AP Environmental Science Practice

Choose one answer per question. Circle A, B, C, or D.

1. In a marsh food web, cordgrass uses sunlight to make sugars. Grasshoppers eat the cordgrass, and birds eat the grasshoppers. Which organism occupies the producer level?
   A. Cordgrass
   B. Grasshopper
   C. Bird
   D. All three organisms

2. During a storm, a town’s floodplain stores water that would otherwise rise quickly downstream. Which category of ecosystem service does this illustrate?
   A. Cultural
   B. Provisioning
   C. Regulating
   D. Recreational

3. Water from a storm sinks below a garden’s surface into gaps between soil particles. Which process has just occurred?
   A. Transpiration
   B. Infiltration
   C. Condensation
   D. Surface runoff

4. A town is comparing energy resources. Which option draws directly on a renewable resource?
   A. A generator fueled with extracted natural gas
   B. A boiler that burns mined coal
   C. An engine that burns gasoline made from petroleum
   D. A wind turbine driven by moving air

5. Measurements find that ground-level ozone accumulates near a city on sunny afternoons. What process creates ground-level ozone?
   A. Vehicles release all the measured ozone directly from their exhausts.
   B. Nitrogen oxides and volatile organic compounds react in sunlight.
   C. Airborne dust changes to ozone as it settles.
   D. Cloud water evaporates and leaves behind ozone.

6. A fictional grassland fixes 1,100 energy units per square meter per year. Its producers use 420 of those units for respiration. What is the net primary productivity in the same units?

A. 680
B. 420
C. 1,100
D. 1,520

7. A preserve starts a year with 240 rabbits. It records 38 births, 26 deaths, 9 arrivals and 15 departures. Assuming no other changes, how many rabbits are present at year’s end?

A. 272
B. 231
C. 252
D. 246

8. Two identical parcels receive the same rain on equally moist soil. A town leaves one planted and paves most of the other. Both have the same slope and neither has a drainage retrofit. Which change would the town expect on the paved parcel?

A. Less infiltration and less surface runoff
B. More infiltration and less surface runoff
C. Less infiltration and more surface runoff
D. Unchanged infiltration and runoff

9. A lake receives unusually large nutrient inputs. An algal bloom later collapses, and dissolved oxygen drops near the lake bed. Which process most directly explains the drop?

A. Decomposers consume oxygen while breaking down dead algae.
B. The dead algae immediately consume oxygen for photosynthesis.
C. The nutrients stop oxygen molecules from dissolving anywhere in the lake.
D. Decomposers move oxygen from the lake bed into living algae.

10. A wind installation generated 24,000 megawatt-hours over a year. Its theoretical maximum over those hours was 60,000 megawatt-hours. What was its capacity factor?

A. 150%
B. 24%
C. 60%
D. 40%

11. Producers make 80,000 energy units available per square meter per year. Primary consumers receive 10% of that and secondary consumers receive 15% of the primary consumers’ energy. How many units reach the secondary consumers?

A. 8,000
B. 800
C. 1,200
D. 12,000

12. Two fictional plots each contain four plant species and 100 plants. Plot A has 25 plants of each species. Plot B has counts of 85, 5, 5 and 5. Which statement follows from those counts?

A. Plot A has greater species richness, and the plots have equal evenness.
B. The plots have equal species richness, and Plot A has greater evenness.
C. Plot B has greater species richness and greater evenness.
D. The plots have equal species richness and equal evenness.

13. A district needs 120,000 kilowatt-hours. Its two parts initially supply 50,000 at 0.6 kg of carbon dioxide per kilowatt-hour and 70,000 at 0.2 kg per kilowatt-hour. It moves 20,000 kilowatt-hours from the first source to the second. Using these constant rates, how much does emitted carbon dioxide decrease?

A. 16,000 kg
B. 4,000 kg
C. 12,000 kg
D. 8,000 kg

14. A town wants to test whether replacing pavement outside one school reduces the amount of runoff leaving that property. Which design best accounts for differences in storms from one year to the next?

A. Measure both the treated school and a similar unchanged school during storms before and after the change.
B. Measure only the treated school during one storm after the change.
C. Compare a light storm after the change with a heavy storm before it at the treated school.
D. Measure only the unchanged school before and after construction at the other school.

15. An ocean parcel’s pH falls from 8.1 to 7.8. Using the approximation 10 to the power of 0.3 is 2, which statement matches that change?

A. Hydrogen ion activity increases by 0.3%.
B. Hydrogen ion activity falls by approximately half.
C. Hydrogen ion activity approximately doubles.
D. Hydrogen ion activity stays constant because both pH values exceed 7.