



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

COMPUTER SCIENCE AND ENGINEERING

ASSIGNMENT QUESTIONS

Course Name	Object Oriented Analysis and Design
Course Code	A60524
Class	III B. Tech II Semester
Branch	Computer Science and Engineering
Year	2017 – 2018
Course Faculty	Ms. K Mayuri, Assistant Professor, CSE Ms. B Ramyasree, Assistant Professor, CSE Mr. M Rakesh, Assistant Professor, CSE

OBJECTIVES:

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited.

In line with this, Faculty of Institute of Aeronautical Engineering, Hyderabad has taken a lead in incorporating philosophy of outcome based education in the process of problem solving and career development. So, all students of the institute should understand the depth and approach of course to be taught through this question bank, which will enhance learner's learning process.

S. No	Questions	Blooms Taxonomy Level	Course Outcomes
ASSIGNMENT – I			
UNIT - I			
1	Explain common mechanisms in uml.	Understand	2
2	Compare relationships.	Understand	1
3	State Why is it necessary to have a variety of diagrams in a model of a system	Remember	2
4	Explain the anti-symmetric and transitive properties of aggregation.	Understand	1
5	Consider a computer-based system that plays chess with a user. Which UML diagrams would be helpful in designing the system.	Remember	2
6	Pick the ones that are related. Justify. i. Behavioral things, verbs ii. Structural things, nouns iii. Generalization, specialization, adjectives iv. Associations, verbs.	Remember	2
7	Contrast the following: i. Actors Vs. Stakeholders ii. Use case Vs. Algorithm.	Understand	1

8	Explain Software Development Life Cycle (SDLC)? Explain phases (stages) of it? Which phase requires maximum efforts? Also explain why domain analysis i.e. domain class model, domain state model and domain interaction model is important.	Understand	1
9	Describe the iterative and evolutionary development.	Remember	1
10	Illustrate out evolution of UML.	Understand	2
UNIT – II			
1	Enumerate the steps to model the vocabulary of a system.	Remember	3
2	Write a simple JAVA applet for printing “Hello, World!” in a web browser.	Understand	2
3	Define relationship. Explain the four adornments that apply to an association.	Remember	4
4	State modelling different levels of abstraction.	Remember	4
5	Explain the following relationships with UML notation i. Using ii. Realization iii. Simple aggregation iv. Composite aggregation	Understand	3
6	Interpret relation between interfaces, types and roles.	Understand	4
7	Define an abstract class? Mention its use. Can concrete class be a super class? If yes, give example, if no, give reason. Understand a class hierarchy to organize the following drink classes: Mineral water, wine, alcoholic, non-alcoholic, grape juice, soda, bears.	Remember	2
8	Define idiom. Enumerate the steps to model structural relationships.	Remember	1
9	Explain business entity and service class.	Remember	4
10	Contrast simple aggregation with composite aggregation. What is association class	Understand	3
11	Illustrate the contents in class diagrams.	Understand	2
12	Illustrate the following modeling issues with class diagrams. i. Modeling simple collaborations ii. Modeling logical database schema.	Understand	4
13	Explain the use of forward engineering and reverse engineering class diagrams.	Understand	3
14	Enumerate the steps to model prototypical instances.	Remember	3
15	Enumerate the steps to model object structures. Illustrate with an object diagram.	Remember	1
16	Prepare object diagram showing at least 10 relationships among the following object classes. Include associations and qualified associations, aggregations, generalizations, and multiplicity. You may add additional objects. Also show attributes and operations. School, playground, principal, school board, classroom, book, student, teacher, canteen, restroom, computer, desk, chair.	Understand	4
17	Model the relationship between a car (that has an engine and a colour) and its owners (having a name) in a UML class diagram. A car can have several owners over time, but only one or none owner at a time. Do not forget cardinalities, role names, attributes and their types.	Remember	1
18	Discuss reflexive association in class diagram.	Understand	4
19	Design a class diagram for rotating machine.	Remember	3
20	Draw class diagram for ATM.	Remember	2
UNIT – III			
1	Define semantic equivalence between two kinds of interaction diagrams.	Remember	4

