

Student \_\_\_\_\_

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

CS 425 Software Engineering

Midterm Test

October 27, 2010

**Test type:** Closed-book examination  
**Number of questions:** 12  
**Total points:** 33  
**Test weight:** 15%  
**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 **26** points.

**Questions:**

- 1** Which of the following *process models* best emphasizes risk management?
- Waterfall model
  - Incremental development
  - Boehm's spiral model
  - Reuse-based software engineering
- [1 point]
- 2** Which of the following is not a *principle* in the ACM/IEEE-CS Software Engineering Code of Ethics?
- Self
  - Judgment
  - Profession
  - Advancement
- [1 point]
- 3** Which of the following is a *metric* for specifying *non-functional requirements*?
- Processed transactions/second
  - Mbytes
  - Mean time to failure
  - All of the above
- [1 point]
- 4** Which of the following is a major *principle of agile methods*?
- Embrace change
  - Extensive design
  - Flexible work allocation
  - Project planning
- [1 point]

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**5** Which of the following can be used for writing a *system's requirements specification*?

- a. Structured natural language
- b. Natural language sentences
- c. Mathematical specifications
- d. All of the above

[1 point]

**6** Which of the following are not shown in a *sequence diagram*?

- a. Actors
- b. Objects
- c. States
- d. Lifelines

[1 point]

**7** Which of the following is an *architectural pattern*?

- a. Agile architecture
- b. Repository architecture
- c. Object-oriented architecture
- d. Real-time scheduler pattern

[1 point]

**8** Describe the *reuse-oriented 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 indicate their names). Also, choose one principle and give an example that illustrates the principle. [4 points]

**10** Briefly explain the difference between *functional requirements* and *non-functional requirements*. Give *two examples* of each (that is, 2 functional requirements & 2 non-functional requirements) for either: (a) an interactive system that allows passengers to find train schedules and buy tickets from terminals installed in railway stations, or (b) your group project in CS425/625 (in this case, briefly describe your project's topic). [5 points]

**11** Concisely describe (2-4 lines each) five practices or principles that are used in *extreme programming* (XP). Among these practices or principles you should include *pair programming* and *test-first development*. [5 points]

**12** Describe the *layered architecture pattern* used in architectural design. Also, indicate its advantages and disadvantages. [6 points]