Ecology
Answer Section

MULTIPLE CHOICE

1. ANS: E PTS: 1 DIF: Moderate
   TOP: 3-3 What Are the Major Components of an Ecosystem?
2. ANS: D PTS: 1 DIF: Moderate
   TOP: 3-5 What Happens to Matter in an Ecosystem?
3. ANS: A PTS: 1 DIF: Easy
   TOP: 3-5 What Happens to Matter in an Ecosystem?
4. ANS: D PTS: 1 DIF: Easy
   TOP: 5-3 What Limits the Growth of Populations?
5. ANS: D PTS: 1 DIF: Easy
   TOP: 5-4 How Do Communities and Ecosystems Respond to Changing Environmental Conditions?
6. ANS: A PTS: 1 DIF: Moderate
   TOP: 7-2 How Does Climate Affect the Nature and Location of Biomes?
7. ANS: A PTS: 1 DIF: Moderate
   TOP: 4-6 What Roles Do Species Play in an Ecosystem?
8. ANS: C PTS: 1 DIF: Moderate
   TOP: 3-5 What Happens to Matter in an Ecosystem?
9. ANS: A PTS: 1 DIF: Easy
   TOP: 5-3 What Limits the Growth of Populations?
10. ANS: A PTS: 1 DIF: Moderate
    TOP: 7-2 How Does Climate Affect the Nature and Location of Biomes?
11. ANS: D PTS: 1 DIF: Moderate
    TOP: 3-5 What Happens to Matter in an Ecosystem?
12. ANS: E PTS: 1 DIF: Easy
    TOP: 4-6 What Roles Do Species Play in an Ecosystem?
13. ANS: A PTS: 1 DIF: Easy
    TOP: 4-6 What Roles Do Species Play in an Ecosystem?
14. ANS: B PTS: 1 DIF: Moderate
    TOP: 3-3 What Are the Major Components of an Ecosystem?
15. ANS: C PTS: 1 DIF: Moderate
    TOP: 3-3 What Are the Major Components of an Ecosystem?
16. ANS: D PTS: 1 DIF: Easy TOP: 5-1 How Do Species Interact?
17. ANS: E PTS: 1 DIF: Easy
    TOP: 3-5 What Happens to Matter in an Ecosystem?
18. ANS: B PTS: 1 DIF: Easy TOP: 3-1 What Is Ecology?
19. ANS: C PTS: 1 DIF: Easy
    TOP: 3-4 What Happens to Energy in an Ecosystem?
20. ANS: E PTS: 1 DIF: Moderate
    TOP: 5-3 What Limits the Growth of Populations?
21. ANS: C PTS: 1 DIF: Moderate TOP: 5-1 How Do Species Interact?
22. ANS: D PTS: 1 DIF: Easy
    TOP: 4-6 What Roles Do Species Play in an Ecosystem?

