Arab Academy for Science, Technology & Maritime Transport
College: Engineering and Technology

7th Week Exam

Department: Computer Engineering Lecturer: Dr. Rasha Montaser

Course: CC515 Intro. Software Eng. Spring 2022

Student Name: ---------- Registration Number: ---------- Class: ----------

Question	Q1	Q2	Q3	Total/20
Max.grade	14	3	3	20
Grade				

Q1. Choose the correct answer and write the symbol of your choice in the following table: (14 marks)

1.		4.		7.		10.		13.	
2.		5.		8.		11.		14.	
3.		6.		9.		12.		15.	

1. Agile is an _____ of software development methodology
   a. linear approaches
   b. simple approach
   c. iterative approach
2. According to Agile manifesto -
   a. Individuals and interactions over people and technique
   b. Individuals and interactions over processes and tools.
   c. Individuals and interactions over products and tools
3. Which of the following is responsible for sprint meeting?
   a. Scrum team
   b. Scrum master
   c. Product Owner
4. In which model the Project risk factor is considered?
   a. Spiral model.
   b. Waterfall model.
   c. Prototyping model
5. Which one of the following is not a step of requirement engineering?
   a. elicitation
   b. design
   c. validation
6. The main drawback of the _____ model is the difficulty of accommodating change after the process is underway.
   a. Spiral model
   b. Prototyping model
   c. Waterfall model
7. In _____ the Customers should be involved throughout the development process.
   a. Agile methods
   b. Plan driven methods
   c. Evolutionary methods

8. A benefit of _____ model is that the whole team have visibility of everything and consequently team communication is improved
   a. Prototyping model
   b. Scrum model
   c. Spiral model
9. Which of the following is a problem in Agile model?
   a. It can be difficult to keep the interest of customers.
   b. The rapid change in the requirements.
   c. It increases the system complexity
10. A requirement engineering process which is concerned with defining the requirements in details.
   a. Requirements elicitation and analysis
   b. Requirements specification
   c. Requirements validation
11. Stand-alone systems that are marketed and sold to any customer who wishes to buy them, such as CAD are known as:
   a. Generic products
   b. Customized products
   c. Manufactured products
12. A software process activity where customers and engineers define the software that is to be produced and the constraints on its operation.
   a. Evolution
   b. Validation
   c. specification
13. web applications such as e-commerce applications where you can interact with a remote system to buy goods and services; are example of _____
   a. .Stand-alone applications
   b. Interactive transaction-based applications
   c. Batch processing systems
14. In _____, planning is incremental and it is easier to change the process to reflect changing customer requirements.
   a. Plan driven processes
   b. Agile processes
   c. Process model
15. _____ is not an agile method.
   a. Extreme Programming
   b. Scrum
   c. Spiral

Q2. Considering the following systems descriptions state which process mode is most suitable and give reason [3 Marks]

System description	Process Model
Development of Department of Defense (DOD), military and aircraft programs, in such industries, the requirements are known well in advance and contracts are very specific about the deliverable of the project.	waterfall Model
Reason: because requirements are known well in advance and specific contracts are found.	
A word processing software where the customer state all the requirements clearly but need to use and gain the value of the software earlier than the possible time so you decide to divide it into parts and deliver it iteratively.	Incremental model
Reason: because you want to gain use of software earlier so it will be delivered as an increments.	
A customer needs an application of customizing a tour plan where the user states the date and place, he wants to go and the application suggest flight tickets and hotels, the customer was unable to state all the requirements and asked you to show him a pilot system.	Prototype.
Reason: because customer can't state all requirements so he wants to see some functionalities of software	

Q3. There are essential attributes that should be used for a good software. [3 Marks]

a) List the four essential attributes for the good software.

1- Maintainability
2- dependability and security
3- Effectiveness
4- Acceptability

b) state the attribute that is suitable for the following definitions, by filling the following table:

Definition	Attribute.
software should not cause physical or economic damage in the event of system failure.	dependability
Software should not make wasteful use of system resources such as memory and processor cycles.	Effectiness
Software must be understandable, usable and compatible with other systems that they use.	Acceptability

Good Luck

Arab Academy for
College: Engineering and Technology

12th Week Exam

Department: Computer Engineering | Lecturer: Dr. Rasha Montaser

Course: CC515 Intro. Software Eng. | Spring 2022 | Time: 10:30

Student Name: ---------- Registration Number: ---------- Class: ----------

Question	Q1	Q2	Q3	Total/15
Max.grade	3	5	7	15
Grade				

Q1. Requirement engineering is the process of establishing the services that the customer requires from a system and the constraints under which it operates and is developed. [3 Marks]

1. fill the table below to state whether the following requirements are functional or non-functional requirement:

	Requirement	Type
1.	Corporate colors will be used for screen elements according to the corporate style guide.	
2.	All customer service representatives will participate in product knowledge training for the new product.	
3.	If the order is less than a 4 hours old, it is automatically canceled. If the order is more than an 4 hours old, the cancellation request is forwarded to the merchant for review and approval.	
	A user shall be able to search the appointments lists for all clinics	
	When in billing mode, customer can choose payment method	

elect from the above table two non-functional requirement state it's type (product, organizational, external) and how it will be measured.

