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RV COLLEGE OF ENGINEERING®

(An Autonomous Institution affiliated to VTU)

V Semester B. E. Examinations March / April-2023

Computer Science Engineering

OBJECT ORIENTED ANALYSIS AND DESIGN (ELECTIVE)

Time: 03 Hours ***Maximum Marks: 100***

Instructions to candidates:

1. Answer all questions from Part A. Part A questions should be answered in first three pages of the answer book only.
2. Answer FIVE full questions from Part B.

PART-A

1	1.1	Identify any two attributes and two operations for furniture class.	02
	1.2	Object Persistence is _____.	01
	1.3	Mention the type of relationship for the following: a) Engine contains Battery. b) Team contains players.	02
	1.4	List any two major activities of requirements gathering phase.	01
	1.5	Name the basic unit of decomposition in object oriented decomposition.	01
	1.6	You will find #(minus sign), +(plus signs) in front of operation names and attributes in *UML* class diagrams. What do they represent?	02
	1.7	Denote using *UML* notations for: a) Generalization / specialization feature. b) Binary Association.	02
	1.8	What is the main focus of analysis phase in software development process?	01
	1.9	Create a class hierarchy to organize the following drink classes; alchoholic, non –alchoholic, grape juice, mineral water, lemonade, beer and wine.	02
	1.10	State the independent axiom with respect to object oriented design.	02
	1.11	Write usecase for *INVALID PIN* case.	02
	1.12	List two advantages of prototyping.	02

PART-B

2	a	Differentiate between Algorithmic decomposition and object oriented decomposition.	10
	b	Explain the following terms: i) Encapsulation ii) Abstraction iii) Polymorphism.	06
		OR	
3	a	Describe the five major activities of object oriented system development.	10
	b	State the importance of *UML* with examples.	06

4	a	Explain the following terms with example: i) Generalization / Specialization ii) Association iii) Aggregation.	06
	b	Describe the various types of relationships that can exists amongst the classes and represent them in *UML* notation.	10
		OR	
5	a	Buttons in elevators on the floors control the motion of n elevators in a building with m floors. Buttons in elevators and on the floors control movement of n elevators in a building with m floors. Buttons illuminate when pressed to request the elevator to stop at a specific floor; illumination is cancelled when the request has been satisfied. When the elevator has no requests, it remains at its current floor with its doors closed. i) Identify the nouns from the problem, using the noun phrase. ii) Identify the redundant, irrelevant, attribute classes. iii) Draw the sequence diagram for the functioning of the elevator.	10
	b	Discuss the drawbacks of Noun phrase technique of choosing the classes.	06
6	a	Describe the steps involved in *OOA* processing with respect to unified approach.	08
	b	What are unnecessary associations? How do you identify unnecessary associations? Justify you answer with an example.	08
		OR	
7	a	List the guidelines for identifying Generalization/specialization and a part of relationship feature from the problem definition.	10
	b	Describe the *CRC* approach to identify classes from problem domain.	06
8	a	Describe the six corollaries derived from the two design axioms.	06
	b	Describe the major activities of object oriented design process.	10
		OR	
9	a	Describe the three basic types of attributes with examples. Mention the *UML* representation for attribute.	06
	b	Discuss some of the problems associated with lack of a well designed protocol.	10
10	a	Explain the concept of pattern with an example. Explain the three main categories of patterns.	08
	b	Describe the working of any one design pattern of your choice taking a suitable example.	08
		OR	
11	a	Explain how patterns help to meet the objectives of software engineering.	06
	b	Explain the working of master slave patterns.	10