

Rights of Way - APPLICATOR EXAM REVIEW QUESTIONS

The following questions and corresponding answers are examples. The questions and corresponding answers may or may not appear on the exam you will be given. The actual test is only 50 questions.

Review these questions in addition to the General Standards Exam study guide.

1. Why are plant growth regulators used in right of ways?
To maintain desired height of turf around guardrails.
2. What type of herbicide is used for total vegetation control (TVC) used around guardrails?
Residual, nonselective herbicides.
3. What is girdling? P 15
Cutting a groove or notch into the trunk of a tree to interrupt the flow of sap between roots and crown. Can be done by cutting a ring around a woody plant through the bark and sapwood (cambium).
4. What is grubbing? P 15
Uprooting plants by pulling or digging.
5. Why are growth regulators used instead of herbicide in some areas? P 15
They are used to slow vegetation growth in areas where brownouts from herbicides are unacceptable. Such as along steep slopes and cemeteries.
6. What growth regulators are used typically and why? P 15
Maleic hyrazide, mefluidide, and flurprimidal. These compounds are used in areas where brownout from herbicides are unacceptable.
7. How do photosynthetic inhibitor herbicides work? P 17
They translocate in the xylem from the roots to the older leaves.
8. What are meristematic tissues? P 19
The growing points of plants.
9. Why are ACCase inhibitors (lipid biosynthesis inhibitors used)? P 19
They selectively control grass but broadleaf plants are unaffected by them.
10. How are dinitroanilines used to control annual grasses and small-seeded broadleaf plants? P 19
They are soil applied
11. How do herbicide-resistant weeds develop? P 20
Herbicide controls the majority of plants and only those that possess a resistant trait can survive and produce seed for future generations (natural selection).
12. What are the two mechanisms that allow plants to become herbicide resistant? P 20
**The target site is somewhat altered and the herbicide molecule cannot exert toxin.
The weed is able to metabolize the herbicide or make it inactive.**
13. What is frilling? P 24

Series of downward angled cuts make completely around the tree, leaving partially severed bark and wood attached at the bottom. It is typically performed with a hatchet or axe.

14. What steps can be taken to minimize herbicide resistant weeds? P 21
 - a. Scout regularly to identify resistant weeds
 - b. Rotate herbicides with different sites of action
 - c. Apply herbicides with multiple sites of action
 - d. Combine mechanical and non-chemical control practices
 - e. Clean equipment before moving from infested areas with resistant weeds to non infested areas.
 - f. All of the above**

15. What is herbicidal activity? P 23
When a particular herbicide binds to a target site within the plant and exerts a lethal effect.

16. What are the different ways that herbicides can be applied to plants? P 23
Onto leaves (foliar treatment) or onto stem or trunk (frill, girdle, basal-bark or cut-surface treatment.

17. What are the methods of killing standing trees without herbicide? P 24
Frilling and girdling.

18. How is basal bark treatments performed? P 25
Herbicide is sprayed on small trees and shrubs on the lower 12-18 inches of bark. It is most effective on trees smaller than 4-6 inches in diameter.

19. How are soil treatments (basal soil) herbicides used? P 27
They are applied within the dripline of target species so that herbicide can move by rainfall into the root zone.

20. Why are soil treatment herbicides not used in many areas? P 27
They are quite persistent and mobile in water, so can they run off and leech into surface or underground water sources.

21. When is the greatest potential for spray drift? P 28
When wind velocity is greater than 10 miles an hour or when the wind is blowing toward sensitive plants or critical areas.

22. When should you not apply low volume sprays (those having smaller droplet size)? P 28
During periods of high temperature or low humidity. (since droplets evaporate easier)

23. When are cut stump applications of herbicide used?
They are used to control trees with thick barks or trunks greater than 5 inches in diameter.

24. How do you avoid the pressure decreasing as the liquid is sprayed from a compressed air sprayer? P 29
Fill the tank only 2/3 full with spray material and repressurize the tank frequently.

