# **Question Paper**

Exam Date & Time: 13-Jan-2024 (02:30 PM - 05:30 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

### FIFTH SEMESTER B.TECH. DEGREE EXAMINATIONS -JANUARY 2024 SUBJECT: CSE 3154- SOFTWARE ENGINEERING

Marks: 50

### Duration: 180 mins.

#### Answer all the questions.

- 1A)
   Explain how software development lifecycle differ in the context of software products and services.
   (2)

   Mention key quality attributes to consider when designing a software product and service.
   (2)
- 1B)Explain exploratory software development process with block diagram and the short comings.(3)
- 1C) Consider an e-commerce company want to develop and maintain its web and mobile applications to (5) continuously enhance to adapt market changes. Implement a suitable process model and list activities in each phase.
- 2A) Consider a software development company working on a large-scale project for a government (5) agency involves high risks and evolving requirements. As a project manager suggest a suitable process model for implementation and list activities in each phase.
- 2B) How can requirements traceability be maintained throughout the software development process? (2)
- 2C) Explain functional and non-functional requirements to captured in case of SRS document for (3) developing flight booking system.
- 3A) Any Software project is measured by modularity. How does modularity contribute to the scalability (2) of a software system?
- 3B) Provide a classification of cohesion , which is one measure in software design. Explain the different (3) types of cohesion with brief descriptions and examples.
- 3C) Super market needs to develop a software that would help it to automate a scheme that it plans to (5) introduce to encourage regular customers. In this scheme, a customer would have to first register by supplying his/her residence address, telephone number, and the driving license number. Each customer who registers for this scheme is assigned a unique customer number (CN) by the computer. A customer can present his CN to the checkout staff when he/she makes any purchase. In this case, the value of his purchase is credited against his CN. At the end of each year, the supermarket intends to award surprise gifts to 10 customers who make the highest total purchase over the year. Also, it intends to award a 22 caret gold coin to every customer whose purchase exceeded Rs. 10,000. The entries against the CN are reset on the last day of every year after the prize winners' lists are generated. Deduce context diagram and Level 1DFD for the Supermarket Prize Scheme.
- 4A) Controller program for an elevator is to be developed.

(4)

Each elevator has a set of m buttons, one for each floor.

These illuminate when pressed and cause the elevator to visit the corresponding floor.

The illumination is canceled when the elevator reaches the corresponding floor.

Each floor, except the first floor and top floor has two buttons:

One to request and up-elevator and one to request a down-elevator.

These buttons illuminate when pressed. The illumination is canceled when an elevator visits the floor. The door opens as soon as it stops at a floor.

When an elevator has no requests, it remains at its current floor with its doors closed. Determine the classes and give Class diagram for the Case Study.

- Consider Customer, Sales, Stockroom as activities for Business Showroom, determine 4B) (3)the activities and draw the Activity Diagram. (3)
- 4C) Deduce Sequence Diagram for Renew Book Use Case in a library.
- Illustrate Internal Documentation and External Documentation in Coding. 5A) (4)
- A program reads an input value in the range of 1 and 5000, and Computes the square root of the 5B) (3)input number. Determine equivalence classes, test suite and test cases and Perform Black Box Testing.
- 5C) Illustrate how Fog Index is Calculated with an example.

(3)

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