23. ANS: B PTS: 1 DIF: Easy
TOP: 5-3 What Limits the Growth of Populations?
24. ANS: B PTS: 1 DIF: Moderate
TOP: 5-3 What Limits the Growth of Populations?
25. ANS: A PTS: 1 DIF: Easy TOP: 5-1 How Do Species Interact?
26. ANS: C PTS: 1 DIF: Moderate
TOP: 3-3 What Are the Major Components of an Ecosystem?
27. ANS: B PTS: 1 DIF: Easy
TOP: 7-2 How Does Climate Affect the Nature and Location of Biomes?
28. ANS: C PTS: 1 DIF: Easy
TOP: 3-2 What Keeps Us and Other Organisms Alive?
29. ANS: D PTS: 1 DIF: Easy
TOP: 3-3 What Are the Major Components of an Ecosystem?
30. ANS: E PTS: 1 DIF: Easy
TOP: 4-6 What Roles Do Species Play in an Ecosystem?
31. ANS: C PTS: 1 DIF: Easy TOP: 5-1 How Do Species Interact?
32. ANS: B PTS: 1 DIF: Moderate
TOP: 3-3 What Are the Major Components of an Ecosystem?
33. ANS: D PTS: 1 DIF: Moderate
TOP: 7-2 How Does Climate Affect the Nature and Location of Biomes?
34. ANS: A PTS: 1 DIF: Moderate
TOP: 5-4 How Do Communities and Ecosystems Respond to Changing Environmental Conditions?
35. ANS: D PTS: 1 DIF: Easy TOP: 3-1 What Is Ecology?
36. ANS: C PTS: 1 DIF: Moderate
TOP: 5-4 How Do Communities and Ecosystems Respond to Changing Environmental Conditions?
37. ANS: E PTS: 1 DIF: Moderate
TOP: 3-4 What Happens to Energy in an Ecosystem?
38. ANS: B PTS: 1 DIF: Moderate
TOP: 3-3 What Are the Major Components of an Ecosystem?
39. ANS: C PTS: 1 DIF: Moderate TOP: 5-1 How Do Species Interact?
40. ANS: A PTS: 1 DIF: Moderate
TOP: 3-4 What Happens to Energy in an Ecosystem?
41. ANS: C PTS: 1 DIF: Moderate
TOP: 3-5 What Happens to Matter in an Ecosystem?
42. ANS: B PTS: 1 DIF: Easy
TOP: 3-5 What Happens to Matter in an Ecosystem?
43. ANS: E PTS: 1 DIF: Easy TOP: 5-1 How Do Species Interact?
44. ANS: E PTS: 1 DIF: Easy TOP: 3-1 What Is Ecology?
45. ANS: B PTS: 1 DIF: Moderate
TOP: 7-2 How Does Climate Affect the Nature and Location of Biomes?
46. ANS: D PTS: 1 DIF: Moderate
TOP: 3-4 What Happens to Energy in an Ecosystem?
47. ANS: E PTS: 1 DIF: Easy
TOP: 3-3 What Are the Major Components of an Ecosystem?
48. ANS: B PTS: 1 DIF: Easy
TOP: 5-3 What Limits the Growth of Populations?
49. ANS: C PTS: 1 DIF: Easy TOP: 3-1 What Is Ecology?

50. ANS: D PTS: 1 DIF: Easy TOP: 3-1 What Is Ecology?

OTHER

51. ANS:
B

PTS: 1 DIF: Moderate OBJ: Labeling

52. ANS:
A

PTS: 1 DIF: Moderate OBJ: Labeling

53. ANS:
D

PTS: 1 DIF: Moderate OBJ: Labeling

54. ANS:
C

PTS: 1 DIF: Moderate OBJ: Labeling

ESSAY

55. ANS:
Niche overlap places the two species in competition for the limited resource. Competition requires the expenditure of energy and reduces the energy available for other necessities. Over time, natural selection will choose those members of the species who have to expend less of their energy in competition. Eventually the two niches will overlap less.

PTS: 1 DIF: Difficult

56. ANS:
Any population, including the human population, increases or decreases according to the formula: Population change = (births + immigration) – (deaths + immigration). Speaking on a global scale, there is no place for us to come from (immigration) or go to (emigration). That means population change is limited to births minus deaths. To put it in the crudest of terms, we must either reduce the number of births or increase the number of deaths in order to stabilize or reduce our population. If we choose not to undertake that change, nature will do so as we exceed our carrying capacity.

PTS: 1 DIF: Moderate

57. ANS:
The loss of a predator in an ecosystem results in an imbalance in the system. The primary consumer is freed from the environmental pressure of predation and increases its population. The increased population puts additional pressure on the producers, potentially reducing their viability. The rabbit's food source will eventually decline, possibly resulting in increased death in the rabbit population. Decomposers will have additional food sources and may increase in population. Other prey populations, held in check by the fox, may also experience the same changes.

PTS: 1 DIF: Moderate to Difficult

58. ANS:
Biological systems are notoriously inefficient in the transfer of energy from trophic level to trophic level. Because 90% of the available energy is lost in each transfer, a human who eats meat is obtaining only about 1% of the energy available in the grains and vegetables of the producer level. Because the human population continues to grow at a rapid pace, there will be millions of new persons to feed each year. As countries become more affluent, they tend to want to eat more meat. The question becomes whether or not there will be enough energy available if we continue to pass it through animals on the way to humans.

PTS: 1 DIF: Easy to Moderate