25. What are considerations for choosing equipment for right-of-way applications? P 29
- Size of area
 - Target vegetation
 - Terrain
 - Pesticide formulation
 - All of above**
26. What are the benefits and drawbacks of piston pumps? P 30
They can provide higher spray pressure than diaphragm pumps but cannot be used with abrasive formulations.
27. How are the most effective injections of pesticides performed? P 31
- At the base of the tree
 - Not made into deep folds or creases of the root flare.
 - Holes less than ¼" diameter made at a depth of ½" to 1" spaced every 3 to 6 inches around tree.
 - Number of tree holes is determined by diameter of tree at breast height (DBH).
 - All of the above**
28. Injection equipment is used to put pesticide directly into the plant's? P 30
Living tissue
29. Injections can also be used to treat for? P 30
Treating insect pests and diseases
30. Boom sprayers provide? P. 31
Broadcast applications with the best uniformity.
31. What drawbacks do boomless sprayers have when they are used to make broadcast applications? P31
Uniformity is not as good as with a boom sprayer even when using off-center nozzles.
32. What are spray guns used for with high pressure sprayers? P 31
Spot application, high and low volume foliar application and for basal applications
33. Spray guns are not recommended for? P 32
Broadcast applications, since exact pressure, walking speed, arm motion and nozzle height/ angle must be maintained for uniformity.
34. Spray droplets smaller than _____ microns are at risk of drifting? P 33
200 Microns (µm)
35. How do you calibrate a handheld spray gun? P 32
Spray an area you know to be 1,000 square feet and record the time it takes. Then catch the spray from the spray gun into a bucket for the same length of time.
36. How should sprayers be maintained? P 39
**Use only water that appears clean enough to drink
Check and clean strainers daily**

Do not use metal objects for cleaning nozzles

Flush new sprayers before use

All of the above

37. How do you remove residues of oil base herbicides? P 40

Fill tank $\frac{1}{4}$ to $\frac{1}{2}$ full with a water-ammonia solution (1 quart ammonia to 25 gallons of water), circulate the solution a few minutes, let it sit for at least 6 hours, then pump it through the nozzles.

38. How do you remove wettable powders and amine formulations? P 40

Thoroughly rinse with water-detergent solution (2 pounds of detergent to 30-30 gallons of water), then flush twice with water.

39. How do drift control additives work? P 42

They increase viscosity of the spray solution, by polymers and macro molecules

40. What are the properties of an invert emulsion? P 42

When sprayed it forms large uniform water droplets containing herbicide surrounded by a layer of oil reducing the risk of drift.

41. What are the primary reasons for controlling vegetation in along public roads and roadsides? P 2

To keep motorists safe by providing vegetation free safe shoulders for emergency stops, a clear zone for vehicles leaving the road and good visibility.

42. What areas require total vegetation control (TVC)? P 3

- a) Near transformer stations and substations.
- b) Pipeline pumping stations and storage tanks.
- c) On railroad ballasts and berms.
- d) **All of the above**

43. Why should the soil beneath telephone and electric power lines not be left bare and is typically planted with perennial grasses? P 3

To provide erosion control, support maintenance equipment and compete with tall or vining brush.

44. Can a licensed Right of way applicator apply herbicide along drainage systems, levees and riprap around aquatic areas?

As long as treatment is not made directly onto water or vegetation standing in water (can be treated when no water is there)

45. How can you tell the difference between a grass and sedges and rushes? P 8

When looked at from above leaves come out of 2 sides for grasses and from 3 sides for sedges and rushes.

46. Which weeds have been declared noxious and required to be controlled by Illinois Law? P 13

Common ragweed, giant ragweed, marijuana, musk thistle, Canada thistle, johnsongrass, perennial sowthistle, sorghum-almum, and kudzu

