

**MASTER OF COMPUTER
APPLICATIONS (MCA-NEW)**

Term-End Examination

December, 2024

**MCS-219 : OBJECT ORIENTED ANALYSIS
AND DESIGN**

Time : 3 Hours

Maximum Marks : 100

Note : (i) *Question No. 1 is compulsory and carries
40 marks.*

(ii) *Attempt any **three** questions from the
rest.*

1. (a) Explain basic principles used in OOAD.
How do these principles add flexibility,
maintainability and extensibility to the
software ? 10

- (b) Categorize the following into class, objects, generalization, aggregation/association, inheritance and explain briefly about your choices : 10
- (i) Book
 - (ii) Book-Author
 - (iii) Printer
 - (iv) Student-MCA student
 - (v) Computer-Monitor
- (c) What is state diagram ? Write components of a state diagram. Draw state diagram for Online Examination System. 10
- (d) What is association ? What are different types of association ? Explain with the help of examples using UML diagrams. 10
2. (a) Draw DFDs upto level 2 for Online Examination System. Make necessary assumptions. 10

- (b) Draw class diagrams for Online Examination System. Make necessary assumptions. 10
3. (a) What is use-case diagram ? Write the objectives of use-case diagram. Describe elements of use-case diagram with the help of an example. 10
- (b) What is system design ? Explain the primary tasks performed during the system design phase. 10
4. (a) What is concurrency ? Explain with an example. Also, explain the need of concurrency management. 5
- (b) What is design optimization ? Explain its need. 5
- (c) What is serialization ? Where is it used, and why ? 5
- (d) Explain how the object classes are mapped to database tables. 5

5. Write short notes on the following : $4 \times 5 = 20$

- (a) Cohesion and coupling
- (b) Dynamic Model
- (c) Synchronous and asynchronous data flow
in DFDs
- (d) Immutable Association

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