

## Online Class / Week #8:

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Thank you for taking the time to complete it!

(1) M&A Regulation

(2) Northrop Grumman's (NOC)  
integration of information  
technology

(3) Review for final exam

Course Evaluation:

[eval.ou.edu](http://eval.ou.edu)

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M&A Regulation

# M&A Regulation & Defenses

Anti-trust regulation follows a process to determine the effect of the merger on competition:

**HHI** = 
$$\sum_{i=1}^N \left[ \frac{S_i}{\sum_{i=1}^N S_i} \times 100 \right]^2$$

Herfindahl-Hirschman Index (HHI)

2 } HHI is used to determine the level of market concentration. If  $HHI > 1,800 \Rightarrow$  FTC and DOJ will interfere.

**Cross-elasticity** = 
$$\frac{\% \Delta Q_B}{\% \Delta P_A}$$

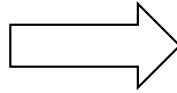
An important aspect of the review is the definition of the market. If cross-elasticity  $> 1 \Rightarrow$  convergent (i.e. similar) market.

## SCENARIO I CALCULATIONS

Scenario 1: #6 and #10 merge

HHI Indexes before the contemplated transaction

		Based on Revenues		
		Revenues	% Market Share	(Market Share) <sup>2</sup>
	Market Players			
	1	100	18.2	330.6
	2	90	16.4	267.8
	3	80	14.5	211.6
	4	70	12.7	162.0
	5	60	10.9	119.0
	<span style="color: red;">6</span>	<span style="color: red;">50</span>	<span style="color: red;">9.1</span>	<span style="color: red;">82.6</span>
	7	40	7.3	52.9
	8	30	5.5	29.8
	9	20	3.6	13.2
	<span style="color: red;">10</span>	<span style="color: red;">10</span>	<span style="color: red;">1.8</span>	<span style="color: red;">3.3</span>
	Total	550	100.0	<span style="color: red;">1272.7</span>



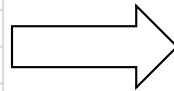
HHI Indexes after the contemplated transaction

		Based on Revenues		
		Revenues	% Market Share	(Market Share) <sup>2</sup>
	Market Players			
	1	100	18.2	330.6
	2	90	16.4	267.8
	3	80	14.5	211.6
	4	70	12.7	162.0
	5	60	10.9	119.0
	7	40	7.3	52.9
	8	30	5.5	29.8
	9	20	3.6	13.2
	<span style="color: red;">Newco (= #6 + #10)</span>	<span style="color: red;">60</span>	<span style="color: red;">10.9</span>	<span style="color: red;">119.0</span>
	Total	550	100.0	<span style="color: red;">1305.8</span>

HHI < 1,800, review  
by FTC unlikely

## SCENARIO II CALCULATIONS

Scenario 2: #1 and #2 merge					
HHI Indexes before the contemplated transaction					
			Based on Revenues		
			Revenues	% Market Share	(Market Share) <sup>2</sup>
Market Players					
	1		100	18.2	330.6
	2		90	16.4	267.8
	3		80	14.5	211.6
	4		70	12.7	162.0
	5		60	10.9	119.0
	6		50	9.1	82.6
	7		40	7.3	52.9
	8		30	5.5	29.8
	9		20	3.6	13.2
	10		10	1.8	3.3
Total			550	100.0	1272.7



HHI Indexes <b>after</b> the contemplated transaction					
		Based on Revenues			
		Revenues	% Market Share	(Market Share) <sup>2</sup>	
Market Players					
	Newco (= #1 + #2)	190	34.5	1193.4	
	3	80	14.5	211.6	
	4	70	12.7	162.0	
	5	60	10.9	119.0	
	6	50	9.1	82.6	
	7	40	7.3	52.9	
	8	30	5.5	29.8	
	9	20	3.6	13.2	
	10	10	1.8	3.3	
	Total	550	100.0	1867.8	

