	School of Computing **Second CIA Exam – October** **2023** Course Code: CSE314R01 Course Name: Software Engineering Practices Duration: 90 mins Max.Marks:50

PART A (10*2=20)

Answer ALL

1. Imagine the scenario: First source software company analyses the requirements of a software project by strictly adhering the tasks of requirement engineering. One of the common tasks of requirement engineering is specification. What is purpose of specification and what would be the outcome of this activity?
2. In collaborative requirements gathering, the attendees of the meeting are distributed with one/two-page product request before the meeting date. What is the purpose behind providing this document ahead of time?
3. How does the reliability of the software can be measured in FURPS. 4. Write data and procedural abstraction of a real-time object 'Car'. 5. Capture the different views of architectural design of stakeholders such as owner and structural steel fabricator etc., of an office building. 6. Neatly sketch the architectural context diagram for 'Hospital Management Software'.
7. Elaborate "computeGrade" as a traditional view of component. 8. Infer the basic design principles "The common reuse principle" with suitable example.
9. Recall the three golden rules of UI design.
10. Your friend joins as a UI designer, in DesignCo software company. Summarize him the need for making the interface consistent.

PART B (3*10=30)

Answer any Three

11. The sports store software is a dynamic and comprehensive digital solution tailored for the efficient management and operation of a sports retail establishment. This versatile software system provides a range of capabilities and features, facilitating seamless business processes and enhancing the overall customer experience. The software enables real-time tracking of products, ensuring accurate stock levels, replenishment notifications, and efficient order management. This helps sports stores maintain a well-stocked inventory and avoid overstocking or understocking issues. It offers a user-friendly interface for processing sales, accepting various payment methods, and generating receipts and invoices. The POS system also tracks sales data, helping store owners make informed decisions. A digital catalog is maintained, showcasing a wide range of sports equipment, apparel, and accessories. Customers can

easily browse and search for products, enhancing their shopping experience. The software stores customer data, purchase history, and preferences, allowing for personalized marketing, loyalty programs, and efficient customer support. Having understood the objectives of the software, perform the following: Identify the primary actor of the software, list the functionalities performed by primary actor and elaborate any one the use cases as 'use case template'.

12. The Cricket World Cup 2023 software is a sophisticated and comprehensive digital system designed to support the planning, management, and execution of the prestigious Cricket World Cup tournament. It serves as the technological backbone that ensures the smooth operation of this global sporting event. It assists in creating and maintaining the tournament schedule, ensuring fair match distribution and accommodating variables like venues, teams, and available time slots. It facilitates the registration and management of participating teams, including player information, eligibility, and team rosters. The software offers real-time scorekeeping and statistics tracking, providing crucial data for commentators, fans, and team analysis. It supports the broadcasting of matches to a global audience, managing feeds, camera angles, and data integration for graphics and analysis. It handles ticket sales, stadium access control, and fan engagement through mobile apps, providing an immersive experience for spectators. For in-game decision-making, these systems provide an additional layer of precision. The Cricket World Cup software acts as a central hub that unifies the various aspects of organizing and executing the tournament, from match logistics to fan engagement. It plays a pivotal role in ensuring the success of this globally acclaimed event and enhancing the experience for all stakeholders, from players to fans. Having this brief abstract, identify the analysis classes of the software with proper justification and draw class diagram.

13. You've been tasked with creating a software tool that automates the implementation of algorithms for various data structures. The software should showcase the operations associated with stack, queue, linked list, tree, and graphs. The stack data structure will encompass functions like push, pop, peep, and display. The queue data structure will include operations like enqueue, dequeue, and display. For linked lists, the software will provide features for inserting at the beginning, middle, or end, deleting from the beginning, middle, or end, and displaying. Tree data structures will support functions for inorder, preorder, and postorder traversals, including binary trees. Lastly, graph data

structures will offer operations such as depth-first search (DFS) and breadth first search (BFS). What would be the suitable architectural style to implement the software. Justify your answer. Demonstrate the software with the selected architectural style.

14. Design the user interface design for an instant messaging app, whatzapp, to ensure ease of use, a visually appealing appearance and task elaboration.

enhancing their shopping experience. The software stores customer data, purchase history, and preferences, allowing for personalized marketing, loyalty programs, and efficient customer support. Having understood the objectives of the software, perform the following: Identify the primary actor of the software, list the functionalities performed by primary actor and elaborate any one the use cases as 'use case template'.		
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1.

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2. In collaborative requirements gathering, the attendees of the meeting are distributed with one/two-page product request before the meeting date. What is the purpose behind providing this document ahead of time?	3	1
3. How does the reliability of the software can be measured in FURPS.	6	1

. Write data and procedural abstraction of a real-time object 'Car'.	6	6
5. Capture the different views of architectural design of stakeholders uch as owner and structural steel fabricator etc., of an office building.	6	3
Neatly sketch the architectural context diagram for 'Hospital Management Software'.	6	3
Elaborate "computeGrade" as a traditional view of component.	6	6
Infer the basic design principles "The common reuse principle"	6	2

with suitable example.		
Recall the three golden rules of UI design.	7	1
Your friend joins as a UI designer, in DesignCo software company. Summarize him the need for making the interface consistent.	7	5

PART B (3*10=30) Answer any Three

The sports store software is a dynamic and comprehensive digital solution tailored for the efficient management and operation of a sports retail establishment. This versatile software system provides a range of capabilities and features, facilitating seamless business processes and enhancing the overall customer experience. The software enables real time tracking of products, ensuring accurate stock levels, replenishment notifications, and efficient order management. This helps sports stores maintain a well-stocked inventory and avoid overstocking or understocking issues. It offers a user-friendly interface for processing sales, accepting various payment methods, and generating receipts and invoices. The POS system also tracks sales data, helping store owners make informed decisions. A digital catalog is maintained, showcasing a wide range of sports equipment, apparel, and accessories. Customers can easily browse and search for products,	5	6

style to implement the software. Justify your answer. Demonstrate the software with the selected architectural style.		
. Design the user interface design for an instant messaging app, whatzapp, to ensure ease of use, a visually appealing appearance and task elaboration.	6	7

PART A (10*2=20)

Answer ALL

1. written document, a set of graphical models, a formal mathematical model, a collection of usage scenarios, a prototype, or any combination of these Template should be developed to document the specification. For large system: written document and combination of natural language description and graphical model.

2. The attendees are asked to make a list of objects that surrounds the system, produced by the system and used by the system. Also, make another list of services, constraints and performance criteria.

3. The reliability of the software is measured by frequency and severity of failure, The accuracy of output results, the mean-time-to-failure, the ability to recover from failure, and the predictability of the program.

4. Data and procedural abstraction of a real-time object 'Car'. 5. Owner: aesthetic design, sufficient space and infrastructure, 3D drawing of the building, 2D floor plans. Structural steel fabricator: I-Beams, their dimensions, connectivity and materials.

6. Architectural context diagram for 'Hospital Management Software'. 7. Elaboration of "computeGrade" as a traditional view of component. 8. Classes that aren't reused together should not be grouped together 9. Place the user in control, Reduce user's memory load and make interface consistent

10. Allow the user to put the current task into a meaningful context.
Maintain consistency across a family of applications.
If past interactive models have created user expectations, do not make changes unless there is a compelling reason to do so.

PART B (3*10=30)

Answer any Three

11. Elaboration of any one the use cases using use case Template.
12. Class diagram of the software should be drawn.
13. Call-and-return architecture, main function calling sub functions.
14. Complete UI diagram of the software.