

The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Electrical and Computer Engineering



Study Programme	: Bachelor of Software Engineering Honours
Name of the Examination	: Final Examination
Course Code and Title	: EEI4267 – Requirement Engineering
Academic Year	: 2020/21
Date	: 16 th December 2021
Time	: 0930-1230hrs
Duration	: 3 hours

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **Twelve (12)** questions in **Five (5)** pages.
3. Answer All questions.
4. Section A has 10 questions and carries 20 marks. The answer should be marked in the answer sheet provided.
5. Section B has two questions and carries 40 marks in each. The answer should be written in the answer book provided. The answer for each question should commence from a new page.
6. This is a Closed Book Test (**CBT**).
7. Answers should be in clear handwriting.
8. Do not use the red color pen.

Section A

Multiple Choice Questions [20 marks]

Select the most suitable answer.

1. The _____ is the individual who has the primary responsibility to elicit, analyze, document, and validate the needs of the project stakeholders.
 - a. Top Management
 - b. Business Analyst
 - c. Project Manager
 - d. Scrum Master

2. Assume you are a business analyst of a software project. You have already completed the requirement gathering phase. Now in the requirement elicitation phase what method would you use to group those ideas without any duplication or loss?
 - a. KJ Method
 - b. Interviews
 - c. Questions and Surveys
 - d. Observational Methods

3. What is not an Agile method?
 - a. RAD
 - b. Extreme Programming
 - c. Scrum
 - d. Crystal clear

4. When should we select the Waterfall model as a software development process for a software project?
 - a. When client is a relative.
 - b. When requirements are well known.
 - c. When the technology is easy to handle.
 - d. When clients budget is low.

5. The below mentioned requirement type describes how the product should behave.
 - a. Domain Requirements
 - b. Non-Functional Requirements
 - c. Functional Requirements
 - d. Internal Requirements

6. At what stage do we conduct the impact analysis?
 - a. At the completion of the product
 - b. When BA completed the SRS document
 - c. When deliverables were shared with the customer
 - d. When user requested change for an existing requirement

7. At what stage does BA develop the requirement traceability matrix?
 - a. At the requirement management
 - b. At the SRS development
 - c. At the requirement documentation

- d. During requirement elicitation
8. What should not be a feature in the SRS document?
- Traceable
 - Consistent
 - Modifiable
 - Ambiguous
9. Consider the following statement;
"The price of a loaf of bread has gone down from Rs. 60 to Rs. 50".
- This is a piece of data
 - This is knowledge
 - This is information
 - This is a concept
10. The following statement is true or false.
"Customers are a subset of stakeholders."
- True
 - False

Section B

(Essay Questions) Answer All Questions

Case 1

PrisTrack imitates a face recognition-based prisoner tracking system useful to accurately verify identities of inmates, parolees, sex offenders, work release prisoners, defendants, and others as they move through the judicial system. PrisTrack project will be transformed the existing manual system into a computer-based system and then into a biometric- and computer-based system. In carrying out that transformation, project designers have found biometric methods as face recognition methods that would work best at the New Magazine Prison and then develop computer software capable of identifying and verifying individual inmates based on their biometric characteristics. You are the business analyst for the project. The client presented the following list as requirements for the project.

- Jailors must be able to log in to the system before accessing any tracking data or modifications. But anyone should be able to check the alerts/notifications like unauthorized activities without login into the system.
- MSSQL server uses SQL server authentication when connecting to the DB. User passwords are also encrypted when saved to the DB.
- Administrators of the system must log in to the system before accessing any tracking data or modifications. But anyone can see the alerts/notifications like unauthorized activities without login.
- Only superusers are allowed to enter new prisoner details.
- The system should be able to manage a maximum of six concurrent users at a time.

6. The system is to communicate with the local server through a local area network.
7. All users should be logged into the system before interacting with the system. All users [normal user, superuser, Admin] have user names and passwords assigned by the Administrators.
8. The layout of the forms in the application should be according to the finalized design sketch provided by the client.
9. Jailors should be able to search prisoner details using prisoner ID and prisoner name.
10. Only administrators are allowed to train images.

Question 1 [40 marks]

Answer the following questions referring to the above given 'Case 1'.

- A. After studying the above-given requirements, the business analyst of the project identified some of the requirements were missed. Suggest three techniques business analysts can use on requirement gathering? [3 x 2 = 6 marks]
- B. Select one technique you identified in Section A on your choice and explain how you will use that technique in this project to gather requirements. [4 marks]
- C. Business analysts wanted to separate the requirements given in 'Case 1' into Functional and Non-Functional Requirements.
 - i. Briefly explain the term Functional Requirements. [2 marks]
 - ii. Briefly explain the term Non-Functional Requirements. [2 marks]
 - iii. Identify three Functional and three Non-Functional requirements from the requirement list in 'Case 1'. [6 x 1 = 6 marks]
- D. List down four activities conducted during project inception. [4 x 1 = 4 marks]
 1. Project identification
 2. Feasibility study
 3. Financial analysis
 4. Business analysis
- E. Scrum is one of the iterative and incremental developments in agile practice. The waterfall model is a software development process in plan-driven development. Briefly discuss three similarities and three differences in requirement engineering process in waterfall model and Scrum framework. [3 x 2 = 6 marks]
- F. The business analyst of the project wanted to develop a Requirement Tracability Matrix (RTM). He wanted project team support to keep the RTM up-to-date. However, the project team does not know what to do with the RTM.
 - i. As a business analyst of the project gives a brief explanation of RTM to the project team. [5 marks]
 - ii. Identify the fields that need to be tracked in an RTM and develop a sample RTM document. [5 marks]

Question 2 [40 marks]

Answer the following questions referring to the above given 'Case 1'.

- A. Once requirement gathering is completed we have to do requirement elicitation and analysis. The purpose of requirement elicitation is to identify only the relevant and important requirements for the project. As a business analyst of the project if you consider 'Case 1' what elicitation technique would you propose and why? [10 marks]
- B. Briefly explain the steps you follow to do the technique you selected in section A? [10 marks]
- C. The client wanted to change an existing feature of the product. The project team identified it as a change request. The project team does not want to do the requirement change free of charge. As a business analyst of the project, how do you handle this kind of situation? [10 marks]
- D. Developing UML diagrams, use cases, context diagrams, story cards are a couple of requirement communication techniques used in software development projects. Draw the main use case for the system described in 'Case 1'. Generalize the functionalities you have identified as much as possible. List down the assumptions you have made in drawing the main use case. [10 marks]

~End of the Paper~