HHI > 1,800, review  
by FTC very likely

**NORTHROP GRUMMAN INTEGRATION OF  
NORTHROP GRUMMAN INFORMATION TECHNOLOGY**

# POST-MERGER INTEGRATION AT NORTHROP GRUMMAN INFORMATION TECHNOLOGY

## Selected Northrop Grumman Corporate Acquisitions History

Date Announced	Company Divisions	Cost (\$MM)	Major Business Area Products
1994	Vought	n/a	Airplanes Aero structures
1994	Grumman Corp. DSSD	2,100	Airplanes Airborne Surveillance Systems Information Technology
1996	Westinghouse	3,600	Electronic Systems Airborne Radar
1997	Logicon	976	Information Technology Command, Control, and Intelligence.
1998	INRI	55	Information Technology Multi-source data integration
1999	Ryan Aeronautical	140	Unmanned Aviation
1999	Aerojet General	93	Space Systems Sensors
1999	DPC	33	Information Technology
2000	Comptek Research	132	Electronics
2000	Litton TASC PRC	5,102	Defense Electronics Shipbuilding (conventional) Information Technology
2000	Federal Data Corp.	302	Information Technology
2000	Sterling Software	150	Information Technology Software
2001	Newport News	2,508	Shipbuilding (Nuclear)
2002	TRW	13,706	Space Systems Satellite design and construction
2002	Fibersense Technologies	55	Defense Electronics Fiber optic Communications

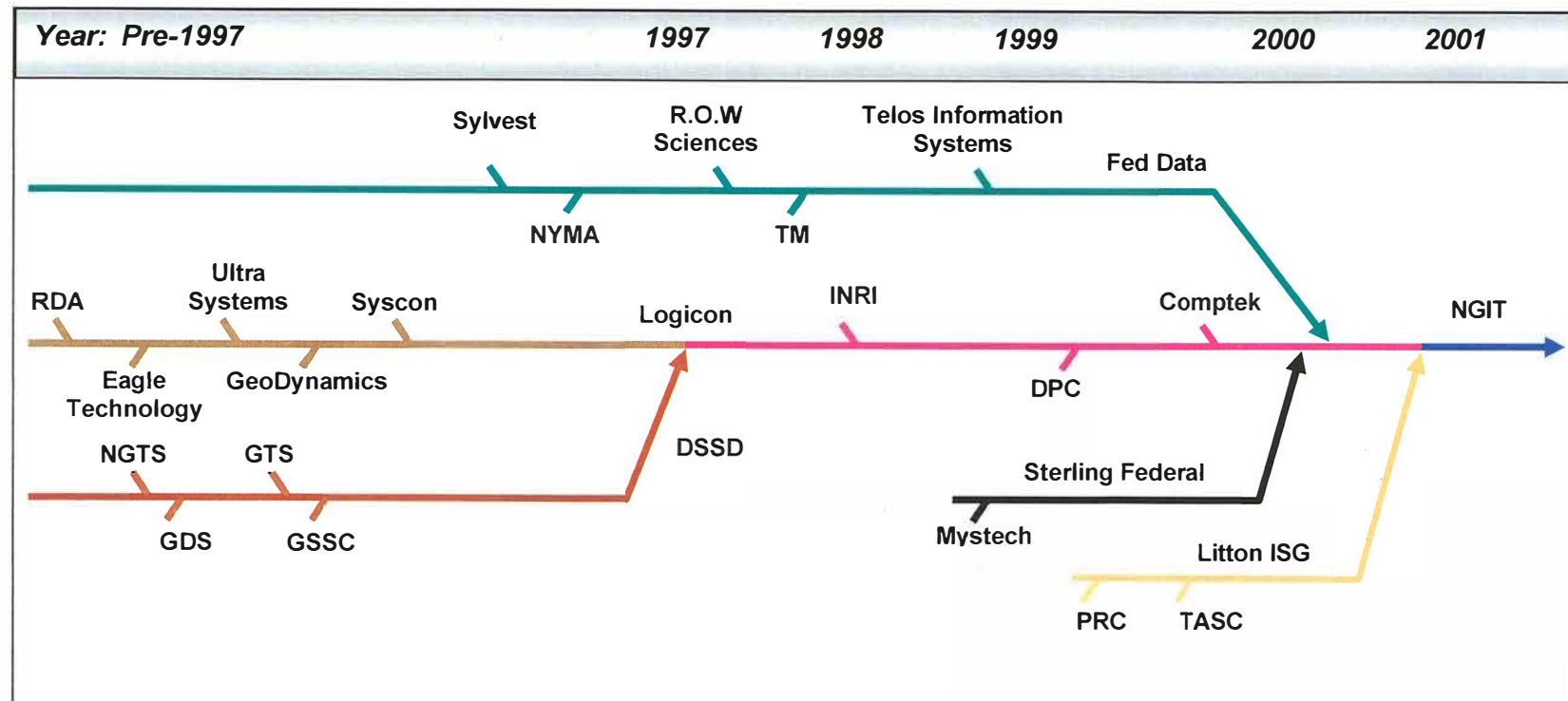
Source: Bloomberg, using amended costs when available, announced costs otherwise.



