School Name: ____________________  
Team Name: ____________________  
Raw score: ____________

Ecology
Aviation Invitational Science Olympiad
December 2, 2017

Student(s): 1) ____________________ 2) ____________________

1. T    F ____________
2. T    F ____________
3. A    B    C    D
4. A    B    C    D
5. A    B    C    D
6. A    B    C    D
7. A    B    C    D
8. A    B    C    D
9. A    B    C    D
10. A   B   C   D
11. A   B   C   D
12. A   B   C   D
13. A   B   C   D
14. A   B   C   D
15. A   B   C   D
16. A   B   C   D
17. A   B   C   D
18. A   B   C   D
19. A   B   C   D
20. A   B   C   D
21. A   B   C   D
22. A   B   C   D
23. A   B   C   D
24. A   B   C   D
25. A   B   C   D
26. A   B   C   D
27. A   B   C   D
28. A   B   C   D
29. A   B   C   D
30. A   B   C   D
31. A   B   C   D
32. A   B   C   D
33. A   B   C   D
34. A   B   C   D
35. A   B   C   D
36. A   B   C   D
37. A   B   C   D
38. A   B   C   D
39. A   B   C   D
40. A   B   C   D
41. A   B   C   D
42. A   B   C   D
43. A   B   C   D
44. A   B   C   D
45. A   B   C   D
46. A   B   C   D
47. A   B   C   D
48. A   B   C   D
49. A   B   C   D
50. A   B   C   D
51. A   B   C   D
52. A   B   C   D
53. A   B   C   D
54. A   B   C   D
Completion:
62. ___ Ecosystem ________________
63. ___ symbiosis ________________
64. ___ biotic ________________
65. ___ mutualism ________________
66. ___ decomposition ________________
67. ___ heat ________________
68. ___ biomass ________________
69. ___ ecosystem ________________
70. ___ carrying capacity ________________
71. ___ exponential ________________
72. ___ Sonoran ________________
73. ___ Mojave ________________
74. ___ Sonoran ________________
75. a b c d e f g
76. a b c d e f g
77. a b c d e f g
78. a b c d e f g
79. a b c d e f g
80. a b c d e f g
81. a b c d e f g
82. _____ Grassland ________________
83. _____ Desert ________________
84. abiotic factors – any nonliving components of an ecosystem: soil, minerals and other chemicals, pH, weather, climate, water, light, moisture, most limiting factors (4 points, at least 3 factors)

85. ___ Water ________
    (1 point)

86. ___ Chihuahuan Desert.
    Great Basin Desert,
    ___ Mojave Desert
    ___ Sonoran Desert

87. Carbon dioxide, Methane, water vapor, nitrous oxide, ozone, CFCs; greenhouse effect = The process in which greenhouse gases in the atmosphere trap heat from the sun and keep Earth warm. The greenhouse effect is necessary for life on Earth, but too many gases in the atmosphere could make our planet’s temperatures rise too high. global warming = an increase in the average temperature of the earth's atmosphere (especially a sustained increase that causes climatic changes). (5 points, 3 for gases, 2 for difference between the two)

Short Answer:
10 on top
100
1,000
10,000 - Bottom

88.

89. Pyramid of numbers (spindle-shape)___
   Sometimes the pyramid of numbers doesn’t look like a pyramid at all. This could happen if the producer is a large plant such as a tree, or if one of the animals is very small. Remember, though, that whatever the situation, the producer still goes at the bottom of the pyramid.
90. Bottom-grass (P=producer). Any omnivore/herbivore (PC=primary consumer), carnivore (SC=secondary consumer), decomposer/carnivore (TC=tertiary consumer) (4 points, 1 each level)

91. _______________ Nitrogen cycle
    _______________ Nitrogen fixation

**Tie Breakers:**

92. • large surface area for cooling – ex. rabbit ears; waxy surface to contain water;
    • large water retaining trunks, stocks, humps, or holding areas to have a water supply in case of drought;
    • needles as opposed to leaves to conserve water;
    • spines and poisons for protection;
    • nocturnal to conserve water and energy, so as not to overheat;
    • CAM photosynthesis to conserve water
(6 points, Any three or other appropriate answer)

93. • Some animals, such as bison, have broad, flat-topped teeth and digestive systems especially adapted to feed on grasses.
    • Many prairie animals have front legs and paws that allow them to burrow into the ground, where they are protected from predators.
    • Many prairie animals are adapted for nocturnal life; that is, they are active at night, which helps conceal their presence from predators.
    • The color of many prairie animals blends in with the plant life, which also helps them hide from predators.
    • The colorful blossoms attract insects to pollinate them.
    • Extensive root systems for some shrubs can get water from far down in the Earth. Different species' roots get most of their water and nutrients from different levels in the soil.
    • Three examples of animal adaptation are first giraffes because their necks are adapted to feed from the tall trees instead of feeding from the smaller trees where all the other animals feed.
(6 points, any three or other appropriate answer)

94. Carbon dioxide, Methane, water vapor, nitrous oxide, ozone, CFCs;
greenhouse effect = The process in which greenhouse gases in the atmosphere trap heat from the sun and keep Earth warm. The greenhouse effect is necessary for life on Earth, but too many gases in the atmosphere could make our planet's temperatures rise too high.
global warming = an increase in the average temperature of the earth's atmosphere (especially a sustained increase that causes climatic changes).
(5 points, 3 for gases, 2 for difference between the two)