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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	: 2023/24
Date	: 16 th August 2024
Time	: 0930-1230hrs
Duration	: 3 hours

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **Thirteen (13)** questions in ~~Five (5)~~ ^{Six (6)} pages.
3. Answer All questions.
4. Section A has 10 questions and carries 20 marks. Answer should be marked in the answer sheet provided.
5. Section B has three questions. Answer should be written in the answer book provided. 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. Do not use red colour pen.

Section A - Multiple Choice Questions [20 marks]

Select the most suitable answer.

1. What is the significance of identifying high-level goals early in the development process?
 - a. It ensures the software will be tested thoroughly.
 - b. It helps in fulfilling the user's immediate desires.
 - c. It aids in understanding the overall system scope and key functions.
 - d. It guarantees that the software will be delivered on time.

2. How are user requirements often expressed?
 - a. In highly technical terms.
 - b. Using industry-standard terminologies.
 - c. Through code snippets and algorithms.
 - d. In natural language with simple statements.

3. Why are functional requirements important in software development?
 - a. They provide guidelines for software design and coding standards.
 - b. They outline the technical specifications for hardware components.
 - c. They explain the functions and capabilities the software must have to meet the user's needs.
 - d. They define the project's timeline and resource allocation.

4. Which of the following property does not correspond to a good Software Requirements Specification (SRS)?
 - a. Verifiable
 - b. Ambiguous
 - c. Complete
 - d. Traceable

5. In which software development model risk analysis is the primary focus?
 - a. Spiral Model
 - b. Waterfall Model
 - c. V Model
 - d. Agile Model

6. What is the purpose of requirement validation?
 - a. To confirm that the elicited requirements are correct and sufficient to understand the system
 - b. To identify the sources of requirements
 - c. To manage the changes in the requirement specification over time
 - d. To specify the requirements in detail

7. The most important attribute of a business analyst is.
 - a. Excellent programming skills
 - b. Very good hardware designing skills
 - c. Very good technical management skills
 - d. Very good writing skills

8. What is the key challenge in requirement gathering from stakeholders?
 - a. Stakeholders always have clear and precise requirements.
 - b. Stakeholders' express requirements using uniform, technical language.
 - c. Stakeholders often do not know their exact needs.
 - d. Stakeholders rarely change during the requirement engineering process.

9. Which of the following statements best describes the importance of change management in software systems?
 - a. It reduces the effort required for managing requirements by handling change requests systematically.
 - b. It allows developers to implement emergency fixes directly in the code base without any need for requirement updates.
 - c. It eliminates the need for negotiating with stakeholders or minimizing the impact of changes on the system.
 - d. It prioritizes postponing changes until the next major release version of the software to avoid any inconsistency.

10. Which mechanism is recommended for storing requirement data for a relatively small system?
 - a. Traceability lists
 - b. Requirement databases
 - c. Word processor tools and spreadsheets
 - d. Interdependence links

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General Instructions

1. Read all instructions carefully before answering the questions.
2. Answer **all** questions in Section A.
3. Questions in Section A carry equal marks.
4. Answer for Section A should mark in this sheet.
5. Hand over the paper with Section A including this answer sheet and the answer book for Section B.

ANSWER SHEET FOR SECTION A

INDEX NO:

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Section B

(Essay Questions) Answer all questions based on the scenario given below

Alex is a passionate football fan who loves attending live matches at Arena Field, the local stadium. However, Alex often faces difficulties purchasing tickets, especially for popular games, due to long queues and the possibility of tickets selling out quickly. Alex wishes there were a more convenient way to book tickets online, select seats, and even purchase merchandise without the hassle of waiting in line. To improve the fan experience, the management of Arena Field decides to develop an Online Ticketing and Merchandise System. This system will allow users to browse upcoming matches, check seat availability, and book tickets securely online. The system should be user-friendly, with fast page load times (within 3 seconds) and offer additional features like payment integration and the option to download e-tickets. Administrators will have the ability to manage match schedules, update ticket prices, and monitor sales. The system will differentiate between two types of users:

General Users (under 18) who have access to standard ticket options and limited merchandise.

Premium Users (18 and above) who have access to additional features such as premium seating options and exclusive merchandise.

The system must include secure login functionality with multi-factor authentication and display error messages for incorrect login attempts.

Question 1 [30 marks]

- A. Identify four stakeholders involved in the Online Ticketing and Merchandise System described above. (4 Marks)
- B. Provide brief descriptions and examples of User Requirements, System Requirements, and Business Requirements using the context of the Online Ticketing and Merchandise System described in the scenario above. (9 marks)
~~marks).~~
- C. Based on the scenario provided, identify and describe: (9 Marks)
- i. Three functional requirements for the Online Ticketing and Merchandise System.
 - ii. Three non-functional requirements for the system.

- iii. Three domain requirements that are specific to this scenario.
- D. Briefly explain the purpose of the Agile Inception phase and its importance in a project like the one described above. (4 Marks)
- E. Provide examples of two initial user stories that could be developed during the inception phase to guide the Agile development process for the Online Ticketing and Merchandise System. (4 Marks)

Question 2 [20 marks]

- A. Explain the concept of Requirements Traceability Matrix (RTM) and its importance in a project like the Online Ticketing and Merchandise System described above. (4 Marks)
- B. Describe the key components in a RTM document. (4 Marks)
- C. Based on the development of the Online Ticketing and Merchandise System for Arena Field, identify and explain at least three techniques that could be used to gather requirements from stakeholders. (6 Marks)
- D. Based on the development of the Online Ticketing and Merchandise System for Arena Field, identify and explain at least three techniques that could be used for requirements elicitation. (6 Marks)

Question 3 [30 marks]

- A. As a business analyst for the Online Ticketing and Merchandise System project, you have been tasked with preparing a Software Requirements Specification (SRS) document. Answer the following;
 - i. What is the purpose of preparing SRS document for this project? (5 Marks)
 - ii. Identify and describe the key fields that should be included in the SRS document. (10 Marks)
 - iii. Based on the Online Ticketing and Merchandise System project, prepare a use case diagram. (Note down the assumptions you have made in drawing the main use case if there are any.) (15 marks)

-End of the Paper-