Exhibit 3

**POST-MERGER INTEGRATION AT  
NORTHROP GRUMMAN INFORMATION TECHNOLOGY**

Legacy Companies Combined into Northrop Grumman Information Technology



# Exhibit 4

## POST-MERGER INTEGRATION AT NORTHROP GRUMMAN INFORMATION TECHNOLOGY

New Organizational Design (Partial): Poker Chips Placement

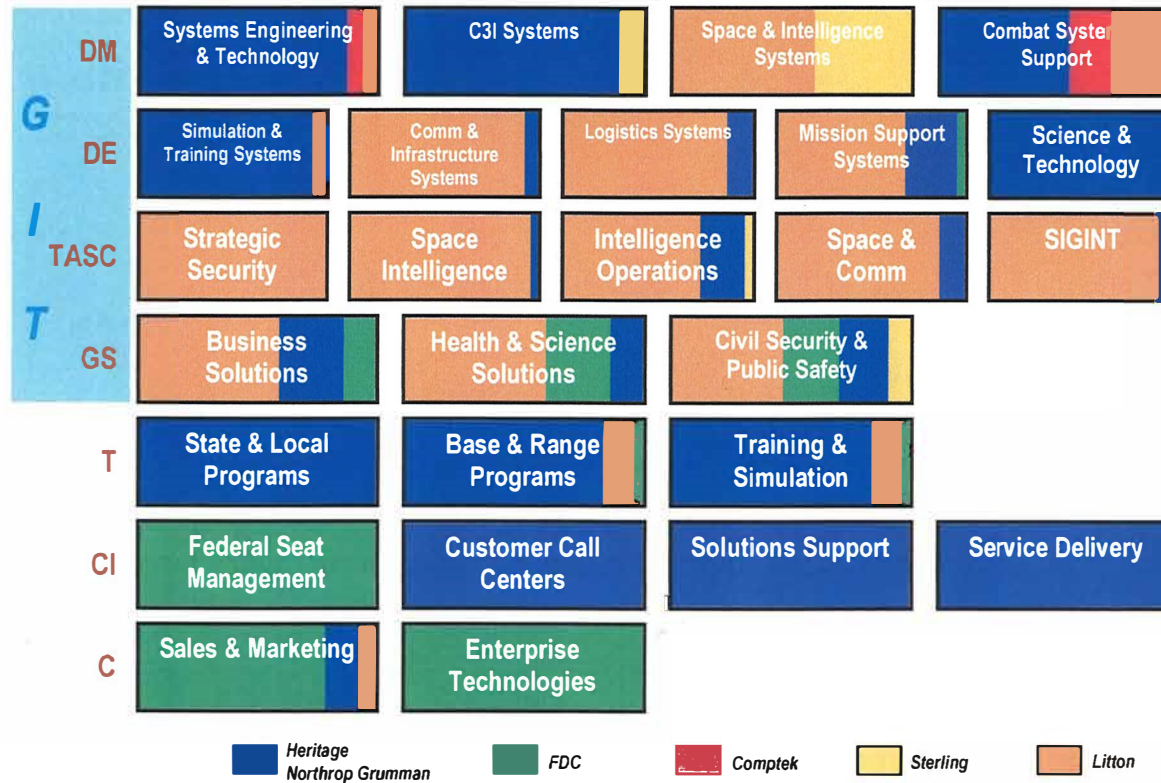


Exhibit 5

