



2002 State Competition
FFA Agricultural Mechanics Contest
University of Missouri
50 points

Contestant # _____
Contestant Name _____
Chapter _____

Tractor Power

Cat Challenger Tractor (1 points each)

Student should identify the parts listed from the answers given. Answers only used once!

- | | |
|-----------|---------------------------------|
| 1. _____ | A. Air Filter |
| 2. _____ | B. Radiator |
| 3. _____ | C. Turbocharger |
| 4. _____ | D. Track Tensioner |
| 5. _____ | E. Air Conditioning Compressor |
| 6. _____ | F. Hydraulic Oil Cooler |
| 7. _____ | G. Starter |
| 8. _____ | H. Bogie Wheels |
| 9. _____ | I. Inter cooler |
| 10. _____ | J. Oil fill spout |
| | K. Hydraulic reservoir Dipstick |
| | L. Injector |
| | M. Injection Pump |
| | N. Spark Plug |
| | O. Hydraulic Filter |
| | P. Engine Oil Filter |

Case IH Tractor (2 points each)

Use the appropriate operator's manual to answer the following questions.

11. _____ What is the model # of this tractor?

12. _____ What is shipping weight on the tractor?

13. _____ What is the PTO horsepower?

14. Is the antifreeze level ok in this tractor? (Circle one)
Yes No

15. Is the antifreeze able/ready for use in -20°F Weather? (Circle one)
Yes No

16. Is engine oil level ok? (Circle one)
Yes No

17. What is the purpose of the item marked #1?
 - a. cool engine antifreeze
 - b. cool intake air
 - c. cool fuel

18. _____ Which of the following engine oil would be recommended for use in this tractor?
 - a. 5a
 - b. 5b
 - c. 5c
 - d. 5d

19. According to the Table (on display), what should the tires be inflated to? Assume the weight on the rear tire is _____ and the weight on the front tire is _____.

Rear tires (w/o duals) _____ (PSI)

20. According to the Table (on display), what should the tires be inflated to? Assume the weight on the rear tire is _____ and the weight on the front tire is _____.

Front tires _____ (PSI)

Troubleshoot the CASE IH Tractor

- 11. If the engine coolant temperature starts to rise while mowing tall grass, what would be the most likely cause? (2 points)
- 12. If the Engine was not providing the power it should and black smoke was coming out of the exhaust, what would the problem be? (2 points)
- 13. If the hitch controller is not functioning in draft control mode, and the controller says the electronic draft control pin is not working can you find the problem? (3 points)
- 14. The operator is preparing to go to the field is there anything else he needs to do? (Hint: Check the back of the tractor) (3 points)

Soil Compaction Problem

15. Cat Challenger (10 pts)

Students should calculate the average ground pressure in pounds per square inch for a given tractor weight. Show all work. Partial credit will be given.

- a. Track width _____
- b. Track length _____ (on ground)
- c. Tractor weight _____ (according to the OECD test)

Answer

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Show your work here: