



**4-H PETROLEUM POWER  
PROGRAM**  
**Questions and Answers**  
**for**  
**Lawn and Garden**  
**Tractor**  
**Operators Contest**  
**Both Junior and Senior Divisions**  
(Supplement #3)

To be used as a supplement to whatever teaching materials are used at county level.

Reproduce and distribute to all 4-H Tractor leaders and 4-H members participating in county, area and state contests.

All test questions for Area and State Lawn and Garden Tractor Operator Contests (Junior and Senior) will be taken from this supplement.



1. A reel mower is more expensive to manufacture.           A            
A. True  
B. False
  
2. When using a riding mower, you usually need a small trimming device.           A            
A. True  
B. False
  
3. During a full day of lawn mower operation, it is important to check the oil:           C            
A. before starting.  
B. after each two hours of operation.  
C. before starting and at mid-day.
  
4. Before inspecting a mower be sure:           B            
A. it is in neutral or park.  
B. to disconnect the spark plug wire.
  
5. The first thing one should do before operating a NEW piece of equipment is:           D            
A. be properly dressed.  
B. check the oil.  
C. fill the fuel tank.  
D. read the operator's manual.
  
6. For most varieties of bluegrass, the ideal cutting height is:           C            
A. ½ to 1 inch.  
B. 1 to 1 ½ inches.  
C. 1 ½ to 2 inches.  
D. over 2 inches.
  
7. For a good mowing job, it is important to adjust the deck so that the rear           A            
height of cut of the blade is \_\_\_\_\_ the front height of cut of the blade  
A. higher than  
B. the same as  
C. lower than
  
8. Mowing affects the attractiveness of a lawn as determined by:           C            
A. the type of lawn mower.  
B. the height of cut.  
C. the frequency of cut.  
D. the blade diameter.
  
9. It is the frequency, not the height of the cut, which usually determines           A            
the attractiveness of a lawn.  
A. True  
B. False

10. A high percentage of lawn mowers have manual start systems which require hand cranking.           A            
A. True  
B. False
11. Which one of the following happens when the throttle control is moved to the “start position” on a lawnmower?           B            
A. The throttle is closed.  
B. The throttle is opened.  
C. The grounding switch is closed.  
D. None of the above.
12. A well tuned lawn mower engine should start no later than what pull on the starting rope?           C            
A. First  
B. Second  
C. Third
13. At starting time, a cold engine requires:           A            
A. an enriched fuel mixture.  
B. an open choke.
14. It is recommended to change the direction of mowing every other time a lawn is mowed.           A            
A. True  
B. False
15. When starting the engine on a riding mower:           D            
A. set the parking brake.  
B. de-energize the blade.  
C. put the transmission in neutral.  
D. all of the above.
16. If we want less torque at higher speeds we use:           C            
A. smaller gears, sprockets or pulleys to drive larger ones.  
B. the minimum number of gears as possible.  
C. larger gears, sprockets or pulleys to drive smaller ones.  
D. a smaller engine.
17. To increase torque, you need to increase speed of the driven part, so as to change the power.           B            
A. True  
B. False

18. The first gasoline powered mechanical mowing machine was patented in the United States in 1902.           A            
 A. True  
 B. False
19. The first garden tiller-cultivator was patented about:           C            
 A. 1919.  
 B. 1926.  
 C. 1938.  
 D. after World War II.
20. Energy may be transferred from one point to another using a hydraulic system.           A            
 A. True  
 B. False
21. If you want less torque at higher speeds, you use smaller gears to drive larger gears.           B            
 A. True  
 B. False
22. On many walking lawn mowers the blade is attached to the engine crankshaft using a rotary blade adaptor providing direct power.           A            
 A. True  
 B. False
23. On a self-propelled walking mower, engine to front wheel speed speed reduction is about:           B            
 A. 10 to 1.  
 B. 18 to 1.  
 C. 24 to 1.  
 D. 30 to 1.
24. On a tractor with a belt clutch system, when the clutch pedal is depressed, the belt tension idler is pulled away from the drive belt, thereby loosening the belt and allowing the input shaft of the transmission to stop turning.           A            
 A. True  
 B. False
25. On riding lawn mowers, the clutch may also be actuated by the same foot pedal that actuates the tractor brake.           A            
 A. True  
 B. False

