

CS6361.501      Requirements Engineering      page 1/8

The University of Texas at Dallas  
Computer Science Program

Midterm Test

October 16, 2000

Conditions: Closed book    Duration: 70 minutes

Please write legibly; unreadable answers are NOT answers!

Name: \_\_\_\_\_

{Please underline last name}

Student Number: \_\_\_\_\_

1. \_\_\_\_\_ /20

2. \_\_\_\_\_ /20

3. \_\_\_\_\_ /20

4. \_\_\_\_\_ /10

5. \_\_\_\_\_ /15

6. \_\_\_\_\_ /15

Total \_\_\_\_\_ /100

1. [20 marks]

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For each of the following ten statements, indicate whether it is true (mark T) or false (mark F).  
(No penalty for a wrong answer)

  T   This is the mid-term test for CS6361.501.

- \_\_\_   1. The later in the development cycle that a software error is detected, the less expensive it will be to repair.
- \_\_\_   2. Requirements in large customer-specific projects and those in market-driven ones are by and large quite similar to each other.
- \_\_\_   3. During requirements elicitation, open-ended questions such as “What is your view of future” are encouraged for the purpose of exploring any missing problem statements.
- \_\_\_   4. One major impetus towards the Unified Approach (proposed by Rumbaugh, Booch and Jacobson) has been offering the developer more expressive power.
- \_\_\_   5. Errors made in requirements specifications are typically incorrect facts, omissions, inconsistencies, and ambiguities.
- \_\_\_   6. As constraints on the software requirements process decrease, so does the fraction of requirements elicited from people (For example, compare a missile guidance system and a decision support system).
- \_\_\_   7. During interviews, people can articulate their perceptions or their needs quite well and they are willing to reveal their thoughts freely.
- \_\_\_   8. Each scenario analysis involves considering use cases, episodes and scripts and in *that* particular order.
- \_\_\_   9. A major benefit of using any goal-directed approach to requirements engineering is that such an approach results in an executable specification.
- \_\_\_   10. The more formal a requirements specification is, the easier it becomes for customers and end users to understand the specification.

**2. [20 marks]**

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Circle the best answer to each of the following questions.

1. The objectives of scenario analysis include:
  - (a) to support sampling
  - (b) to support verification and validation
  - (c) to guarantee the correctness of algorithms
  - (d) to provide the basis for software configuration management
  - (e) all of the above
2. What is the *least* frequent problems plaguing large industrial software systems, as discovered in a Field study by Curtis and his colleagues:
  - (a) thin spread of domain application knowledge
  - (b) changing and conflicting requirements
  - (c) communication and coordination breakdowns
  - (d) lack of statistical quality control
3. A good requirements specification for a rocket launching system needs to provide answers to:
  - (a) what modules should be used?
  - (b) how to do use an object-oriented methodology
  - (c) what should be the number of software engineers standing by?
  - (d) what formalism should be used for inspection?
  - (e) how to do white-box testing
  - (f) none of the above
4. What is the *most* relevant to the technique of group interview?
  - (a) choosing population elements
  - (b) determining the sample size
  - (c) WYSIWYG approach
  - (d) decomposing goals into subgoals
  - (e) determining the types of data
5. The fundamental processes within requirements engineering include:
  - (a) formal review on software process
  - (b) testing based on operational profile
  - (c) verification based on animation
  - (d) goal-directed stress testing
  - (e) none of the above

**3. [20 marks]**

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Circle the best answer to each of the following questions.

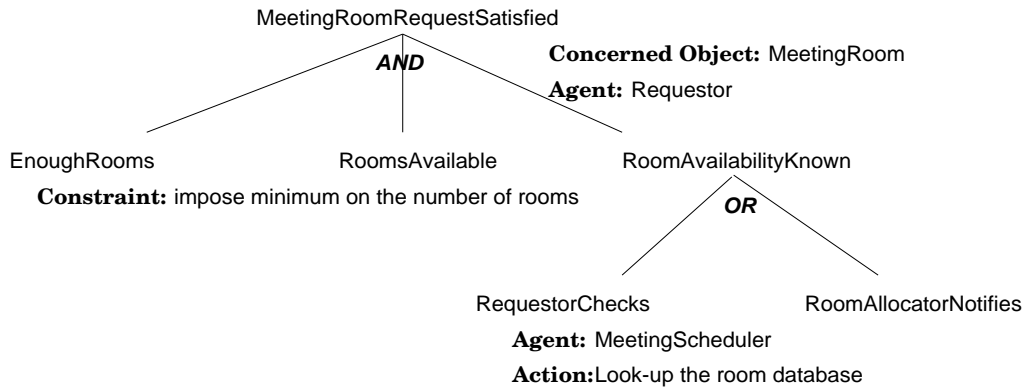
1. What is the *most* likely concern of a requirements engineer in choosing among object-oriented requirements modelling notations?
  - (a) target programming languages
  - (b) ontology of the application domain
  - (c) epistemology of the computer architecture
  - (d) methodological support for software maintenance
2. Who is involved during systems engineering?
  - (a) users
  - (b) domain experts
  - (c) developers
  - (d) system architects
  - (e) all of the above
3. What is not part of the three fundamental types of requirements?
  - (a) finite automata requirements
  - (b) enterprise requirements
  - (c) functional requirements
  - (d) non-functional requirements
  - (e) none of the above
4. What is the *most* relevant to benefits of an executable specification?
  - (a) the “say-do” problem concerning tacit knowledge
  - (b) validation of software metrics model
  - (c) fast prototyping
  - (d) adequacy of sampling
5. What is the *least* likely reason that a requirements engineer is looking to knowledge acquisition as a source of requirements elicitation techniques?
  - (a) both are concerned with capturing knowledge of customers, users and developers
  - (b) both are concerned with detecting inconsistencies
  - (c) both are concerned with translating expertise and experience always into defect-free ‘rules’
  - (d) both are concerned with the use of mediating representations



5. [15 marks]

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Consider the following AND/OR decompositions of goals into subgoals:



1. Describe briefly what is meant by “Everything is done to meet the goal(s)”.

2. Describe briefly how the above approach can enhance traceability, both forward and backward.

**5. [continued]**

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Describe briefly i) how the above approach can be tied to the notion of a meta-domain model and ii) how the meta-domain model can help domain analysis.

**6. [15 marks]**

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**1.** Formulate a “Who” question for the use case ‘drop-dead date’ in the context of the meeting scheduler system and generate several use cases.

**2.** Formulate a “What-if” question for the statement ‘Our system offers superior voice quality.’ in the context of telecommunication systems and generate several use cases.

**3.** Risk analysis (be it technological, business, schedule, cost or quality) involves an infinite number of cases, although a requirements engineer usually has only limited resources. Describe briefly how a requirements engineer should carry out risk analysis.