CS6361.501 Requirements Engineering page 1/8

The University of Texas at Dallas
Computer Science Program

Midterm Test October 17, 1996

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.

Circle the best answer to each of the following questions.

1. The objectives of requirements are:
   (a) to support system evolution
   (b) to support verification and validation
   (c) to achieve agreement regarding the requirements between system developers, customers, and end-users
   (d) to provide the basis for software design
   (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 needs to provide answers to:
   (a) what algorithms should be used?
   (b) how can users' job security be enhanced?
   (c) what should be the response time of the system?
   (d) what data structures should be used?
   (e) how can the system be implemented?
   (f) none of the above
4. What is the *least* relevant to the technique of sampling?
   (a) choosing population elements
   (b) determining the sample size
   (c) decomposing goals into subgoals
   (d) determining the types of data
5. The fundamental processes within requirements engineering do not include:
   (a) elicitation
   (b) optimization
   (c) specification
   (d) validation
   (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 *least* likely concern of a requirements engineer in choosing among requirements modelling notations?

   (a) ontology of programming languages
   (b) ontology of the application domain
   (c) epistemology of the application domain
   (d) methodological support for using the notation

2. What is included in the four major domains (worlds) of information systems?

   (a) subject world
   (b) usage world
   (c) development world
   (d) system world
   (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 *least* relevant to issues with many sources of requirements?

   (a) the "say-do" problem concerning tacit knowledge
   (b) validation of software metrics model
   (c) multiple viewpoints
   (d) traceability of requirements

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

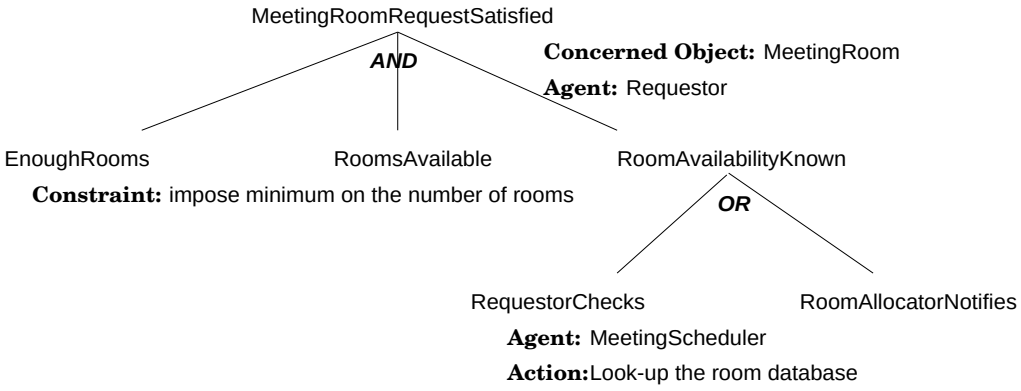
4. [10 marks]

1. Describe briefly what the main causes of a high degree of "requirements volatility" are.

2. Describe briefly what the major issues are in relying on "ethnomethodology" during requirements elicitation.

5. [15 marks] page 6/8

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.

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]

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.