**POST-MERGER INTEGRATION AT  
NORTHROP GRUMMAN INFORMATION TECHNOLOGY**

Color-Coded Organization Chart: Northrop Grumman Information Technology

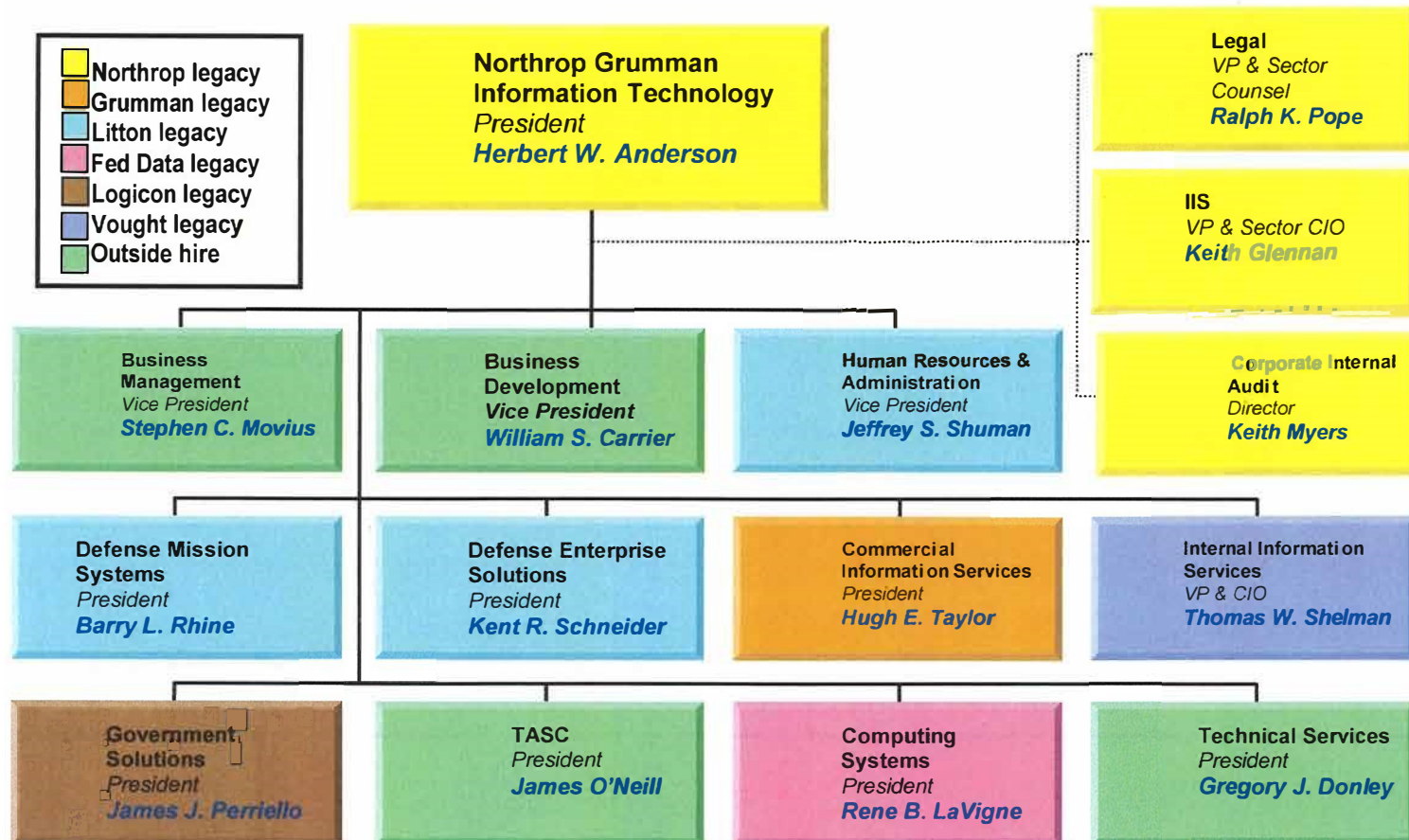


Exhibit 6

**POST-MERGER INTEGRATION AT  
NORTHROP GRUMMAN INFORMATION TECHNOLOGY**

Northrop Grumman Corporation Income Statement (left) and Balance Sheet (right) (in millions of dollars except shares) 1998–2002

