Test type: Closed-book examination
Number of questions: 12
Total points: 30
Test weight: 10%
Time: 70 minutes
Notes:

1. 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.
2. 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]
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]