Name_____ School_____ Contestant Number _____

2016 Wyoming State FFA CDE Agricultural Technology and Mechanical Systems Energy Systems – Compact Engine Systems Skill

You have recently been accepted as a summer intern on the LW Ranch. While the manager was inspecting equipment, he found an engine that is not running properly. It is suspected that a problem exists with the intake and exhaust valve clearance.
You will need to set the valve clearance properly according to the specifications laid out in the owner's manual.

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Additionally, you will need to measure the spark plug gaps on your engines and match it to the correct answer.
Answers can be used more than once.

Spark Plug #1	B	a. .023
Spark Plug #2	E	b. .020
Spark Plug #3	C	c. .030
Spark Plug #4	D	d. .046
Spark Plug #5	C	e. .050

After you set the valve clearance, your supervisor found an engine that is not shutting off properly.
Using the wiring schematic handout on the back of this sheet, highlight the proper wiring path from the Capacitor Discharge Ignition control module to the kill switch to successfully shut off the engine.

During your summer working at the ranch, your boss asked you to install a fence on a newly acquired parcel of land, 2,000 feet by 4,000 feet, for 10 dollars an hour. The fence needs to be 5-strand barbed wire on wooden posts spaced 10 feet apart. However, you currently do not have a post hole digger. You could hire someone to dig the post holes for $6.00 a hole or you could buy your own engine and auger combination. If you do buy an engine and auger there will need to be two people to operate it. Currently, an engine is priced at $429.99 and an auger is priced at $124.99.

Would it be more cost efficient to buy a post hole digger (engine and auger) or to hire someone to dig the holes? Show all work in the space provided below.

Number of post holes needed: (2000x2)+(4000x2)=12,000/10=1200

Hire out- $6.00x1200=$7,200
Do it your-self- 1200/12=100x$10=$1,000.00x2=$2,000+$429.99+$124.99=$2,554.98

Do it yourself, cost for that is only $2,554.98, to hire out is $7,200.

Criterion	Points Possible	Points Earned
Small Engine Skill	10	
Questions	12	
Schematic	6	
Safety	2	