



Al Imam Mohammad Ibn Saud Islamic University
College of Computer and Information Sciences
Computer Science Department

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| Course Title: | Software Engineering |
| Course Code: | CS310 |
| Course Instructors: | Dr Alqahtani |
| Exam: | Midterm Exam 1 |
| Semester: | Spring 2019 |
| Date: | 29/10/1440 – 02/07/2019 |
| Duration: | 60 minutes |
| Marks: | 25 |

Privileges: ☐ Open Book ☐ Open Notes
☐ Calculator Permitted ☐ Laptop Permitted

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| Student Name: | |
| Student ID: | MODEL ASNWERS |
| Section No.: | |

Instructions:

1. Answer 3 questions; there are 3 questions in 6 pages.
2. Write your answers directly on the question sheets. Use the ends of the question pages for rough work or if you need extra space for your answer.
3. If information appears to be missing from a question, make a reasonable assumption, state your assumption, and proceed.
4. **No** questions will be answered by the invigilator(s) during the exam period.

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|-------------------|---------------|----------------|
| Question | Student Marks | Question Marks |
| 1 | | 7 |
| 2 | | 8 |
| 3 | | 10 |
| Total | | 25 |



Question 1:

To be answered in (15) Minutes [] / 7 Marks

(0.5 points each) Circle the correct answer. T is true, F is false.

1. ☒ T / ☐ F Maintainability, usability, efficiency and dependability are attributes for a software product.
2. ☐ T / ☒ F In XP, a customer or user is not a part of the XP team and is not responsible for making decisions on requirements.
3. ☐ T / ☒ F Agile process are process where all of the process activities are planned in advanced.
4. ☒ T / ☐ F Water-fall is a plan-driven development model.
5. ☒ T / ☐ F Reused-oriented software engineering is based on assembling the system from existing components. May be plan-driven or agile.
6. ☒ T / ☐ F The main drawback of the waterfall model is the difficulty of accommodating change after the process is underway.
7. ☒ T / ☐ F The benefits of incremental development model is the cost of accommodating changing customer requirements is reduced
8. ☐ T / ☒ F Feasibility study is not one of the main requirement engineering processes.
9. ☐ T / ☒ F “Individuals and interactions over comprehensive documentation” is one of the Agile manifesto values.
10. ☒ T / ☐ F In agile method, prioritizing changes can be difficult.
11. ☐ T / ☒ F User requirements in waterfall model are expressed as scenarios or user stories.
12. ☐ T / ☒ F The Scrum approach is a general agile method but its focus is on specific agile practices rather than managing iterative development.
13. ☒ T / ☐ F ‘Scaling up is concerned with using agile methods for developing large software systems that cannot be developed by a small team.
14. ☒ T / ☐ F Software process defined as a structured set of activities required to develop a software system.



Question 2:

To be answered in (20) Minutes [] / 8 Marks

(0.5 points each) Multiple choices. Choose ONLY the correct answer.

1. Which of the following is/are characteristic(s) and method(s) that depict agile methods?
 - a. User involvement
 - b. Minimal documentation
 - c. Short releases and iterations
 - d. All of the above
2. Software encompasses of :
 - a. Instructions, data structures and documentations
 - b. Generic and general products
 - c. a and b.
 - d. all of the above
3. If requirements are easily understandable and defined, which model is best suited?
 - a. eXtreme Programing model
 - b. Spiral model
 - c. Waterfall model
 - d. None of the above
4. Software cost often dominate _____.?
 - a. Hardware costs
 - b. Maintenance cost
 - c. Analysis cost
 - d. Computer system cost
5. _____ is an engineering discipline that is concerned with all aspects of software production.
 - a. Software engineering
 - b. Software
 - c. Software process
 - d. None of above
6. Reuse-oriented software engineering is
 - a. Plan driven approach.
 - b. One of the agile methods
 - c. Used to be both a and b.
 - d. Neither a nor b.



7. Requirement consistency means that requirement:
- Should be clear.
 - Should be complete.
 - Should have no conflict.
 - None of above
8. _____ is a set of activities whose goal is the development or evolution of software.
- Software engineering
 - Software process
 - System software
 - Software process model

(1 point each) Identify the following requirements to functional requirement or non-functional requirement

| Requirement | Type |
|---|-----------------|
| 1. The system shall enable the user to view their account balance | Functional |
| 2. The system should be written in Java language. | Non-functional |
| 3. The system shall be designed to have a servicing interval of at least 12 months. | Non- functional |
| 4. The system shall handle 1000 subscription per second. | Non-functional |



Question 3:

To be answered in (25) Minutes [] / 10 Marks

Short answer.

1. **(2 points)** Verification and validation (V & V) is intended to show that a system conforms to its specification and meets the requirements of the system customer. What is different between Validation and Verification?

Validation: is related to building the RIGHT SYSTEM

Verification: is building the SYSTEM RIGHT

2. **(1.5 points)** Name the three software testing stages

1-

2-

3-

3. **(2 points)** define system model and name two common categories of system models?

System modeling is the process of developing abstract models of a system, with each model presenting a different view or perspective of that system.

Context, interaction, structural, and behavioral models.

4. **Mobile-based Application for Arranging Shipments Delivery:** a shipping company requires an iOS mobile-based application to help delivery personnel in arranging shipments delivery. The application should run on iPads and iPhones with iOS version 10 and above. The application's first version shall support English language only. Delivery personnel shall be able to add shipments information to the application by scanning a shipment barcode using iPads or iPhones cameras. The application must suggest the best ordering of shipments delivery based on time, i.e., the application shall propose an optimal route for delivering shipments based on time. The application must be linked with the company's main database to download and upload detailed information of shipments and customers. The application shall record a delivery using a customer's signature that is collected using iPads or iPhones. Customer support department staff shall be able to see current delivery personnel status at any time.

According to the above system description, answer the following questions.

- A - **(1.5 points)** Give three possible stakeholders in the system.

Customers, customers support, developers, etc.



B – (2 points) Write two complete functional requirement related to customers in the system.

able to add shipments information to the application by scanning a shipment barcode using iPads or iPhones cameras.

The application must be linked with the company's main database to download and upload detailed information of shipments and customers

C – (1 point) Write one possible non-functional requirement for this system.

The application's first version shall support English language only.
