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

CS 425 Software Engineering

Final Exam

December 13, 2010

Test type: Closed-book examination

Number of questions: 17 **Total points:** 48 **Weight:** 30% of course grade **Time:** 105 minutes

- Notes:**
- For questions **1 to 10** indicate the correct answer (only one) on the answer sheets provided by the instructors. Questions 1 to 10 have each a one point value for a group total of 10 points.
 - Questions **11 to 17** require that you elaborate your answers. You must also write these answers on the sheets provided by the instructor. The total value of questions 11 to 17 is 38 points.

Questions:

- 1 Which of the following *process models* best emphasizes risk management?
 - a. Boehm's spiral model
 - b. Incremental development
 - c. Waterfall process
 - d. Reuse-based software engineering[1 point]
- 2 Three principles or practices of *extreme programming (XP)* are:
 - a. Refactoring, small program releases, formal requirements
 - b. Sustainable pace, continuous integration, incremental planning
 - c. Simple design, peer reviews, on-site customer
 - d. None of the above (that is, none of the above lines contains three valid XP principles or practices)[1 point]
- 3 Which of the following can be used for *requirements specification*?
 - a. Structural natural language
 - b. Gantt charts
 - c. Data structures
 - d. Test harnesses[1 point]
- 4 What kind of software is tested during *release testing*?
 - a. Program units such as methods or classes
 - b. Program components that need to be integrated by the development team
 - c. A software system intended for use by customers and users
 - d. None of the above[1 point]
- 5 Which of the following is a benefit of *software reuse*?
 - a. Accelerated development
 - b. Increased dependability
 - c. Standards compliance
 - d. All of the above[1 point]
- 6 Which of the following is not a type of *user testing*?
 - a. Alpha testing
 - b. Beta testing
 - c. Component testing
 - d. Acceptance testing[1 point]

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- 7** In relation with managing and motivating people, what is the highest level in the *human needs hierarchy*? [Hint: the lowest level is *physiological needs*]
- Safety needs
 - Self-realization needs
 - Social needs
 - Esteem needs
- [1 point]
- 8** Which of the following is a factor that affects *software pricing*?
- Market opportunity
 - Requirements volatility
 - Neither (a) nor (b)
 - Both (a) and (b)
- [1 point]
- 9** Which of the following is not a *project management activity*?
- People management
 - Reporting
 - System deployment
 - Project planning
- [1 point]
- 10** Which of the following is a strategy in *risk planning*?
- Contingency strategy
 - Minimization strategy
 - Avoidance strategy
 - All of the above
- [1 point]
- 11** Describe the *waterfall* software process model. Also, indicate its advantages, disadvantages, and applicability. [6 points]
- 12** Describe the *client-server architecture pattern* used in architectural design. Also, indicate its advantages and disadvantages. [5 points]
- 13** Briefly describe three (of the five) main *principles of agile methods* (2-4 lines each). [4 points]
- 14** Describe the steps of the *test-driven development* (TDD) process and indicate TDD's advantages and disadvantages. [5 points]
- 15** Briefly explain what is meant by *service* as a reusable software component. Also, concisely describe the three logical stages of the *service engineering process*. [5 points]
- 16** Consider the following types of *software project risks*: technology, people, organizational, tools, and requirements. For each type give a concrete example of risk and provide an appropriate management strategy for that risk. [5 points]
- 17** Consider your *group project* in CS 425/625.
- Briefly describe the project's topic, significance/utility, and most important features (7 to 10 lines).
 - List the project's 3 most important functional requirements.
 - Briefly indicate the main components (subsystems/modules) of the code (at least 4 such components should be listed).
 - Indicate 3 possible enhancements for your project.
- [8 points]