Department of Computer Science  
College of Engineering, University of Nevada, Reno

CS 425 Software Engineering

Midterm Test

October 22, 2008

Test type: Closed-book examination
Number of questions: 12
Total points: 32
Test weight: 14%
Time: 70 minutes

Notes:
- For questions 1 to 7 indicate the correct answer (only one) on the answer sheets provided by the instructor. Each of the questions 1 to 7 has a one point value for a group total of 7 points.
- Questions 8 to 12 require that you elaborate your answers. You must also write these answers on the sheets provided by the instructor. The total value of questions 8 to 12 is 25 points.

Questions:

1. Which of the following process models is best suited for the development of systems where the requirements are not well known?
   a. Waterfall model
   b. Spiral model
   c. Evolutionary model
   d. Component-based software development

2. Which of the following is a not a principle in the ACM/IEEE-CS Software Engineering Code of Ethics?
   a. Safety
   b. Public
   c. Judgment
   d. Colleagues

3. Three sections that project plans for software development should include are:
   a. Project organization, data validation, risk analysis
   b. Introduction, project organization, project schedule
   c. Work breakdown, architectural design, project schedule
   d. None of the above contains three valid project plan sections

4. The critical path in an activity network indicates:
   a. The maximum time required to finish the project
   b. The minimum time required to finish the project
   c. The number of tasks that can be performed in parallel
   d. The total time required to finish the project
5. Which of the following are **not** shown in an *activity network*?
   a. Tasks
   b. Milestones
   c. Days allocated
   d. Staff allocated  
   [1 point]

6. Which of the following is a model for *system organization* in architectural design?
   a. Call-return model
   b. Mesh network model
   c. Interrupt-driven model
   d. Client-server model  
   [1 point]

7. Which of the following are **not** shown in a *data flow model (data flow diagram)*?
   a. data movements
   b. data structures
   c. data processing
   d. data stores  
   [1 point]

8. Describe the component-based software engineering process model. Also, indicate its advantages, disadvantages, and applicability.  
   [6 points]

9. List five of the eight principles (clauses) included in the ACM/IEEE-CS Software Engineering *Code of Ethics and Professional Practices* (note that you don’t have to describe the principles but only to list their names). Also, choose one principle and give an example that illustrates the principle.  
   [4 points]

10. Consider the following types of software project risks: technology, people, organizational, and requirements. For each type give a concrete example of risk and indicate an appropriate management strategy for that risk.  
    [4 points]

11. Describe the broadcast model for event-based control in architectural design. Also, indicate its advantages and disadvantages.  
    [5 points]

12. Give an example of a state machine model that contains at least 6 states (not including the start and stop states). Describe the meaning of the state machine and use the UML notations for states and transitions.  
    [6 points]