26. The garden tractor transmission that corresponds to a manual transmission in an automobile is:           A            
A. sliding gear.  
B. planetary gear.  
C. hydrostatic.  
D. differential.
27. On most garden tractors, the transmission, differential and axle shafts are combined in one case.           A            
A. True  
B. False
28. Which type of transmission provides the opportunity to change gears while moving under load?           B            
A. sliding gear  
B. planetary gear  
C. hydrostatic
29. In a lawn and garden style tractor, with a hydrostatic transmission, with an engine horsepower less than 20 H.P., what percentage of the input horsepower to the transmission may be dissipated as heat?           C            
A. 10 to 15 %  
B. 20 %  
C. 30%
30. A hydrostatic transmission is:           B            
A. more efficient than a gear transmission.  
B. less efficient than a gear transmission.  
C. has the same efficiency as a gear transmission.  
D. is less expensive to purchase than a gear transmission.
31. Most tractors, regardless of the type of transmission, have a differential.           A            
A. True  
B. False
32. In a fixed displacement hydraulic system, oil moves at a flow governed directly by the engine speed at all time.           A            
A. True  
B. False

33. How does the hydrostatic transmission work?           D
- A. The pump drives the engine, which drives the hydraulic motor, which drives, through the differential, the wheels.
  - B. The differential drives the hydraulic motor, which drives the engine, which drives the wheels.
  - C. The engine drives the hydraulic motor, which drives the variable displacement pump, which drives the wheels.
  - D. The engine drives a pump, which drives a hydraulic motor which drives the wheels.
34. When lubricating a rotary lawn mower, you should remove the spark plug wire from the spark plug, in order to prevent the possibility of accidental starting.           A
- A. True
  - B. False
35. Whenever a new throttle control cable assembly is installed, the throttle must be adjusted.           A
- A. True
  - B. False
36. When installing the sharp, balanced blade on your rotary lawn mower, the cap screw should be tightened to:           D
- A. 45 ft.-lb.
  - B. 40 ft.-lb.
  - C. 50 ft.-lb.
  - D. to the torque specification in the manual.
37. What sides of the blade and at what angles should the blade of a rotary lawn mower be sharpened?           D
- A. Sharpen bottom and at original cutting angles.
  - B. Sharpen top and at 5 degrees from original cutting angles.
  - C. Sharpen bottom and at 5 degrees from original cutting angles.
  - D. Sharpen top sides at original cutting angles.
38. With a garden tractor, it is necessary to drain the gasoline from the fuel tank before starting some types of maintenance.           A
- A. True
  - B. False

39. During operation of a riding mower, front axle spindles and wheels must be lubricated every:           D            
A. 10 hours.  
B. 15 hours.  
C. 25 hours.  
D. as owners manual specifies.
40. Who should fill out your lawn maintenance job evaluation form?           A            
A. your customers  
B. your 4-H leader  
C. your parents  
D. yourself
41. A ledger is something to be used for:           A            
A. keeping financial records.  
B. mowing lawn.  
C. repairing a lawn mower.
42. Financial records are divided into two basic forms. They are:           B            
A. accounts payable and accounts creditable.  
B. accounts receivable and accounts payable.  
C. accounts debt and accounts credit.  
D. accounts debt and accounts receivable.
43. An example of a fixed cost is:           D            
A. gas.  
B. boots.  
C. spark plugs.  
D. a gas can.
44. The “accounts payable” accounting sheet is used for:           A            
A. expenses.  
B. credits.  
C. loans.  
D. income.
45. There are two kinds of business expenses:           D            
A. real and modified.  
B. variable and modified.  
C. modified and fixed.  
D. fixed and variable.

46. Which of the following is an important product of photosynthesis?     B      
A. carbon dioxide  
B. oxygen  
C. water  
D. light
47. Pick the tools or equipment that should not be used for care of an established lawn?     C      
A. lawn edger  
B. mower  
C. garden rake  
D. grass clippers
48. In lawn care, phosphorus is needed:     C      
A. for lush green growth.  
B. in larger quantities than nitrogen.  
C. for energy and good root development.  
D. for producing food.
49. In a 30 lb bag of 20-10-10, the actual number of pounds of phosphorus (Phosphate) compound is:     A      
A. 3 lb.  
B. 1.5 lb.  
C. 6 lb.  
D. 10 lb.
50. The letters N, P, K indicate the three major parts of fertilizer. The K stands for:     A      
A. potassium (Potash)  
B. phosphorus (Phosphate)  
C. calcium  
D. nitrogen
51. The term “instant lawn” refers to the result of:     B      
A. installing artificial turf.  
B. sodding.  
C. painted blacktop.  
D. there is no such thing.
52. Which is the best weed control?     D      
A. cold weather  
B. spraying herbicide  
C. warm weather  
D. healthy lawn