2	Enumerate the steps to model flows of control by time ordering.	Remember	3
3	Understand a sequence diagram for the following collaboration. Use the classes and methods on the next slide. A customer wants to draw money from his bank account. He enters his card into an ATM (automated teller machine). The ATM machine prompts „Enter PIN“. The customer enters his PIN. The ATM (internally) retrieves the bank account number from the card. The ATM encrypts the PIN and the account number and sends it over to the bank. The bank verifies the encrypted Account and PIN number. If the PIN number is correct, the ATM displays „Enter amount“, draws money from the bank account and pays out the amount.	Understand	4
4	Design sequence diagram for ATM.	Remember	3
5	Design collaboration diagram for Library Management system.	Remember	4
6	Design a sequence diagrams that specifies the flow of control involved in initiating a simple, two-party phone call.	Understand	3
7	Design a collaboration diagram that specifies the flow of control involved in registering a new student at a school.	Remember	3
8	Consider the use case “withdraw amount” related to ATM transaction modeling. Draw both the interaction diagrams for the use case. Explain briefly	Remember	5
9	Discuss a collaboration diagram that specifies the flow of control involved in registering a new student at a school.	Understand	4
10	Describe Sequencing in Interaction diagrams.	Remember	2
ASSIGNMENT – II			
UNIT – III			
1	Design a use case diagram to model the behaviour of a cellular phone. Explain briefly.	Understand	4
2	Discuss the contexts, common properties and common uses of use case diagrams.	Remember	5
3	Demonstrate the various adornments to ends of links denoted as standard stereotypes. Explain about objects and roles.	Understand	3
4	Explain the use of forward engineering and reverse engineering use case diagrams.	Remember	2
5	Contrast action with activity. Define state and event. What are the various parts of a state. Explain briefly.	Remember	1
6	A retail system will interact with customers who place and track orders. Design UML diagram that uses various use cases.	Understand	5
7	Describe use case diagram for restaurant.	Understand	4
8	Describe use case diagram for company.	Understand	1
9	Discuss various parts of a transition. Explain briefly.	Understand	2
10	Discuss the contexts, common properties and common uses of activity diagrams.	Understand	5
UNIT – IV			
1	Enumerate the steps in modeling timing constraints. Illustrate with a UML diagram and explain.	Remember	5
2	Consider an object diagram that models the distribution of certain objects In a real-time system. Draw the diagram and explain briefly.	Remember	4
3	(a) Enumerate the steps to model a family of signals. (b) Enumerate the steps to model interposes communication.	Understand	3
4	Design a UML diagram which models IPC in a distributed reservation system with processes spread across four nodes. Briefly explain.	Understand	5
5	State the sketch of a state machine for the controller in a home security system, which is responsible for monitoring various sensors around the perimeter of the house. Briefly explain.	Understand	4
6	Illustrate modeling lifetime of an object and modeling exceptions with UML diagram.	Understand	2

7	Describe state chart diagram for library.	Understand	1
8	Describe state chart diagram for online shopping.	Remember	2
9	Describe state chart diagram for telephone line.	Remember	3
10	Define event and signal. What are the four kinds of events modeled by UML?	Understand	1
11	Enumerate the steps to model adaptable systems. Illustrate with a UML diagram.	Remember	5
12	Illustrate modeling source code and executable release.	Understand	4
13	Explain the properties of a well-structured component diagram.	Understand	5
14	Enumerate the steps to model the following. Illustrate UML diagrams and explain briefly. i. Modeling processes and devices. ii. Modeling distribution of components.	Remember	4
15	Define node. Contrast node with components.	Understand	1
16	Enumerate the steps to model an embedded and client server system. Illustrate with a UML diagram.	Understand	3
17	Describe component diagram for library.	Remember	2
18	Describe deployment diagram for atm.	Remember	4
19	Explain how uml flows in actual project.	Remember	4
20	Demonstrate the contents, common properties and common uses of component diagrams. Explain briefly.	Remember	1
UNIT – V			
1	Enumerate the steps to model design patterns. Illustrate with a UML diagram	Remember	5
2	Enumerate the steps to model architectural patterns. Illustrate with a UML diagram	Remember	3
3	Define Framework. Illustrate framework with a UML diagram.	Remember	1
4	Explain Patterns and Architecture.	Understand	2
5	Design class diagram for library Application.	Understand	4
6	Design object diagram for library Application.	Understand	5
7	Design use cases diagram for library Application.	Understand	4
8	Design sequence diagram for library Application.	Understand	3
9	Design collaboration diagram for library Application.	Understand	2
10	Design activity diagram for library Application.	Understand	4
11	Design state chart diagram for library Application.	Understand	5
12	Design component diagram for library Application.	Understand	5
13	Design deployment diagram for library Application.	Understand	2
14	Design Class diagram with common mechanisms for library Application.	Understand	4
15	Design a sequence diagram for the use case lend item.	Understand	3

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HOD, CSE