

Computer Science Department  
CSC 263 Software Engineering

Term Exam

Fall 2011 - 2012

Time Allowed: 60 mins.

List two ethical responsibilities that you should have as a software engineer. (2 pts)

Software engineers must ~~not~~ not misuse their skills  
~~Report code~~ - Competence

State the two main constraints found in almost every software development project. (2 pts)

- Time
- Cost

Give an example of a generic software. (2 pts)

~~Microsoft Office tools~~ Microsoft Office tools



4- What is the key element/factor that differentiates a Socio-technical system from a Technical computer-based system? Explain briefly to support your answer. (3 pts)

Technical computer based system contains all hardware and software without any operators or operations involved, whereas, Socio-technical system involve hardware, software and operators behaviors. Thus the key difference between socio-technical & technical systems is the human factor.

5- List three emergent system properties. (3 pts)

- reliability
- maintainability
- usability

6- What is a legacy system? (2 pts)

Old system still in use which can be effective. Data loss for instance if removed and replaced by newer one.

7- How can the environment in which a system is installed affect its reliability? Give an example, and discuss how reliability measurement can vary from one user to the other (be very specific in your answer) (2 pts)



9- Give a scenario of the on-line registration system where it can be available but not reliable.

Registering courses is done after the ~~validation~~ <sup>(2 pts)</sup> ~~approval~~ of the advisor  $\Rightarrow$  student registers but this will not be final for the advisor must approve first.

10- Give an example of a useful but untrusted system.

The internet is useful but not always <sup>(1 pt)</sup> trusted by users.

11- List four system properties that can be included under system dependability. (4 pts)

- Availability
- reliability
- safety



12- What is a software process?

software process is the collection of ~~the~~ stages (2 pts) in software production for specification, design, validation and evolution.

13- List the different stages of the WaterFall Software Process model and state its key advantage and its key disadvantage. (5 pts)

- Requirement definition and specification
- Software design
- Subsystem development
- System integration
- ~~Installation~~ Testing
- Installation
- Evolution
- Decommissioning

Advantage: requirements are well understood

Disadvantage: no change can be made because when each part is done we move to the other.

What are the two key/main advantages of the incremental development process? (4 pts)

The ~~main~~ ~~advantages~~ ~~are~~ ~~that~~ ~~the~~ ~~system~~ ~~is~~ ~~always~~ ~~available~~ ~~and~~ ~~the~~ ~~cost~~ ~~is~~ ~~low~~



- What are the key/main advantages of the incremental development process? (4 pts)
- The requirements are prioritized and increments are developed accordingly thus the system will be ~~usable~~ tested and
  - first increment is used as prototype thus ~~changes~~ can be made upon request ~~and~~

15- What is the difference between software validation and verification? Which one comes first? (5 pts)

Software Verification is done at the acceptance and validation is done by the user etc software process (which comes first). Thus, the difference is the timing of the testing.