td>
<td>P. Dermaptera</td>
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<tr>
<td>Chigger</td>
<td>Q. Psocoptera</td>
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<tr>
<td>Stonefly</td>
<td>R. Hemiptera (Heteroptera)</td>
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<tr>
<td>Armored scale</td>
<td>S. Blattodea</td>
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<tr>
<td>Backswimmer</td>
<td>T. Collembola</td>
</tr>
<tr>
<td>Mantidflies</td>
<td>U. Scorpiones</td>
</tr>
<tr>
<td>Shaft louse</td>
<td>V. Solifugae</td>
</tr>
<tr>
<td>Striped bark scorpion</td>
<td>W. Thelyphonida</td>
</tr>
<tr>
<td>Plum curculio</td>
<td>X Neuroptera</td>
</tr>
<tr>
<td>Barklice</td>
<td>Y. Phthiraptera (Mallophaga)</td>
</tr>
</tbody>
</table>
II. Read the questions carefully. Write a T for true and F for False (15 points).

26. ________ Grubs are the immature stage of beetles.
27. ________ Immature stages of stoneflies and dobsonflies are found in the soil.
28. ________ Immature stages of mantids and lacewings are predaceous.
29. ________ A few species of true bugs have chewing mouthparts.
30. ________ Fleas are not known to transmit any disease.
31. ________ Some beetle larvae have mouthparts modified for piercing and sucking.
32. ________ Mayflies are the only insects that molt after their wings are fully developed.
33. ________ From man’s standpoint, the order Hymenoptera is considered the most beneficial in the entire insect class.
34. ________ The mouthparts of some Hymenoptera are made for both chewing and sucking.
35. ________ Insects in the order Diptera are responsible for the spread of malaria.
36. ________ Mayflies are the only insects that do not feed as adults.
37. ________ All insects in the Order Hemiptera feed on plants.
38. ________ Thrips sometimes bite humans.
39. ________ Insects may be collected any day of the year unless the temperature is below freezing.
40. ________ Common household pins should not be used to pin insects unless one does not have insect pins.

III. Fill in the blanks (10 points).

41. & 42. The absolute minimum information that should appear on an insect label is the ________________ and the ________________.
43. The greatest economic benefit provided by honey bees is derived from ________________.
44. ________________ are the front pair of appendages of an arachnid that are often specialized with fangs.
45. _______________________________ are the tubular structures on each side of the abdomen of aphids from which pheromones or honeydew is expelled.

46. An insect resting stage, usually induced by environmental signals or extreme conditions like winter or summer is called ________________.

47. Egg development without fertilization is called ____________________________.

48. Insect using plants as a food source (plant eating) are called ______________________ insects.

49. A triangular-shaped area on the back of Hemiptera and some Diptera and Coleoptera that is often the identifying characteristic of Hemipterans is called the ____________________________.

50. The ____________________________ is the outer portion of an insect body which may be relatively soft like a caterpillar or hardened like many beetles.

**IV. Match the arthropod with the term with which it is best associated (15 points).**

51. ________ Cockroach A. Naiad
52. ________ Immature Plecoptera B. Cephalothorax
53. ________ Stink bug C. Conicle
54. ________ Mayfly adult D. Subimago
55. ________ Aphid E. Siphoning
56. ________ Termite F. Tegmen
57. ________ Honey bee G. Secondary reproductive
58. ________ Housefly H. Piercing and chewing
59. ________ Monarch butterfly adult I. Ootheca
60. ________ Grasshopper J. Maggot
61. ________ Winged insect K. Pollination
62. ________ Mosquito L. Hemelytra
63. ________ Collembola M. Imago
64. ________ Adult insect N. Alate
65. ________ Spider O. Collophore
V. Match the following arthropods with where or on which they are found (20 points):

66. _________ Termite 
   A. Milkweed

67. _________ German cockroach 
   B. Stored grain

68. _________ Bollworm 
   C. Kitchen cabinet

69. _________ Rice weevil 
   D. Board piles

70. _________ Monarch 
   E. Cotton

71. _________ Caddisfly 
   F. Ornamental trees

72. _________ Plum curculio 
   G. Stream

73. _________ Soft scales 
   H. Weeds

74. _________ Fireflies 
   I. Rotting stump

75. _________ Recluse spider 
   J. Peaches

76. _________ Cat flea 
   K. Old tires

77. _________ Clothes moth 
   L. Wool

78. _________ Bed bugs 
   M. Dogs

79. _________ Mosquito larvae 
   N. Birds

80. _________ Chewing lice 
   O. Humans

81. _________ Bagworm 
   P. Fermenting fruit

82. _________ Sap Beetle 
   Q. Juniper (cedar)

83. _________ Diamond back caterpillar 
   R. Pond bank

84. _________ Blister beetle 
   S. Alfalfa field

85. _________ Toad bug 
   T. Cabbage
VI. Match the type of antenna with the insect to which it belongs (5 points)

86. ________ Dragonfly                  A. Elbowed
87. ________ Male mosquito              B. Moniliform
88. ________ Ground beetle              C. Filiform
89. ________ Ants                       D. Setaceous
90. ________ Termite                    E. Plumose

VII. Match the type of leg with the insect to which it belongs (5 points)

91. ________ Cursorial                   F. Backswimmer
92. ________ Raptorial                   G. Praying mantis
93. ________ Fossorial                   H. Mole cricket
94. ________ Saltatorial                 I. Grasshopper
95. ________ Natatorial                  J. Cockroach

VIII. Place the letter of the organism next to the disease(s) it transmits (5 points).

96. ________ Lyme disease                 A. Screwworm fly
97. ________ Malaria                     B. Human body louse
98. ________ Typhus                      C. Ticks
99. ________ Bubonic plague              D. Fleas
100. ________ Myiasis                    E. Mosquitoes
Tie-breaker questions (5 points).

1. A certain species of female fly catches a female mosquito and cements her egg to the ventral surface of the mosquito. When the mosquito alights on a human, the fly egg hatches immediately and the fly larva bores in through the skin. This fly (not the mosquito) is known as the ________________.

2. The name ____________________________ is another name for the order Hemiptera.

3. Insects in the order ____________________________ have silk glands in their tarsi.

4. Three orders of insects which can damage books and papers are ____________________________, ____________________________, and ____________________________.

5. The ____________________________ lays a single large egg.