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

CS 425/625 Software Engineering

Midterm Test #1

October 18, 2006

Test type: Closed-book examination
Number of questions: 12
Total points: 30
Test weight: 10%
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 **23** points.

Questions:

- 1** Which of the following *process models* is best suited for the development of systems where the requirements are not well known?
- Spiral model
 - Waterfall model
 - Evolutionary model
 - Component-based development model
- [1 point]
- 2** Which of the following is a *project management activity*?
- Personnel selection
 - Proposal writing
 - Project planning
 - All of the above
- [1 point]
- 3** Three sections that (together) most *project plans* for software development should include are:
- Project organization, risk analysis, project schedule
 - Risk analysis, architectural design, detailed design
 - Data validation, risk analysis, work breakdown
 - None of the above
- [1 point]
- 4** The *critical path* in an activity network indicates:
- The minimum time required to finish the project
 - The number of tasks that can be performed in parallel
 - The maximum time required to finish the project
 - None of the above
- [1 point]

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- 5** Which of the following are shown in a *state machine model*?
- a. Transitions
 - b. States
 - c. Events
 - d. All of the above
- [1 point]
- 6** Which of the following can be used for *requirements specification*?
- a. Gantt charts
 - b. Pert charts
 - c. Structured natural language
 - d. Task allocation tables
- [1 point]
- 7** In architectural design, which of the following is a type of *centralized control model*?
- a. Interrupt-driven model
 - b. Broadcast model
 - c. Manager model
 - d. None of the above
- [1 point]
- 8** Describe the *waterfall* software process model. Also, indicate its advantages, disadvantages, and applicability.
- [6 points]
- 9** Briefly explain the difference between *user requirements* and *system requirements*. Give a *concrete example* of each (that is, one user requirement and one system requirement) for either: (a) an online flight reservation system, or (b) your group project in CS425/CS625 (in this case, briefly indicate your project's topic).
- [4 points]
- 10** Give three examples of *risks* that may be identified by software project managers (give concrete examples, do not simply enumerate risk categories such as technology, organizational, etc.) and suggest *risk management strategies* for each of the three risks.
- [3 points]
- 11** Describe the *client-server model* used for system organization (architectural design). Also, indicate its advantages and disadvantages.
- [4 points]
- 12** Write the specification of a *Flight* class to be used in an online flight reservation system. Include at least five attributes and two non-trivial methods in this class (a non-trivial method involves computations based on one or more attributes). Also, write the specification of a subclass which inherits from the *Flight* class. Include at least two additional attributes and one additional non-trivial method in this subclass. Explain the meaning of attributes and methods.
- [6 points]