

## T-76.3601 Introduction to Software Engineering Exam, 27.5.2011

### Instructions:

- Write your name, student number, degree program and signature in the reserved space below
- Write your name and student number at the bottom of each sheet
- Answer the questions in the spaces provided on the question sheets. If you run out of room for an answer, continue on the back of the page.
- You can answer in English, Finnish or Swedish.

### Ohjeita:

- Kirjoita nimesi, opiskelijanumerosi, koulutusohjelmasi sekä allekirjoituksesi alla olevaan tilaan
- Kirjoita nimesi ja opiskelijanumerosi jokaisen paperin alareunaan
- Vastaa kysymyksiin koepaperissa varattuun tilaan. Jos tarvitset lisäätilaa, kirjoita paperin takapuolelle.
- Voit vastata englanniksi, suomeksi tai ruotsiksi.

### Instruktioner:

- Skriv ditt namn, student nummer, utbildningsprogram samt underskrift i det reserverade utrymmet nedan
- Skriv ditt namn och studentnummer nere på varje ark
- Besvara frågorna i utrymmet på provpappren. Om du behöver mera utrymme kan du skriva på arkets baksida.
- Du kan svara på engelska, svenska eller finska

Question	Multiple choice	Explain terms	Essay 1	Essay 2	Essay 3	Total
Max points	6	6	6	6	6	30

Name/Nimi/Namn: \_\_\_\_\_

Student number/Opiskelijanumero/Studentnummer: \_\_\_\_\_

Degree program/Koulutusohjelma/Utbildningsprogram: \_\_\_\_\_

Signature/Allekirjoitus/Underskrift: \_\_\_\_\_

**Part 1 - Multiple choice questions – 6p**

1 point is given for each correct answer.

-½ (minus half) point is given for each incorrect answer.

You do not have to answer to all questions.

Question	Your choice				
	A	B	C	D	E
1. If a Software has presented problems during the <b>Validation</b> of the final product					
2. The following question is about UML diagram types. Which of the following describes <b>State diagrams</b> ?					
3. What's the difference between re-engineering and refactoring?					
4. Which of the following is NOT a MAJOR source of architectural complexity in software development?					
5. Which of the following statements about Service-Oriented Architecture(SOA) is wrong?					
6. What do you have to do in order to get copyright for your software that you developed independently?					

1. If a Software has presented problems during the **Validation** of the final product, which stage of the development probably went wrong? obs: No problems in **Verification** were found.

- A) Modeling
- B) Design and Implementation
- C) Requirements Engineering Process
- D) Marketing
- E) Software Evolution

2. The following question is about UML diagram types. Which of the following describes **State diagrams**?

- A) Shows the activities involved in a process or in data processing
- B) Shows interactions between actors and the system and between system components.
- C) Shows the interactions between a system and its environment.
- D) Shows the object classes in the system and the associations between these classes.
- E) Shows how the system reacts to internal and external events.

3. What's the difference between re-engineering and refactoring?
- A) Re-engineering is constant maintenance of a system. Refactoring occurs only if dramatic change is needed.
  - B) Refactoring means constant modifying of the system because of changing needs. Re-engineering aims to create a new system from the scratch.
  - C) Constant refactoring aims to keep the system easily maintainable in the future. Re-engineering focuses on restructuring the system to create a new better system.
4. Which of the following is NOT a MAJOR source of architectural complexity in software development?
- A) Size
  - B) Important quality requirement
  - C) Legislation
  - D) Tough domain requirements
  - E) Variability
5. Which of the following statements about Service-Oriented Architecture(SOA) is wrong?
- A) Each service produces different and complete task. The services do not interact with each other.
  - B) The application uses well defined interfaces to interact with the services. The inner workings of a service are not relevant.
  - C) In SOA applications are composed from a set of services.
  - D) Reuse is an important factor when designing a service. As such services are most often designed stateless.
  - E)None of the above are wrong.
6. What do you have to do in order to get copyright for your software that you developed independently?
- A) Nothing, copyright is an automatic right.
  - B) Apply for it in a copyright office.
  - C) Apply for it in a patent office.
  - D) You can't get copyright for you work.

**Part 2 Explain terms - 6p**

1point for each

1. Software engineering

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2. Risk Management

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3. Software Reengineering

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4. Pair programming

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5. Non-functional requirements

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6. Architectural views

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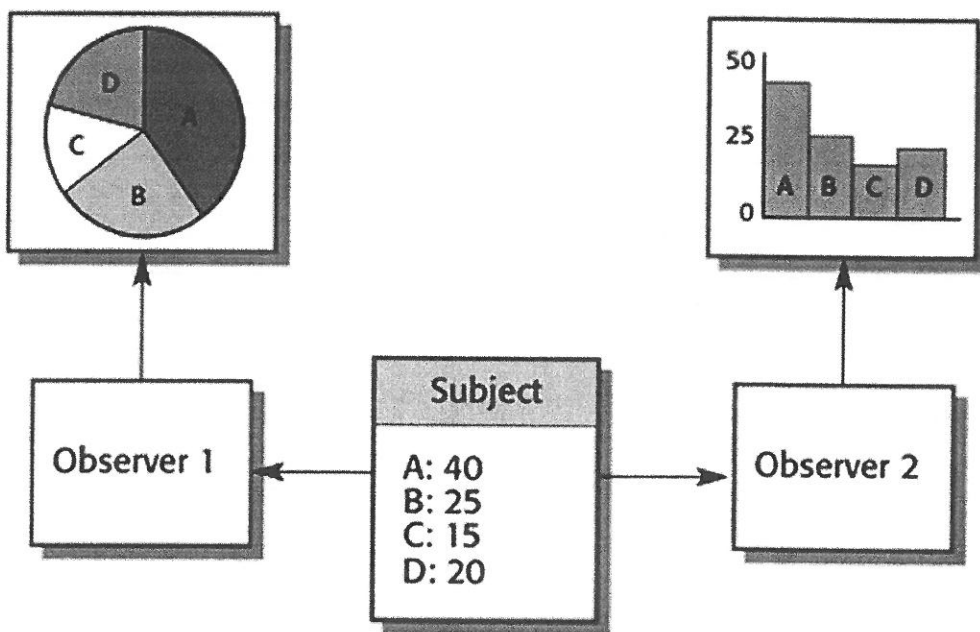
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### Part 3 Essays

#### Essay question 1)

Design patterns. What are they and how can they be useful? How does the figure below relate to design patterns?



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