<b>Year Ending:</b>	12/31/98	12/31/99	12/31/00	12/31/01	12/31/02
Termination Benefits	—	—	—	—	—
<b>Total Expenses</b>	<b>6,615</b>	<b>6,662</b>	<b>6,520</b>	<b>11,979</b>	<b>15,815</b>
<b>Operating Income</b>	<b>752</b>	<b>954</b>	<b>1,098</b>	<b>1,033</b>	<b>1,391</b>
Interest Expense	(232)	(224)	(175)	(373)	(422)
Other, Net	(211)	17	52	67	40
<b>Income Before Taxes</b>	<b>309</b>	<b>747</b>	<b>975</b>	<b>727</b>	<b>1,009</b>
Income Taxes	116	273	350	268	312
<b>Income After Taxes</b>	<b>193</b>	<b>474</b>	<b>625</b>	<b>459</b>	<b>697</b>
Preferred Dividend	—	—	—	(18)	(25)
<b>Net Available to Common, Before Extraordinary Items</b>	<b>193</b>	<b>474</b>	<b>625</b>	<b>441</b>	<b>672</b>
Discontinued Ops.	1	9	(17)	(32)	(201)
Extraordinary Item	—	—	—	—	—
Accounting Change	—	(16)	—	—	(432)
<b>Net Available to Common, Including Extraordinary Items</b>	<b>194</b>	<b>467</b>	<b>608</b>	<b>409</b>	<b>39</b>
Average Shares (basic)	68.52	69.25	70.58	84.46	115.53
<b>Earnings Per Share (basic), Before Extraordinary Items</b>	<b>2.817</b>	<b>6.845</b>	<b>8.855</b>	<b>5.221</b>	<b>5.817</b>
<b>Earnings Per Share (basic), Including Extraordinary Items</b>	<b>2.831</b>	<b>6.744</b>	<b>8.614</b>	<b>4.843</b>	<b>0.338</b>
Average Shares (diluted)	69.51	69.70	70.88	85.26	117.43
Dilution Adjustment	—	—	—	—	—
<b>Earnings Per Share (diluted), Before Extraordinary Items</b>	<b>2.777</b>	<b>6.801</b>	<b>8.818</b>	<b>5.172</b>	<b>5.723</b>
<b>Earnings Per Share (diluted), Including Extraordinary Items</b>	<b>2.791</b>	<b>6.700</b>	<b>8.578</b>	<b>4.797</b>	<b>0.332</b>
Common Dividend Share	1.6000	1.6000	1.6000	1.6000	1.6000
Cash/Equivalents	44	142	319	464	1,412
Accounts Rcvbl.	1,507	1,402	1,557	2,643	2,889
Inventories	1,373	1,190	585	1,098	1,091
Dfrd. Income Tax	24	23	21	36	662
Prepaid	85	36	44	125	160
Assets Held-Sale	—	—	—	1,207	9,621

<b>Year Ending:</b>	12/31/98	12/31/99	12/31/00	12/31/01	12/31/02
Refundable Taxes	—	—	—	—	—
<b>Total Current Assets</b>	<b>3,033</b>	<b>2,793</b>	<b>2,526</b>	<b>5,573</b>	<b>15,835</b>
Land	170	163	144	300	350
Buildings	785	777	700	1,162	1,538
Mach./Equipment	2,014	1,860	1,444	2,189	2,948
Leasehold	89	95	55	81	160
Depreciation	(1,784)	(1,655)	(1,328)	(1,148)	(1,391)
Goodwill/Intang.	4,176	4,230	4,899	9,571	18,970
L.T. Investments	63	50	55	—	—
Other LT Assets	990	972	1,594	3,686	4,616
Amort./Intang.	—	—	(467)	(596)	(760)
<b>Total Assets</b>	<b>9,536</b>	<b>9,285</b>	<b>9,622</b>	<b>20,818</b>	<b>42,266</b>
Notes Payable	69	25	10	30	22
Cur.Port.LT Debt	200	200	—	420	203
Accounts Payable	416	490	564	982	1,427
Accrued Comp.	337	366	365	827	1,018
Oth. Curr. Liab.	1,345	1,383	1,569	2,360	8,250
Loss Provision	—	—	180	481	453
<b>Total Current Liabilities</b>	<b>2,367</b>	<b>2,464</b>	<b>2,688</b>	<b>5,100</b>	<b>11,373</b>
<b>Total Long Term Debt</b>	<b>2,562</b>	<b>2,000</b>	<b>1,605</b>	<b>5,038</b>	<b>9,398</b>
Deferred Taxes	—	64	276	669	—
Other LT Liab.	1,757	1,500	1,134	2,620	7,173
<b>Total Liabilities</b>	<b>6,686</b>	<b>6,028</b>	<b>5,703</b>	<b>13,427</b>	<b>27,944</b>
Common Stock	989	1,028	1,200	4,451	12,511
Retained Ernsg.	1,892	2,248	2,742	3,011	2,870
Unearned Comp.	—	—	—	(18)	(11)
Other Compr.	(31)	(19)	(23)	(53)	(1,048)
<b>Total Shareholders' Equity</b>	<b>2,850</b>	<b>3,257</b>	<b>3,919</b>	<b>7,391</b>	<b>14,322</b>

Note: Figures from annual income statement. *Net available to common* refers to net income available to common shareholders, which is net income minus profit used to pay dividends on preferred stock, when applicable.

Data source: Multex.

