

Course Title: Software Engineering
Date: 08/01/2018
No. of Questions: 3 Questions
Time: 2 hours

University of Palestine

Final Exam
1st semester 2017/2018
Total Grade: 50

Instructor Name: Eng. Eman Alajrami
Student No.: _____
Student Name: _____
College Name: _____
Dep. / Specialist: _____
Using Dictionary (No)

First Question	No. of Branches (1)	5 Marks
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Put (√) or (X) for each of the following statements:

- 1) It is impossible to produce a complete and consistent requirements document. ()
- 2) DFD shows the behaviour of the system in response to an event. ()
- 3) Implicitness means that Domain experts understand the area so well that they do not think of making the domain requirements explicit. ()
- 4) Viewpoint-system mapping refines the description of the identified viewpoints and services ()
- 5) Scenarios are descriptions of how a system is used in practice ()

Second Question	No. of Branches (5)	25 Marks
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Answer all of the following questions :

1. One of the design rules is to provide for Consistent interaction. Explain and give example.

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2. There are four ways to elicit requirements, name tem and explain them briefly.

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3. One of the golden rules in GUI design is to reduce memorization, explain it in details and give examples.

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4. What are the problems with NL (When used in detailed specification , in system design)?

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5. When is it preferred to use incremental model in Software development?

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Third Question	No. of Branches (3)	20 Marks
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1. A software system for managing restaurant services:

There are three kinds of humans involved in this scenario: Waiters, Chefs, and Customers. Each waiter uses a wireless handheld device to communicate with the chefs. Waiters enter Customer orders and receive notices that orders are ready through their handheld devices. The Use Case PlaceOrderInitiated by Waiter. Waiter activates the PlaceOrder option on his handheld device, which brings up an orderform on the handheld's display. Waiter fills in the table number for the order. As Customer tells Waiter what she wants to order, Waiter taps on items on order form. If the Customer has special preparation instructions for an item, Waiter selects the CustomizeOrder option and enters the special instructions. When Customer is finished placing order Waiter submits the order to the Chef. The sentorder contains the table number, the Waiter's ID code, the items ordered, and all specialinstructions. The order appears on the Chef's display. After the Chef has prepared the order, he selectsthe InformOrderReady option. The Waiter's handheld device flashes a message informing him that the order is ready. The Waiter delivers the food to the Customer, then uses the handheld device to recordthat the order has been delivered.

- a. Draw a use case diagram for the above scenario.

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2. 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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3. Show how objects respond to different service requests and the state transitions triggered by these requests. Draw a **state machine diagram** for the following:
- If object state is Shutdown then it responds to a Startup() message;
 - In the waiting state the object is waiting for further messages;
 - If reportWeather () then system moves to summarising state;
 - If calibrate () the system moves to a calibrating state;
 - A collecting state is entered when a clock signal is received

Good Luck

