

# B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

## February / March 2023 Semester End Main Examinations

**Programme: B.E.**

**Branch: Information Science and Engineering**

**Course Code: 20IS5PCSEO**

**Course: Software Engineering & Object Oriented Modeling Design**

**Semester: V**

**Duration: 3 hrs.**

**Max Marks: 100**

**Date: 01.03.2023**

**Instructions:** 1. Answer any FIVE full questions, choosing one full question from each unit.  
2. Missing data, if any, may be suitably assumed.

### UNIT - I

- 1 a) Describe the Engineering method steps to provide solution for e-Waste Management in Smart cities. **06**
- b) Consider the role plays of human factors specialists, technical writer and developer for an “Vehicle Parking System” **06**
- c) Illustrate Work products for the “Medical Insurance Project” **08**

### UNIT - II

- 2 a) Draw an **activity diagram** for the following actions (unordered) of delivery application: Accept order, Ship, Accept After Payment, Close order, Make Payment, Pack, Notify, Cancel order, Modify order. **06**  
Introduce decision boxes and spindle bars to fork the actions suitably.
- b) Design **suitable UML diagrams** for the following scenarios **06**
  - i) a gateway is kept locked, only after a coin is pushed, it gets unlocked. After every coin added it goes to unlock state.
  - ii) For Borrow Book use case, add two use cases which could be included
  - iii) A student performs a request book, add an extended use case
- c) A user can login to a device using face detection. Based on the facial features, mood is detected and appropriately music is played from the generated playlist. Prepare a sequence diagram to depict the scenario. **08**

### OR

- 3 a) Design **suitable UML diagrams** for the following scenarios **06**
  - i) Types of doctors in a hospital in use case diagram
  - ii) 4 Wheels of a toy car are red in color
  - iii) You can order your favorite dessert on phone call or through internet
- b) Consider a Bidding agency where an item is offered for bid. There are list of bidders who quote the price. Prepare a **class diagram** to depict the same. **06**

**Important Note:** Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

- c) For a vehicle sales system, prepare a use case diagram which lists the set of customers, managerial unit. Old customers are intimated about the various new vehicles, offer prices and new customers to check the vehicles. Add suitable generalization, include and extend relationships. **08**

### UNIT - III

- 4 a) Differentiate between Functional requirements (FR) and Non-Functional requirements (NFR). Consider a metro train to elucidate FR and use FURPS model for NFR. **10**
- b) Describe the types of **Requirement Traceability Matrix**. Write the **Requirement traceability** for a **User's travel experience**. The system includes a **login module, product listing module, payment gateway module, travel routes and food feedback**. **10**

### UNIT - IV

- 5 a) Define Test cases. What are the attributes of Test Cases? Consider a bank ATM to prepare various test cases. **10**
- b) A students scores S, A, B, C, D grades for a course **10**  
Consider the given scenario
- i) Prepare boundary testing
  - ii) Write a 'C' program to print the scores of the course. Compute cyclomatic complexity.

### UNIT - V

- 6 a) Mention the common risks that may be posed during software project management. **10**
- b) How does a project manager need to satisfy the people on a project team? List the people's needs and how that can be fulfilled? **10**

### OR

- 7 a) Express the benefits of creating a cohesive group in Teamwork. What are the three generic factors that can affect team working? **10**
- b) Outline the process of risk management with a neat diagram. Elucidate the steps involved in the risk management process. **10**

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