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MCS–032

MASTER OF COMPUTER APPLICATIONS (MCA) (REVISED)

Term-End Examination

December, 2023

MCS-032 : OBJECT ORIENTED ANALYSIS AND DESIGN

Time : 3 Hours *Maximum Marks : 100*

Note : *Question number **1** is compulsory. Attempt any **three** questions from the rest.*

1. (a) What are the advantages of two-way association over one-way association ? Explain with the help of an example. 5

   (b) What are ternary associations ? How are they mapped to a table ? Illustrate. 5

   (c) What is persistency ? Explain with an example. How can persistent data be identified ? 5

   (d) Justify that "Aggregation is a special form of Association", with the help of suitable example. 5

(e) What is Dynamic Model ? How is it different from Object Model ? Explain the effect of cash withdrawal event on Account object in a Banking System. 10

(f) What is need of Design Optimization ? Explain any *two* activities you will perform to optimize an object oriented design. 10

2. (a) What is object oriented modelling ? Why is it scalable ? Explain the role of message passing in object oriented systems. Give suitable example. 10

(b) What do you understand by the term 'good software design' ? How will you identify that the object oriented design of a software is good ? Discuss the influence of software design over the implementation of software, with suitable example. 10

3. (a) Prepare Data Flow Diagram (DFD) for computing the volume and surface area of a cylinder. Inputs are height and radius of the cylinder and outputs are volume and surface area. 5

(b) Explain the concept of concurrency with synchronization, in dynamic modelling, using a suitable example. 5

(c) What is abstract class ? While designing an object oriented system, how will you decide about creating abstract classes ? Explain with the help of an example. 10

4. Differentiate between the following : 5×4=20

(i) Actors and Stakeholders

(ii) Multiple Inheritance and Multilevel Inheritance

(iii) Structured Analysis and Object Oriented Analysis

(iv) RDBMS and OODBMS

(v) Aggregation and Generalization

5. A general store wants to automate its inventory. It has points of sales terminals that can record all of the items and their respective quantities, that a customer purchased. It has anohter terminal in the loading dock to handle arriving shipments from suppliers. It has one

more terminal to enter losses due to spoilage. Make necessary assumptions.

Referring to above scenario, perform the following tasks : 4×5=20

(i) Find out list of objects.

(ii) Draw object diagram.

(iii) Draw class diagram.

(iv) Draw usecase diagram.