Exhibit 7

**POST-MERGER INTEGRATION AT  
NORTHROP GRUMMAN INFORMATION TECHNOLOGY**

Northrop Grumman Corporation Organizational Chart

Electronic Systems		Information Technology	Integrated Systems	Ship Systems/ Newport News	Mission Systems	Space and Electronics
2003E Revenue	~\$6.1B	~\$4.7B	~\$3.7B	~\$5.2B	~\$3.9B	~\$2.5B
<ul style="list-style-type: none"> <li>– Airborne Radars</li> <li>– C<sup>4</sup>ISR</li> <li>– Electronic Warfare</li> <li>– Navigation and Guidance</li> <li>– Military Space</li> <li>– Homeland Security</li> </ul>		<ul style="list-style-type: none"> <li>– C<sup>4</sup>ISR</li> <li>– Government IT Infrastructure</li> <li>– Science and Technology</li> <li>– Information Security/Assurance</li> <li>– Enterprise Solutions</li> <li>– Homeland Security</li> </ul>	<ul style="list-style-type: none"> <li>– Tactical Aircraft</li> <li>– Long Range</li> <li>– Unmanned</li> <li>– Airborne Early Warning and Surveillance</li> <li>– Air-to-Ground Surveillance</li> <li>– Airborne Jamming</li> </ul>	<ul style="list-style-type: none"> <li>– Naval Systems Integrator</li> <li>– Aircraft Carriers</li> <li>– Attack Submarines</li> <li>– Surface Combatants</li> <li>– Amphibious Assault Ships</li> <li>– Auxiliary Ships</li> </ul>	<ul style="list-style-type: none"> <li>– Command, Control and Intelligence</li> <li>– Digitized Battlefield</li> <li>– ICBM Sys. Mgmt.</li> <li>– Missile Defense BMC<sup>3</sup></li> <li>– Defense/Civil Software Application Dev.</li> <li>– Information Warfare</li> <li>– Homeland Security</li> </ul>	<ul style="list-style-type: none"> <li>– Intelligence, Surveillance, Reconnaissance</li> <li>– Laser Weapons</li> <li>– Military SATCOM</li> <li>– Scientific Satellites</li> <li>– Military Avionics</li> <li>– Cutting-edge Microelectronics</li> </ul>
					(Sector added with November 2002 acquisition of TRW)	(Sector added with November 2002 acquisition of TRW)

✓ **Make-up Quiz #8 (Week #8) for FIN EMAD 5442**

✓ **Question #1 (1 pts)**

*(Essay Question #1 relates to the UVA case to be discussed in class, Post-Merger Integration at Northrop Grumman Information Technology (NGIT); please target response of about 100 words)*

What is Northrop Grumman (NG)'s corporate strategy? What is acquisition necessary to fulfill this strategy? What opportunities might NG have for future acquisitions and growth?

*Richen product portfolio*

✓ **Question #2 (1 pts)**

*(Essay Question #1 relates to the UVA case to be discussed in class, Post-Merger Integration at Northrop Grumman Information Technology (NGIT); please target response of about 100 words)*

What is NGIT's corporate strategy? What is the role of acquisitions?

*Integration of existing technologies.*

✓ **Question #3 (1 pts)**

*(Essay Question #1 relates to the UVA case to be discussed in class, Post-Merger Integration at Northrop Grumman Information Technology (NGIT); please target response of about 100 words)*

What challenges will the TRW acquisition present to the NGIT and NG companies?

*Difficulty with integration due to different product focus & geographical distance*

✓ **Question #4 (0.5 pts)**

*Essay Question #1 relates to the UVA case to be discussed in class, Post-Merger Integration at Northrop Grumman Information Technology (NGIT); please target response of about 100 words)*

What opportunities might NG have for future acquisitions and growth?

*Expand the customer base with newly acquired products.*

✓ **Question #5 (0.5 pts)**

Business combination state statutes provisions preclude the sale of assets for a specific period following the buyout, thereby inhibiting financing of purchase price.

- ✓ A. True  
B. False

✓ **Question #6 (0.5 pts)**

The Hart-Scott-Rodino Act provides for mandatory filing with the Federal Trade Commission if a merger or an acquisition of a certain size is agreed upon; it further anticipates 30 day waiting period before transaction can be completed.

- ✓ A. True  
B. False

✓ **Question #7 (0.5 pts)**

Elasticity tests ("5% rule") is an alternative measure used to determine if merged firm has the power to control prices.

- ✓ A. True  
B. False