NATIONAL INSTITUTE OF TECHNOLOGY, JAMSHEDPUR

AUTUMN SEMESTER 2021-22

Department of Computer Science & Engineering

End-Semester Examination

Course Code: CA32106 **Course Title**: Object Oriented Analysis & Design

Semester- **Duration**: 3 hrs **Max. Marks**: 50

Course Instructor/Instructor in-charge: Dr. Sanjay Kumar

All Questions are mandatory, unnecessary answer will attract negative marking.

Q.1 (a) Explain the different phases of System Development Life Cycle (SDLC). (05)

(b) What is Prototyping? Discuss few advantages of prototyping. (05)

Q.2 (a) Discuss the role of Decision trees and Decision tables for structured analysis of the system. (05)

(b) Explain the use of logical and physical data flow diagrams in system design. (05)

Q.3 (a) What is UML? Discuss the basic principles of UML. (05)

(b) What do you understand by module coupling and cohesion? (05)

Q.4 (a) Describe the basic activities of Object-Oriented Analysis and explain how use case modelling is helpful in analysis. (05)

(b) Differentiate between aggregation and composition with example. (05)

Q.5 (a) Draw the complete use case diagram for the library system and explain the relationships and responsibilities of various actors. (05)

(b) Write short note on Software Quality Assurance. (05)

!!! Good Luck!!!

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Student Name: Registration No.

Department of Computer Science and Engineering
National Institute of Technology Jamshedpur
End Semester Examination, April 2022-2023

Programme: MCA, IInd Semester **Max. Marks: 50**
Course Name: Object Oriented Analysis and Design **Course Code: CA3203**
Course Instructor: Dr. Ashish Kumar Sahu **Time: 3 Hours**

Instructions:
1. *Attempt all the questions.*
2. *Write parts of a question at one place in the answer sheet.*
3. *Marks of the questions and their part are indicated in the right hand margin.*
4. *Missing data, if any, may be assumed suitably.*

Q1 Read a below problem and identity the followings 10

I. Classes
II. Each class attributes and operations
III. Relationship among classes

And then draw a neat and clean class diagram.

A bank has many branches. In each zone, one branch is designated as the zonal head office that supervises the other branches in that zone. Each branch can have multiple accounts and loans. An account may be either a savings account or a current account. A customer may open both a savings account and a current account. However, a customer must not have more than one savings account or current account. A customer may also procure loans from the bank.

Q2 I. Explain Generalization-Specialization hierarchy with the help of example. 4+4
II. Define use case relationships a)Include b) Extend

Q3 I. Identify functional and non-functional requirements for the application of online pizza order system. 4+4
II. A University conducts examinations and the results are announced. Prepare a report for the following:
- Print the marks in the register number order semester wise for each department
- Print the Arrear list semester wise
- Prepare a Rank list for each department
- Prepare the final aggregate mark list for final year students.

Identify the problem statement and design use case diagram.

Q4 I. Write all nine steps of domain analysis model with explanations. 3+5
II. The following is a list of candidate classes. Prepare a list of classes that should be eliminated for any of the reasons given. Give a reason for each elimination. If there is more than one reason, give the main one.
character, line, x coordinate, y coordinate, link, position, length, width, collection, selection, menu, mouse, button, computer, drawing, drawing file, sheet, pop-up, point, menu item, selected object, selected line, selected box, selected text, file name, box, buffer, line segment coordinate, connection, text, name, origin, scale factor, corner point, end point, graphics object.

P.T.O

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Q5 I. Write all ten steps for Application Interaction Model with explanation. 4+4

II. Differentiate between layers and partitions in system Design. Also write key points for open and closed in layer architecture.

Q6 I. How modularity and software cost are related in terms of total cost, cost to integrate and cost/module. Explain it with neat and clean diagram. 4+4

II. Explain all types of cohesion for designing an application based on modularity concept.

*******Best of Luck*******

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