Student _____

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

CS 425 Software Engineering

Midterm Test #1

October 17, 2007

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 well known?

a. Spiral model
b. Evolutionary model
c. Waterfall model
d. Incremental model [1 point]

2 Which of the following is a not a *metric for non-functional requirements*?

a. Mbytes
b. Training time
c. Number of UML classes
d. Number of target operating systems [1 point]

3 Three sections that *project plans* for software development should include are:

a. Introduction, risk analysis, project schedule
b. Work breakdown, architectural design, project schedule
c. Project organization, risk analysis, data validation
d. None of the above contains three valid project plan sections [1 point]

4 Elements shown in an *activity network* for project scheduling are:

a. Tasks
b. Dependencies between tasks
c. Milestones
d. All of the above [1 point]

Student _____

5 Which of the following are not shown in a *state diagram (statechart)*?

a. States
b. Transitions
c. Data stores
d. Events [1 point]

6 Which of the following is not a model for *system organization* in architectural design?

a. Repository model
b. Functional model
c. Layered model
d. Client-server model [1 point]

7 In architectural design, which of the following is a style of *modular decomposition*?

a. Function-oriented pipelining
b. Interrupt-based decomposition
c. Use case modeling
d. None of the above [1 point]

8 Describe the *incremental delivery* software 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 a concrete, appropriate example that illustrates the principle. [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 *repository model* used for system organization in architectural design. Also, indicate its advantages and disadvantages. [5 points]

12 Give an example of a *data flow diagram* (data flow model) that contains at least 7 data transformations (processing steps). Describe the meaning of the data flow diagram and use the appropriate DFD notation. [5 points]