Non- functional requirement	Type	Measurement

e the correct answer and write the symbol of your choice in the following table: (5 marks)

1		3.		5.		7.		9.	
2		4.		6.		8.		10.	

Which stakeholder has an interest of ...
"loans are paid back on time with full interest which allows profits to be made"
a. Bank
b. Owner
c. Customer

2. Using a standard form or template to write the system requirements, this method is known as__
a. Structured natural language
b. Design description language
c. Graphical notations

3. In requirement elicitation process, where the requirements are documented and input into the next round.
a. Requirement discovery
b. Requirement Prioritization
c. Requirement specification

4. The more detailed requirements that may include more technical information
a. User requirement
b. System requirement
c. Customer requirement

5. It is the process in which developers discuss with the client and end users and know their expectations from the software.
a. Requirements gathering
b. Organizing Requirements
c. Negotiation & discussion

6. requirements that reflects the features that goes beyond the customer expectations
a. normal requirements
b. expected requirements
c. exciting requirements

7. A formal interview with stake holders which is based on pre-determined list of questions is known as:
a. Closed interview
b. Open interview
c. Open minded interview

8. The process of checking if the requirements can be implemented given available budget and technology.
a. Validity
b. Realism
c. Verifiability

9. In class diagram _____ relationship represents ownership relationship between two objects.
a. Association
b. Inheritance
c. Aggregation

10. A requirement validation technique which uses an executable model of the system to check requirements
a. Requirements review
b. Prototyping
c. Test-case generation

Arab Academy for Science, Technology & Maritime Transport
College: Engineering and Technology

12th Week Exam

Department: Computer Engineering Lecturer: Dr. Rasha Montaser

Course: CC515 Intro. Software Eng. Fall 2022 Time: 8:30

Student Name: ---------- Registration Number: ---------- Class: ----------

Question	Q1	Q2	Q3	Total/16
Max.grade	6	1	8	16
Grade				

Q1. Choose the correct answer and write the symbol of your choice in the following table:

1.		4.		7.		10.		13.	
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7. What is a sequence diagram?
   a. A diagram that shows interacting individuals along the top of the diagram and messages among them arranged in temporal order down the page
   b. A diagram that shows messages superimposed on a diagram depicting collaborating indi and the links among them
   c. A diagram that shows the change of an individual's state over time

8. a system in its own right whose operation is independent of the services provided by other systems
   a. Module
   b. Class
   c. Subsystem
9. In software architecture _____ shows the system hardware and how software components are distributed across the processors in the system.
   a. Logical view
   b. Physical view
   c. Process view
10. Which architecture style is used when the subsystems communicate by exchanging data through a large repository database?
   a. Data flow architecture
   b. Data centered architecture
   c. Call and return architecture
11. In layered architecture At _____ components will perform the operating system interfacing(communication and coordination with OS)
   a. Outer layer
   b. Intermediate layer
   c. Inner layer

12. _____ is Concerned with analysis of the static system representation to discover problems.
   a. Software inspection
   b. Software testing
   c. Software validation
13. A stage of testing where a separate testing team test a complete version of the system before it is released to users.
   a. Development testing
   b. Release testing
   c. User testing
14. a form of performance testing where the system is deliberately overloaded to test its failure behavi
   a. Stress testing
   b. Reliability testing
   c. Availability testing

...here is a ... relationship between architecture design and non-functional requirements, state which ...unctional requirement is supported using the following activities:

...tivity	Non-functional requirement supported
...sing fine-grains small subsystem components in the ...rchitecture design	maintainability
Using redundant subsystem components in the architecture design	Availability
Minimizing communication using large subsystem components in the architecture design	Performance
Using layered architecture with critical assets in the inner layer	Security
Localize critical features in a small number of sub-systems.	Safety

Q3. System modeling is the process of developing abstract models of a system, with each model presenting a different view or perspective of that system. Answer the following questions:

1. The following system describes a security light system. Draw the **state transition diagram**.

A security light system has a switch and a motion sensor attached. It can be either armed or unarmed. If the switch is in the off position, the light is off and the system is unarmed. When the switch is turned on, the light stays off but the system is armed. If the system is armed and the motion sensor detects movement, the light comes on. If no movement is detected for 5 seconds, the light goes off, if the switch went off the system becomes unarmed.

2. For the following use case scenario answer the following questions:

A school has asked you to develop a software for managing the bus operation system. The school discreet have 40 busses that serves at least 1000 student. The bus operation involves 30 regular routes plus extra routes for school activities and trips, the school employees 12 fulltime driver and 25 part-time driver. A dispatcher coordinates adding and removing drivers, adding, removing routes, assigning routes to busses and relay messages to drivers. The drivers can access the system to receive any new coordination messages for their daily trip, parents can access the system add any new arrangement for the pickup and drop-off. When a new driver is hired the dispatcher should add the driver to the system, then assign the driver to the available route, then the system should notify the driver with his route and update the driver information in the school database.

m modeling is the process of developing abstract models of a system, with each model presenting a ferent view or perspective of that system. Answer the following questions: [7 marks]

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a. Draw the use case diagram for the system.

b. Draw the sequence diagram for the use case " Adding Driver to the system".

Good Luck