Name_____ **School**_____ **Contestant Number** _____

2014 Wyoming State FFA CDE
Agricultural Technology and Mechanical Systems
Machinery and Equipment Systems Activity- Rake

You are classified as a senior agricultural education student at the University of Wyoming. During your summers and on university holidays, you are employed with Morris farms in Cheyenne Wyoming. Part of your duties includes assisting the owner with the hay harvest. The haying season is fast approaching and you have pulled your 23 foot Vermeer R2300 Rake out of storage to replace parts and provide maintenance prior to use. The owner of the operation has provided you with a list of parts on the rake that you need to identify to ensure they are all functioning correctly for the haying season and to provide maintenance if needed.

Match the number, attached to a part on the rake, with the corresponding name.

	Part Number	Part Name		Part Number	Part Name
A		Rubber Mounted Tines	**F**		Caster Wheel
B		Rake Basket	**G**		Tire
C		Basket Hydraulic Line	**H**		Wheel
D		Width Slide Hydraulic Cylinder	**I**		Lift/suspension cylinder
E		Tongue	**J**		Transport Lock

At the end of the haying season, the owner decided that the tractor used for this current years haying operation needed to be replaced before the coming year, and has asked your help in the selection process. Using the chart below, answer the following questions.

1. Which of the following models has the largest rated hp for the haying operation? _____

2. With the rising cost of fuel, which model would be the most economical to operate? _____

3. Which model would be the quietest in operation for the user? _____

Manufacturer	Model	Test	Trans	ENG[1]	Rated power (hp)	Fuel use [2]	Draw test	Sound test dB(A)[3]	HYDR test [4]
AGCO	GT75A	1850	16-M	T	76.31	15.67	NA	77.3 / NA	11.7
	LT75A	1883	16-PS	T	78.41	15.48	NA	74.9 / 81.0	25.1
CASE-IH	JX1085	571	16-M	A	71.7	15.08	PART	77.9 / 82.1	12.7
	JX1080	529	12-M	A	71.6	14.71	PART	79.3 / 86.0	16.4
	JX85	462	12-M	T	78.4	17.11	FULL	88.2* / NA	15.6
John Deere	5652	1869	9-M	T	76.01	14.13	NA	85.8 / 83.3	18.6
	6215	481	16-M	TI	74.5	14.73	FULL	70.5 / NA	17.8
	6220	385	24-PQ	T	75.8	15.63	FULL	71.0 / NA	31.1
McCormick	CX85	327	16-PS	T	71.3	15.18	FULL	78.0 / NA	16.5
	CX95	328	16-PS	T	79.7	16.04	FULL	77.0 / NA	17.0
New Holland	TL80A	524	12-M	A	71.4	14.65	PART	79.0 / 85.5	16.5

Source: Data taken from the Nebraska and OECD Tractor Test Data for 2007 summary booklet (MP-37).

1 Engine accessories: A = naturally aspirated, T = turbocharged, I = intercooled
2 Specific fuel consumption, hp-hr./gal.
3 Sound test: first column is sound at operator's ear, second column is 25 feet away (bystander)
4 Hydraulic flow in GPM
* Without a cab; otherwise the tractor is equipped with a cab

Criterion	Points Possible	Points Earned
Parts ID	20 (2 points each)	
Selection	6 (2 point each)	
Safety	4 (recorded by skill proctor)	