Assignment 1

SE Introduction & Software Processes

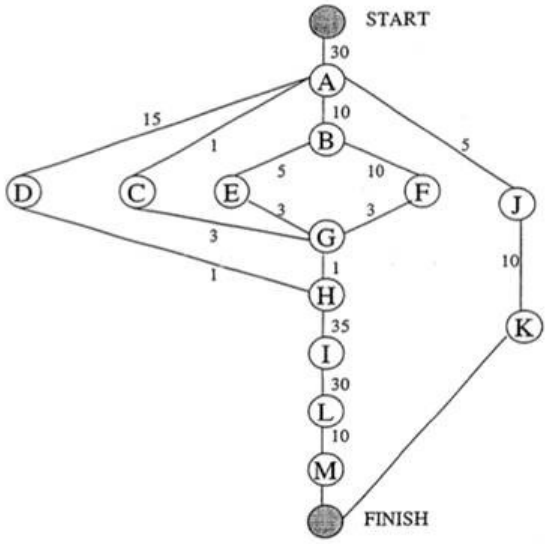
Total – 50 pts.

1. (3 pts.) Give an example of a project that would require software engineering principles rather than just the knowledge of Computer Science. Explain why?

2. (3 pts.) For generic software that is sold to a wide market, it is estimated that the system testing costs is more than 50% of the total development costs. Explain? Why is this not the case for custom software?

3. (3 pts.) List at least three ACM/IEEE code of ethics (complete sentences, please).

4. (5 pts.) Consider the following activity diagram. The arrows (which are missing) go downward from top to bottom.



Provide the following for this diagram:

a) the critical path
b) the minimum amount of time it will take to complete the project
c) the real time for activity K
d) the slack time for activity L
e) the predecessors of activity G

5. (4 pts.) Pick three out of eleven McCall's quality factors and briefly explain what they are. Pick the three that you think are most appropriate for your class project and discuss why they might be important to the project and to your client.

6. (4 pts.) Pick two out of the top ten risk factors from chapter 8 that may affect your class project.

a. Explain briefly why you believe that these are risks to your project.
b. If you were asked to calculate the risk exposure for these risks what measurement would you use

to represent the effects of these risks.

c. Calculate the risk exposure for these risks. Make appropriate assumptions.

7. (4 pts.) Mention three different approaches to modify the waterfall process model to address its weaknesses. How do these variations help the model?

8. (6 pts.) Differentiate between incremental and iterative (evolutionary) process models. Considering your semester project, discuss:

a. at least three different increments you will be developing, if you were using the incremental process model

b. at least three different iterations you will be developing, if you were using the iterative process model.

9. (5 pts.) Which process model is appropriate for each of the following software development projects. Explain briefly.

a. Loan processing module for a bank's customer relationship management system.

b. Patient registration system for a hospital's emergency room.

c. An embedded system in a children's hand-held game.

d. An iPhone application that will control the thermostat in your home.

10. (2 pts.) If you were allowed to create a hybrid model, which two or more models would you combine and why? Pick any one system from question 9 to make an argument.

11. (2 pts.) Explain why programs that are developed using evolutionary development are likely to be difficult to maintain?

12. (2 pts.) What are SE methods? Provide an example.

13. (2 pts.) What are SE tools? Provide an example.

14. (5 pts.) **Scrum** is an agile methodology. Research this topic and provide a detailed description of this methodology. Make sure you address the following: how it is unique and different from the other software development methods, its principles/characteristics, its strengths and weaknesses.