Course Title: Software Engineering **Date: 09 / 01 / 2019** **No. of Questions: 3 Questions** **Time: 2 hours** **Using Calculator (No)**	**University of Palestine** **Final Exam** **2018/2019** **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**

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

1) Legacy systems are not risky to replace.   (   )
2) NL is recommended to be used in System requirements.
3) Usability is an example of emergent properties.   (   )
4) State diagram is an object oriented model.   (   )
5) Maintainability reflects theextent to which the system can be repaired in the event of a
   failure   (   )
6) Waterfall model is a dynamic process models   (   )
7) The activities of design and implementation are closely related and may be inter-leaved   ( )
8) Requirement completeness means that there are no requirements conflicts   ( )
9) In DFD Data flows to Entities must come from Processes   ( )
10) Deliverables are milestones but milestones need not be deliverables.   ( )

Second Question	**No. of Branches (1)**	**10 Marks**

(A) Define the following:

   1. Software process:

_____
_____
_____

   2. COTS:

_____
_____
_____

   3. System Requirements:

_____
_____
_____

   4. Emergent System properties:

_____
_____
_____

   5. Requirement Engineering:

_____
_____
_____

6. **Critical path:**

7. **System modeling:**

8. **Consistent Requirement:**

9. **Domain Requirements:**

10. **System modeling:**

Third Question　　　　　　　**No. Of Branches ( ) 35 marks**

Answer the following questions:

1. **Explain non-functional requirements and give two examples of them**. **(4 marks)**

2. **Pick the most appropriate generic software process model for** *an interactive system for railway passengers that finds train times from terminals installed in stations*. **You can mix between more than one model? (3 marks)**

3. **What are the problems with NL (Natural Language)? (4 marks)**

4. **Write two functional and two non-functional requirements for the microwave?(4 marks)**

5. **How requirements eliciting can be done?Explain.(4 marks)**

6. What are the UI Golden Rules? Explain one of them in details. (4 marks)

7. Draw a use case diagram for the following *Hospital Reception* :

Hospital Reception subsystem or module supports some of the many job duties of hospital receptionist. Receptionist schedules patient's appointments and admission to the hospital, collects information from patient upon patient's arrival and/or by phone.

For the patient that will stay in the hospital ("inpatient") she or he should have a bed allotted in a ward. Receptionists might also receive patient's payments, record them in a database and provide receipts, file insurance claims and medical reports.**(4 marks)**

8. **Draw a class diagram for the Online Shopping System: (4 marks)**

Each customer has unique id and is linked to exactly one **account**. Account owns shopping cart and orders. Customer could register as a web user to be able to buy items online. Customer is not required to be a web user because purchases could also be made by phone or by ordering from catalogues. Web user has login name which also serves as unique id. Web user could be in several states - new, active, temporary blocked, or banned, and be linked to a **shopping cart**. Shopping cart belongs to account.

9. **Draw a state machine diagram for ATM system as follows: (4 marks)**

ATM is initially turned off. After the power is turned on, ATM performs startup action and enters **Self-Test** state. If the test fails, ATM goes into **Out of Service** state, otherwise there is **triggerless transition** to the **Idle** state. In this state ATM waits for customer interaction.

The ATM state changes from **Idle** to **Serving Customer** when the customer inserts banking or credit card in the ATM's card reader. On entering the **Serving Customer** state, the entry action **readCard** is performed. Note, that transition from **Serving Customer** state back to the **Idle** state could be triggered by **cancel** event as the customer could cancel transaction at any time.

End of Questions

Good Luck