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

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E. **Semester: VI**
Branch: Computer Science and Engineering **Duration: 3 hrs.**
Course Code: 20CS6PCOMD **Max Marks: 100**
Course: Object Oriented Modelling and Design **Date: 12.09.2023**

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) Discuss the differences between object-oriented approach from traditional approach. **06**

b) Draw an appropriate class model for a work-station window management system. **06**

c) The domain "ATM System" keeps the day by day tally record as a complete banking. Banking employees want to improve the way they maintain information about their customers. In particular, they want to create an information system that is able to perform the following functions- deposit, withdrawal, and searching the transaction, transaction report, etc. The exciting part of this project is; it displays transaction reports, statistical summary of account type and interest information. Design and discuss a class model for the given simple banking system with suitable UML notations. **08**

UNIT - II

2 a) Prepare a class diagram for the group of classes given below. Add relationships (association and generalizations) to your diagram. Use association names and association end names where needed. Also use qualified association, association class, enumeration and show multiplicity. Show minimum two attributes and methods for each class. Explain your diagram. **08**
school, playground, principal, school board, classroom, book, student, teacher, cafeteria, restroom, computer, desk, chair, ruler, door, swing

b) Describe N-ary association with example **07**

c) Discuss the differences between aggregation & association **05**

OR

3 a) Consider the chess game. Draw an appropriate state diagram for the same and explain. **10**

	b)	Prepare a class diagram for a graphical document editor that supports grouping. Assume that a document consists of several sheets. Each sheet contains drawing objects, including text, geometrical objects and groups. A group is simply a set of drawing objects, possibly including other groups. A group must contain at least two drawing objects. A drawing object can be a direct member of at most one group. Geometrical objects include circles, ellipses, rectangle, lines and squares.	**10**

UNIT - III

4	a)	Design scenarios and sequence diagrams for the case study of Online mobile recharge that gives us the information about all the mobile service providers. This application provides complete information regarding mobile service in the terms of plans, options, and benefits etc.	**12**
	b)	Discuss the relation of class & state models.	**08**

OR

5	a)	Draw a use case diagram and a suitable procedural sequence models for a vending machine and discuss them in detail.	**12**
	b)	Explain various concepts in domain interaction model with examples.	**08**

UNIT - IV

6	a)	Bring out the various steps performed in constructing application interaction model.	**06**
	b)	Write the differences between domain analysis & application analysis with examples.	**06**
	c)	Consider a book purchase on Amazon and apply Domain State model. Elaborate the following high-level questions and explain your answers. i. Who is the application for? Who are the stakeholders? Estimate how many persons in your country are potential customers. ii. Identify three features that should be included and three features that should be omitted. iii. Identify three systems with which it must work.	**08**

UNIT - V

7	a)	Discuss on Fine-Tuning generalization with an example.	**06**
	b)	Discuss with examples various stages in implementation	**06**

c) A common problem encountered in digital systems is data corruption due to noise or hardware failure. One solution is to use a cyclic redundancy code (CRC). The function to compute a CRC can be implemented in hardware or software. The hardware solution is fast, but may add unnecessary complexity and cost to the system hardware. The software solution is cheaper and more flexible, but may not be fast enough and may make the system software more complex. **08**

For each of the following subsystems, decide whether or not a CRC is needed. If so, decide whether to implement the CRC in hardware or software. Explain your choices.

i. Floppy disk controller

ii. System to transmit data files from one computer to another over telephone lines

iii. Memory board on a computer board in the space shuttle

iv. Magnetic tape drive

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