

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular/Backlog), April-May 2018
B. Tech+M. Tech (as applicable) in Computer Science & Engineering, Semester VI

Roll No.....

COURSE CODE: MTCS 224

Time: 3 hours

Max. Marks: 100

COURSE TITLE: Object Oriented Analysis & Design

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A Objective type multiple choice questions (10 questions @ 1 mark)

10

- i. While identifying objects, use in the application domain such as aircraft, roles such as manager, events such as request, interactions such as meetings, locations such as offices, organizational units such as companies and so on.
 - a) tangible entities
 - b) grammatical analysis
 - c) behavioral approach
 - d) scenario-base analysis
- ii. Which of the following is/are the activities of function-oriented approach.
 - i) Data-flow design
 - ii) Structural decomposition
 - iii) System structuring
 - iv) Detailed design description
 - a) i, ii and iii only
 - b) ii, iii and iv only
 - c) i, iii and iv only
 - d) All i, ii, iii and iv
- iii. in data-flow diagram represent user interactions with the system which provide input or receive output.
 - a) rounded rectangle
 - b) rectangles
 - c) circles
 - d) arrows
- iv. In function oriented design describe the entities in the design and their interfaces.
 - a) data-flow design
 - b) structural decomposition
 - c) system structuring
 - d) detailed design description
- v. Which of the following approach is followed by Object Oriented Language during the execution of a program?
 - a) Bottom up approach
 - b) Top down approach
 - c) Both a and b
 - d) None of the mentioned
- vi. Which among the following should be encapsulated?
 - a) The data which is prone to change is near future
 - b) The data prone to change in long terms
 - c) The data which is intended to be changed
 - d) The data which belongs to some other class
- vii. Which statement is true about design subsystems?

- a) They partially encapsulate behavior.
- b) They represent an independent capability with clear interfaces.
- c) They model a single implementation variant.
- d) They can only contain design classes.

viii _____ diagram is important diagram in UML to describe the dynamic aspects of the system.

- a) Activity
- b) Collaboration
- c) sequence
- d) state chart

ix Use case diagrams can be used for –

- a) Requirement analysis and high level design.
- b) Model the context of a system.
- c) Reverse engineering.
- d) All of the above

x The purpose of sequence diagram is to model the _____ view of an application.

- a) Static view
- b) Both of the above
- c) dynamic view
- d) None of the above

Q.2 Short answer type questions (4 questions @ 2.5 marks)

10

- a) Identify data, process, and information in the following: "When a bank customer deposits some money in the bank, the amount is credited to the customer's account and the balances of both the customer's account and the overall bank's debts and assets are adjusted accordingly."
- b) Describe the difference between methodology and method.
- c) How object oriented concepts are related to UML?
- d) Differentiate between events and signals.

Q.3A UML plays an important role in defining different perspectives of a system. Discuss the various perspectives of a system.

05

Q.3B Discuss the top down and bottom up approach of analyzing system for modelling.

05

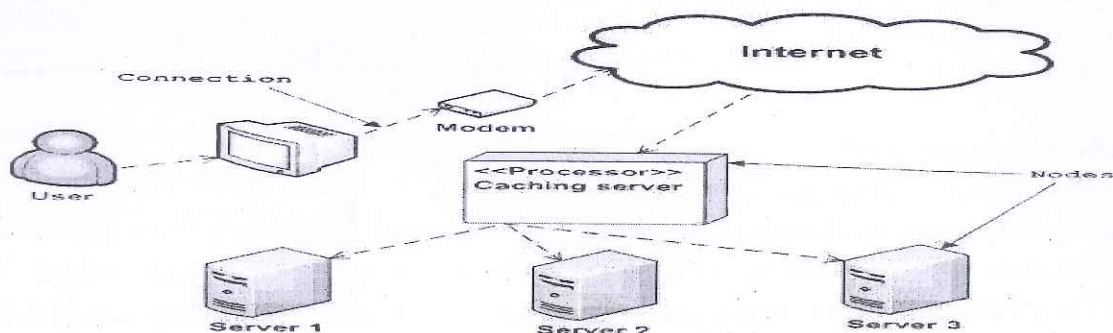
Q.4A Differentiate between Object Oriented Analysis (OOA) and Object Oriented Design(OOD).

05

Q.4B Looking into the diagram given below state the purpose of deployment diagram.

05

Deployment diagram of an order management system



- Q.5A How behavioral modeling is different from architectural modelling? 05
- Q.5B Describe the basic components of structured modelling in UML. 05
- Q.6 Discuss the importance and principle of modeling and also discuss the architecture used in UML for conceptual modeling. Take help of suitable example. 10
- Q.7 Discuss the main purpose of State Chart Diagram. How to draw a state chart diagram? Explain with the help of example of your choice. 10
- Q.8 Many people have cats. Suppose you want to develop software enabling them to keep track the location of their cats; give a use case diagram modeling this software. In this example, just decide by yourself what you want from this software. 15
- (a) What is the main purpose of use case modeling?
- (b) Give few examples of non-functional requirements that could be sensible for this software. How do you position use-case modeling with respect to such requirements?
- (c) Work out at least one use case in your model above to the further detail level.
- Q.9 Do you know that it costs a lot of money to get a 'Certified Java Programmer' certificate? It could cost you thousands of euros. Let's imagine we will develop a browser-based training system to help people prepare for such a certification exam. A user can request a quiz for the system. 15
- The system picks a set of questions from its database, and compose them together to make a quiz. It rates the user's answers, and gives hints if the user requests it. In addition to users, we also have tutors who provide questions and hints. And also examiner who must certify questions to make sure they are not too trivial, and that they are sensible. Make a use case diagram to model this system. Work out some of your use cases.
- Or
- Q.9 Consider a case study of Library Management System. Draw the following :-
- Use Case Diagram
 - Activity diagram for Issue & Return Book in Library
 - Class Diagram
 - Collaboration diagram for issuing book.