



2008 State Competition
FFA Agricultural Mechanics Contest
University of Missouri

Contestant # _____
Contestant Name _____
Chapter _____

Electric Motors

50 points

Directions: Please circle the appropriate answer or fill in the blank for each question. When you are finished please turn your sheet in. Remember to put your name, contestant number and chapter on your paper. Not doing so will result in a zero for this section. If you have questions please feel free to ask.

1. Using the electric motor name plate what is the direction of rotation of electric motor #1?
 _____ (2 points)

Will this electric motor withstand constant use above its recommended horsepower rating?
 _____ (2 points)

If so what would be the effective horsepower of this motor? _____ (2 points)

2. What RPM is the motor tagged #2 that is driving the auger in the problem below?

Motor speed = _____ (2 points)

Number of Poles on motor = _____ (2 points)

Drive pulley size = _____

Driven pulley size = 12"

Auger speed = 754.69 RPM's

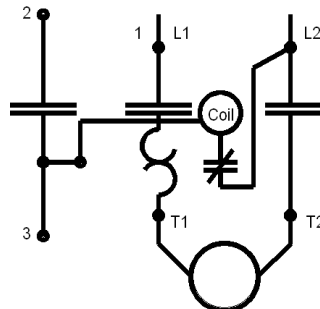
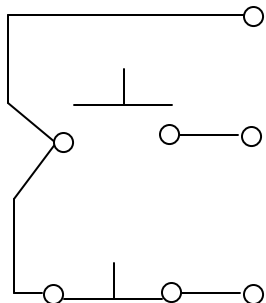
3. Which of these motors tagged #3 would be best suited for use in the dusty environment of a feed mill? (2 points)

3A

3B

3C

4. Complete the following wiring diagram for an electric motor starter, and start stop station. Be sure to label your wires using the national electric code standard. B = Black W = White G = Green/Grounded (6 Points)



NEMA Size 00 Starters

5. What is the cost of running a belt feeder with Motor #5 for one hour per day, seven days a week, and 33.5 weeks per year? With an electricity price of \$0.08 per kilowatt/hour.

What are the watts per hour used in the circuit? _____ (2 points)

What is the cost per week? _____ (2 points)

What is the cost per year (33.5 weeks)? _____ (2 points)

6. What would motor #6 be used for? (2 points)

A. Air Compressor

B. Water Pump

C. Squirrel Cage Fan

Parts ID
2 Points Each

7. _____ Squirrel Cage Rotor

8. _____ Wound Rotor

9. _____ 240 volt plug

10. _____ Start Stop Station

11. _____ Electric motor controller

12. _____ Twist wire connector

13. _____ Thermostat

14. _____ Time delay fuse

15. _____ Fuse

16. _____ Circuit Breaker

17. _____ Time Delay Relay

18. _____ Zener Diode

Scoring: Do not mark below this line.

Question:	Points
1	____/6
2	____/4
3	____/2
4	____/6
5	____/6
6	____/2
ID	____/24