

Roll No. _____

Indian Institute of Information Technology Ranchi

Department of CSE

B. Tech End Semester Examination – Autumn Semester 2022-23

Semester: 6th

Branch: CSE

Course Code: OE-3020

Course Name: Object Oriented System Design

QUESTION PAPER

Duration: 3 Hrs.

Instructions:

Max Marks: 100

- (1) Answer all the questions. Number in [] indicates marks.
- (2) Any missing data can be assumed suitably.

PART A: Attempt all question

- 1 (a) Explain the concept of function overloading and function overriding with the help of suitable example in C++. [7]
(b) Write a program to find the birth year if a person where the input is the Age as in integer. In this program, show that how can the exception thrown by the program be handled if we enter "Nine" that the integer 9. [6]
(c) Define Generalization, Aggregation and inheritance. Give suitable examples explain each one of them. [7]
- 2 (a) Explain why the Waterfall model is not a satisfactory model of real-world software development. Describe the Fountain model of software development. [8]
(b) Explain the different notation used in component diagram. [5]
(c) Explain the different behavioural thing of UML. Discuss in detail about the use case diagram while drawing the use case for Airline Ticket booking system. [7]
- 3 ← (a) Consider a House keeping system in a five-star hotel. Draw a sequence and collaboration diagram for the given scenario. [10]
(b) What do you understand by design patterns. What is the various way for design patterns. Discuss them in details along with respective patterns. [10]

PART B: Attempt all question ②

- 4 (a) What is architecture Description Languages (ADL), why it is important in modelling? [5]
(b) What are the various traits of a successful software project and what are the solution proposed for it in industry? [7]
(c) Explain the Object-Oriented Data Model (OODM). Why it is needed? What is disadvantage of Object-Oriented Data Model (OODM). [8]

- 5 (a) Write the similarity and difference between the following [8]
I. OODBMS & ORDBMS
II. CORBA & DCOM
- (b) Discuss the concept of Object-Oriented indexing method. Also discuss the type of it in detail. [6]
- (c) Draw a class diagram for a system to solve the following problem. Include key attributes and behaviours. [6]

The Ranchi video store needs a computerized database system to record borrowed videos, CDs, and video games. Videos are categorized as new release, weekly, or five-for-five-dollars. video games may be either PlayStation, MegaDrive, or Saturn.

The Ranch video store need to be able to check whether an individual item is currently on loan, when it is due back, how much is owing on it (if it is overdue), as well as details of who borrowed it (i.e. name, address, phone number, licence number).

They also need to be able to generate lists of items selected by various criteria: item type, items currently in, items currently out, most popular, least recently borrowed. This list must be able to be sorted alphabetically and by video ID number.

They also want to generate lists of customers section by various criteria: most prolific borrowers, inactive (no borrowing for a month or more), who owes the most on overdue books.

- 6 (a) Explain the software design principle. Also discuss any one principle in details. [5]
- (b) What are the functional and non-functional requirements. [5]
- (c) Discuss the layered technology of software development. [5]
- (d) Justify the need for collaboration and deployment diagrams with a suitable real time example. [5]