CS 480 – Software Engineering, Homework 4

1) How might you use a model of a system that already exists? Explain why it is not always necessary for such a system model to be complete and correct. Would the same be true if you were developing a model of a new system? **(10 points)**

2) You are a software engineering manager and your team proposes that model-driven engineering should be used to develop a new system. What factors should you take into account when deciding whether or not to introduce this new approach to software development? **(10 points)**

3) When describing a system, explain why you may have to design the system architecture before the requirements specification is complete. **(10 points)**

4) An information system is to be developed to maintain information about assets owned by a utility company such as buildings, vehicles, equipment, etc. It is intended that this will be updatable by staff working in the field using mobile devices as new asset information becomes available. The company has several existing asset databases that should be integrated through this system. Design a layered architecture for this asset management system. **(35 points)**

5) Following tables show the information domain values and their functional complexity for ABC Inc. **(35 points)**

        a) Calculate the unadjusted function point count by completing the table in the next page.

        b) If the sum of the Value Adjustment Factors is 45, what is the value of adjusted function points?

Transactional Functions	Functional Complexity
External Inputs	
Assignment report definition	Low
Add job information (screen input)	Low
Add job information (batch input)	Average
Correct suspended jobs	Low
Employee job assignment	High
EI with screen output –1	Average
EI with screen output –2	Low
External Outputs	
Jobs with employees report	Average
Employees by assignment duration report	Average
Performance review notification	Low
Weekly employees report	Low
Printed check	Low
Check transaction file	Low
External Inquiries	
List of retrieved data	Low
Drop-down list box	Low
Field level help	Low
Weekly membership report	Low
Daily check file	Low

Data Functions	Functional Complexity
Internal Logical Files	
• Job information	Low
• Suspended jobs	Low
• Report definition	Low
• Employee information	Low
External Interface Files	
• Location information	Low
• Conversion information	Low
• Window help information	Low
• Field help information	Low

Function Type	Functional Complexity		Complexity Totals	Function Type Totals
ILFs	Low	X 7 =	_____	
	Average	X 10 =	_____	
	High	X 15 =	_____	
				_____
EIFs	Low	X 5 =	_____	
	Average	X 7 =	_____	
	High	X 10 =	_____	
				_____
EIs	Low	X 3 =	_____	
	Average	X 4 =	_____	
	High	X 6 =	_____	
				_____
EOs	Low	X 4 =	_____	
	Average	X 5 =	_____	
	High	X 7 =	_____	
				_____
EQs	Low	X 3 =	_____	
	Average	X 4 =	_____	
	High	X 6 =	_____	
				_____
	Unadjusted Function Point Count			_____