47. Which weeds have been designated as exotic and unlawful to buy, sell, offer for sale, distribute or plant? P 13
Japanese honeysuckle, multiflora rose, purple loosestrife, common buckthorn, glossy buckthorn, saw-toothed buckthorn, dahurian buckthorn, Japanese buckthorn, Chinese buckthorn and kudzu
48. What is the principle mechanical treatment for the control of growth and reproduction of most plants along roadsides and highways? P 14
Mowing
49. Which type photosynthetic inhibitor herbicides are typically soil applied? P17 or table 3.1 on P 18
Triazines, ureas and uracils.
50. How do growth hormone herbicides work?
They mimic different growth-regulating compounds in the plant and may cause a variety of growth abnormalities.
51. What areas of the stump need to be treated with water-soluble herbicides? P 26
The sapwood and bark of the stump's cut surface.
52. When is stump treatment with **water**-soluble herbicides needed to be performed after cutting a tree or vine? P 26
Immediately after cutting the tree or vine in order to be effective.
53. What areas of the stump need to be treated with oil-carried herbicides? P 26
The entire stump.
54. When is stump treatment with **oil** –carried herbicides needed to be performed after cutting a tree or vine? P 26
Timing is less critical, so if immediate treatment of stumps is not possible an herbicide in an oil carrier should be used rather than on in a water carrier.
55. How much can compressed air sprayers hold? P 29
1 ½ to 5 gallons
56. What is the normal spraying pressure for a compressed air sprayer? P 29
20 to 60 pounds per square inch (psi)
57. What is the maximum pressure that can be developed in a backpack sprayer? P 30
150 pounds per square inch (psi)
58. What is allelopathy?
The production by plants of chemical compounds that inhibit the growth of other nearby plants.
59. What is it called with there is a reduction in effectiveness of one or more pesticide components when two or more pesticides are combined?
Antagonism

60. What is a broadcast application?
An application made uniformly over an entire field
61. What is the hardened outside covering of an insect or related animal used for its structural support?
Exoskeleton
62. What are fruiting bodies?
Tiny sacs produced by fungi that release reproductive spores (mushrooms/ fungi)
63. What type organisms attack plants and cause plant diseases such as rusts, smuts, mildews, wilts and leaf spots?
Fungi
64. What are a few reasons roadsides kept vegetation free? P 2
To prevent pavement destruction from encroaching vegetation and long periods of wetness. To protect hardware such as road signs and guard rails.
65. What types of herbicide is used during road construction? P 2
Nonselective, residual herbicides are applied during construction and post treatments follow up later.
66. What is typically used around hardware such as guardrails? P 2
Plant growth regulators (PGR's), gravel and nonselective herbicides.
67. Why is vegetation control used around railroads? P3
 a) To eliminate fire hazards
 b) To prevent decomposition of railroad ties
 c) To increase visibility
 d) To prevent cars from stopping on railroad tracks
 e) **A-C**
 f) All of the above
68. What is the first step in weed control? P4 **Proper plant identification**
69. _____ weeds have netted veins. P4 **Broadleaf**
70. _____ weeds have long, thin leaves with parallel veins. P 4 **Narrowleaf/ grasses**
71. Why are perennial weeds often difficult to control? P 5
Because they have storage organs that make them harder to eliminate.
72. What are some vegetative characteristics used to identify unknown grassy weeds? P6
Collar region and ligule
Presence of auricles, hair, rhizomes or stolons
Stem shape
Nodes
Color
Seed head

73. What are herbicides used for? P 15
To control, suppress or kill plants by severely interrupting their normal growth processes.
74. What factors should be considered when selecting an herbicide? P 15
Types of weeds present
Climate
Soil type
Length of control
Cost
75. Soil texture and organic matter content affect the activity and persistence of soil-applied herbicides and consequently the _____. P 17
Application rate
76. Generally soils of light texture (sandy) and low organic matter require _____ application rates of herbicides than heavy-textured (clay) soils of those with high organic matter content. P 17
Lower application rates
77. For each herbicide mode of action pick examples of expected typical injury symptoms. P 17
Photosynthetic Inhibitors→ Chlorosis followed by necrosis
Growth Hormone Inhibitors→ Newly developed tissues show injury
Meristematic Inhibitors→ Stunting and narrow upright leaves
78. How does climate affect herbicide activity? P 21
High temperature and humidity increase herbicide activity
Low temperatures may cause postemergence herbicides to be ineffective
79. What are two ways to describe the acid equivalent of an herbicide? P 22
The portion of formula that could convert back to corresponding parent acid.
The theoretical yield of parent acid that has been formulated as a derivative.

PRACTICE MATH QUESTIONS

There are math questions on the test that are similar to Example 1 on page 45.

Example 1- An 80 WP herbicide label recommends applying 4 pounds of active ingredient per acre. You are going to spray a railroad right of way area 30 acres in size. How much formulation do you need to make this application? **150 pounds of formulation**

There is also a math question like the Example given on page 44. Just have to plug numbers into the given formula and work the math.

PRACTICE HERBICIDE LABEL QUESTIONS USING SAFARI 20SG LABEL