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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[1 point]
- 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[1 point]
- 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[1 point]
- 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[1 point]

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- 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]