53. Which is not a cool season annual weed?           C            
A. shepherd's purse  
B. common chickweed  
C. crab grass  
D. annual bluegrass
54. Which does not help lawn health?           C            
A. removing excess thatch  
B. proper watering  
C. mowing grass down to 2" if it is 4" high  
D. fertilizing according to soil test recommendations
55. "Thatch" as the term applies to yard care is:           B            
A. a type of roof.  
B. a layer of dead grass and clippings.  
C. not to be worried about.  
D. part of a mower.
56. Which is a cool season perennial weed?           A            
A. plantain  
B. carpetweed  
C. goose grass  
D. common purslane
57. What is the adequate amount of water for a lawn in a week?           C            
A. ¼ inch  
B. ½ inch  
C. 1 inch  
D. 2 inches
58. The strokes of a four cycle engine are:           C            
A. intake, compression , decompression and exhaust.  
B. intake, ignition, compression and exhaust.  
C. intake, compression , power and exhaust.  
D. intake, ignition, decompression and exhaust.
59. Any condition which allows gases to escape from the cylinder during compression will cause:           A            
A. poor compression  
B. rapid compression  
C. gas exchange which could lead to an internal explosion  
D. a breakdown of cylinder and piston

60. What is the purpose of a carburetor?     D      
 A. It breaks up the fuel and mixes it with air.  
 B. It regulates the air to fuel ratio to provide economical and smooth engine operation  
 C. It regulates the amount of air-fuel mixture going into the combustion chamber.  
 D. All of the above.
61. Why is fresh gasoline recommended?     A      
 A. Stale gasoline can cause gum and varnish to form in the fuel tank and carburetor.  
 B. As gasoline gets stale it becomes weaker and less efficient.  
 C. Stale gasoline will eat through many common gasoline tanks.  
 D. None of the above.
62. What part of the small engine serves as a reservoir or a “surge chamber” for electric current?     D      
 A. spark plug  
 B. coil  
 C. breaker points  
 D. condenser
63. Spark plug terms “hot,” “normal” and “cold” refer to:     B      
 A. the intensity of the spark.  
 B. the operating temperature of the electrode on a spark plug.  
 C. the NSS code for plugs  
 D. the type of current running through the plug.
64. What is the correct tool to use when removing a spark plug?     A      
 A. spark plug wrench  
 B. any type of wrench  
 C. pliers  
 D. monkey wrench
65. In outdoor power equipment engines, used in the United States, what type of engine most often has an oil sump?     B      
 A. 2-stroke cycle  
 B. 4-stroke cycle  
 C. both  
 D. neither
66. The two cycle engine produces how many power strokes per revolution:     A      
 A. 1  
 B. ½  
 C. 2  
 D. ¾

67. In a two-cycle engine as the piston moves downward, which port (or ports) is (are) uncovered first?           B            
 A. intake  
 B. exhaust  
 C. exhaust and intake  
 D. no ports open
68. In a two and four cycle internal combustion engine the piston rings:           D            
 A. seal the piston to valves.  
 B. seal the piston to connecting rod.  
 C. seal the piston to wrist pin.  
 D. seal the piston to cylinder wall.
69. The engine design of most rotary push mowers engines is:           A            
 A. vertical shaft.  
 B. horizontal shaft.  
 C. bi-rotational shaft.  
 D. hex shaft.
70. In a four cycle internal combustion engine, push rods operate the governor.           B            
 A. True  
 B. False
71. In what type of engine may lubricant be either mixed with the fuel or injected and consumed within the combustion chamber?           B            
 A. one cycle engines  
 B. two cycle engines  
 C. three cycle engines  
 D. four cycle engines
72. One of a valve spring's purposes is to hold one valve open at a time.           B            
 A. True  
 B. False
73. In outdoor power equipment two cycle engines, unlike outdoor power equipment four cycle engines, a camshaft is needed to operate the valves.           B            
 A. True  
 B. False
74. Mufflers are not only responsible for reducing noise, but also are very important for arresting sparks.           A            
 A. True  
 B. False

75. It is not necessary to balance a rotary lawn mower blade each time it is sharpened.           B            
A. True  
B. False
76. A convertible lawn mower is one whose roof goes up and down.           B            
A. True  
B. False
77. The function of the flywheel used in two cycle and four cycle engines is similar.           A            
A. True  
B. False
78. In internal combustion engines the camshaft moves the piston(s) up and down.           B            
A. True  
B. False
79. There are fuel additives to use when storing engines.           A            
A. True  
B. False
80. What nutrient (element) from the soil does a plant need the greatest quantity of?           C            
A. phosphate  
B. phosphorus  
C. nitrogen  
D. potassium