

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]

page 2/8

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]

page 3/8

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]

page 4/8

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

4. [10 marks]

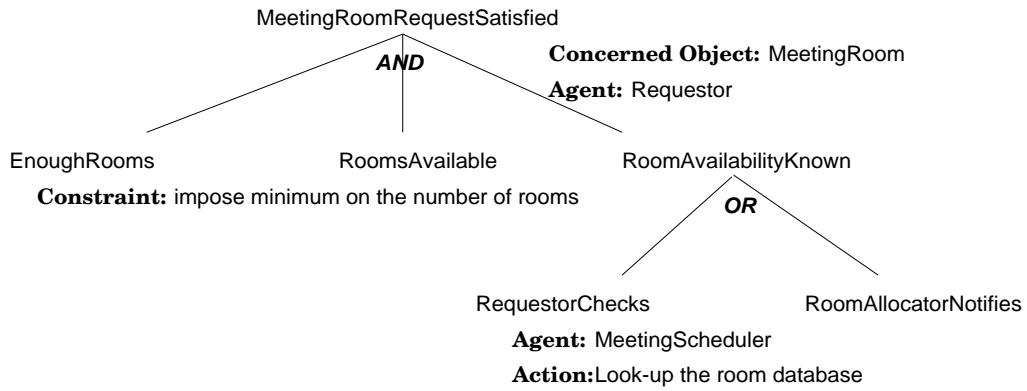
page 5/8

1. Describe briefly how “requirements volatility” affects re-engineering.

2. Describe briefly what the major issues are in solely relying on interviews during requirements elicitation.

5. [15 marks]

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]

page 7/8

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]

page 8/8

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.