Subject Code:- ACSBS0402

Roll. No:

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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: IV - THEORY EXAMINATION (2021 - 2022)
Subject: Software Design with UML

Time: 3 Hours

Max. Marks: 100

General Instructions:
1. The question paper comprises three sections, A, B, and C. You are expected to answer them as directed.
2. Section A - Question No- 1 is 1 mark each & Question No- 2 carries 2 mark each.
3. Section B - Question No-3 is based on external choice carrying 6 marks each.
4. Section C - Questions No. 4-8 are within unit choice questions carrying 10 marks each.
5. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A
20

1. Attempt all parts:-

1-a.   Which model is used for risk analysis? (CO1)   1

        (a) RAID model

        (b) Spiral model

        (c) Waterfall model

        (d) Prototype model.

1-b.   Which of the following Object oriented feature allow the concept of code reusability? (CO1)   1

        (a) Inheritance

        (b) Encapsulation

        (c) Dynamic Binding

        (d) None

1-c.   In UML diagrams, the relationship between component parts and object is represented by?   1
(CO2)

        (a) composition

        (b) aggregation

        (c) segregation

        (d) increment

1-d.   Things in UML can be (CO2)   1

        (a) structural

        (b) behavioral

        (c) grouping

        (d) All of These

1-e.   Which model in system modelling depicts the static nature of the system ? (CO3)   1

        (a) Structural model

        (b) Behavioral model

        (c) Context model

        (d) Data model

1-f.   A Class consists of which of these abstractions? (CO3)   1

        (a) Attributes

        (b) Operations

        (c) All of the mentioned

        (d) Set of the objects

1-g.   Which one is used to display a set of objects and their relationships? (CO4)   1
        (a) Object diagram
        (b) Class diagram
        (c) Use case diagram
        (d) All of the above

1-h.   Which of the following are the uses for Dialog maps? (CO4)   1
        (a) Dialog maps are useful whenever the behavior of a program's user interface is under study
        (b) They can be used to help elicit stakeholder needs and desires and to model them to make sure they are well understood and documented
        (c) All of the mentioned
        (d) None of the mentioned

1-i.   A component diagram is essentially a more specialized version of which of the following   1
diagrams? (CO5)
        (a) use case diagram
        (b) class diagram
        (c) sequence diagram
        (d) data flow diagram

1-j.   Which of the following diagram is used to illustrate the structure of arbitrarily complex   1
systems? (CO5)
        (a) component Diagram
        (b) class diagram
        (c) sequence diagram
        (d) data flow diagram

2. Attempt all parts:-

2.a.	What do you mean by Object Oriented Analysis? (CO1)	2
2.b.	Describe the concept of Abstract Class (CO2)	2
2.c.	What is Generalization? Give example (CO3)	2
2.d.	What is Class Diagram access specifier? How are they useful? (CO4)	2
2.e.	What is the function of component task in deployment model? (CO5)	2

SECTION B   30

3. Answer any <u>five</u> of the following:-

3-a.	How does "project risk" factor affect spiral model of software development? (CO1)	6
3-b.	Explain the features of Object Oriented Paradigms (CO1)	6
3-c.	Differentiate between factory pattern and Abstract factory pattern (CO2)	6
3-d.	Explain the important features of UML. Describe design view and Implementation view (CO2)	6
3.e.	Explain the steps to find object in Collaboration diagram with example (CO3)	6
3.f.	Design a Class diagram for online food booking system. (CO4)	6
3.g.	Differentiate between Component diagram and Package diagram (CO5)	6

SECTION C   50

4. Answer any <u>one</u> of the following:-

4-a.	What is Object Oriented Analysis and Design? Explain the features of OOPS (CO1)	10
4-b.	Explain Software Quality from User Perspective. Discuss Software Quality characteristics (CO1)	10

5. Answer any <u>one</u> of the following:-

| 5-a. | Define UML with its features. Describe the architecture of UML (CO2) | 10 |
| 5-b. | Mention the list of behavioral patterns used during design phase of software development. Describe any two behavioral design pattern (CO2) | 10 |

6. Answer any one of the following:-

| 6-a. | Design a Sequence diagram for ATM System and also explain in detail (CO3) | 10 |
| 6-b. | Write a Use Case goal description document for online shopping system (CO3) | 10 |

7. Answer any one of the following:-

| 7-a. | Differentiate between Use Case diagram and Class diagram. What are common connection relation in both diagram? (CO4) | 10 |
| 7-b. | What is Dependency? Explain types of Dependency in Package diagram. (CO4) | 10 |

8. Answer any one of the following:-

| 8-a. | Explain in detail about the physical aspects in Component diagram. Differentiate between physical and logical aspects (CO5) | 10 |
| 8-b. | Design a Activity diagram for stock maintenance system. Discuss the purpose of Activity diagram (CO5) | 10 |