

Course No: ITGD3103
Course Title: Software
Engineering
Date: 22 / 01 / 2011
No. of Questions: 3 Questions
Time: 2 hours

University of Palestine



Final Exam
1st semester 2010/2011
Total Grade: 50

Instructor Name: Mrs. Eman

Alajrami

Student No.: _____

Student Name: _____

College Name: _____

Dep. / Specialist: _____

Using Dictionary (No)

Note: Don't use pencil and answer Only in English

First Question	No. of Branches (1)	10 Marks
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(A) (10)

Put (√) or (X) for each of the following statements and correct the false :

1) The system evolves by adding a new feature proposed by the customer. ()

2) Object elaboration defines how a work process is completed when several people are involved ()

3) Context models show the position of a system in its environment with other systems and processes ()

4) Functional user requirements should describe the system services in detail ()

5) Viewpoint-system mapping refines the description of the identified viewpoints and services ()

Second Question	No. of Branches (2)	20 Marks
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(7)

A. Complete the following blanks

1. For large system , it is better to use a mixed process between ----- and -----.
2. Use ----- for mandatory requirements, ----- for desirable requirements.
3. Requirement may be interpreted in different ways by developers and users are called -----.
4. ----- are descriptions of how a system is used in practice.
5. ----- show the overall process and the processes that are supported by the system.

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(B) Answer all of the following questions : (13)

1. What are the Types of viewpoint? (4 marks)

2. Requirements should be both complete and consistent, Explain? (3 marks)

3. Describe the Types of project plan? (3 marks)

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4. What are the main steps of the Interface Design?

(3 marks)

Third Question

No. of Branches (4)

20 Marks

1.

A system is required which allows a user to input an unordered list of integer numbers into a computer. The system will store these numbers in the main store of the computer where they are to be sorted by the system into ascending numeric order and re-stored. Finally the system is to print out the list for the user.

- (a) Draw a context diagram for this problem.
- (b) Draw a level 1 data flow diagram for this problem.

Answer:

a) context diagram

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b) Draw a level 1 data flow diagram for this problem.

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2. **Simplistic Teaching Assistant (TA) :** Suppose that your TA only has two states of being: happy and sad. Further suppose that your TA is basically cheerful and starts out happy. :) Also suppose that your TA can only respond to two events: getting coffee (which makes the TA happy) and getting punched in the nose (which, needless to say, makes him sad).

a) **Draw the state-transition diagram**

b) **Draw another state diagram which shows the following modifications :**

This TA also responds to the arrival of hot milk, as well as to the arrival of coffee and to being punched in the nose. This TA starts out happy and sleepy, and only wakes up when coffee arrives, or by being punched in the nose. She also gets sleepy and happy again each time hot milk shows up. (hint: there will be three states, happy and sleepy , happy and awake, sad and awake)

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3. You are developing the requirements for an online shopping system. To place an order, a user connects to the system, searches to find items to purchase, selects one or more items, and supplies credit card information to pay for them.

(i) Create a scenario for a user making a purchase.

(ii) Develop a use case diagram and brief specification for a use case, *PlaceOrder*, which is modeled on this scenario. The use case should show a relationship to a previously specified use case, *Pay*, which models credit card payments. (You do not need to specify the *Pay* use case.)

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4. Ship A has two instruments, which provide digital information for navigation:

- (1) A global positioning system (GPS) measures the position and velocity of Ship A.
- (2) A radar set measures the distance and bearing of other ships from Ship A.

The Collision Avoidance System continually receives data from these two instruments.

From the data, a plotting subsystem calculates the track of each other ship relative to Ship A. This is displayed on a screen. If the other ship appears to be on a collision course, the system alerts the crew of the ship.

Create a UML class diagram for the system. Select the classes. For each class, list at least one attribute and one operation and Draw a possible class diagram.

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