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MCS-219

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

Term-End Examination

December, 2025

**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.*

C-2038/MCS-219

P. T. O.

1. Design suitably an Hospital Management System which consists of several subsystems providing a variety of functions. Hospital Reception subsystem supports some of the job duties of the hospital receptionist. Receptionist schedules patient's appointments and admission to the hospital, collects information from patient upon arrival or by phone. For inpatients (patients who stay-in), gets a bed allotted. Receptionist may also get and process patient's payments, record them and provide receipts. She is also responsible to file

insurance claims and generate medical reports. Make necessary assumptions and perform the following tasks for the description given above.

- (a) Design and draw use case diagrams. 5
- (b) Provide description for at least *two* use cases. 5
- (c) Draw the class diagram of the system. 10
- (d) Draw the sequence diagram of system. 5
- (e) Draw the state diagram for appointment process. 5

- (f) What is abstract class ? Explain why abstract classes are created. 5
- (g) What are boundary conditions ? How are they dealt while designing the system. 5
2. (a) What are the different types of communication between objects ? Explain with examples. 7
- (b) What are the features of synchronization in UML ? Explain with an example. 7
- (c) Explain the purpose of state chart diagram. Give an example. 6

3. (a) Draw the component diagram for the online banking system. 7
- (b) Draw the deployment diagram for the ATM system. 7
- (c) What are the advantages of sequence diagram ? Explain with an example. 6
4. (a) Explain generalization-specialization relationship with an example. 7
- (b) Describe the dynamic model with an example. 7
- (c) What do you understand by a DFD (Data Flow Diagram) ? Explain the use of DFDs with an example. 6

5. (a) Differentiate between Coupling and Cohesion. 5
- (b) What is object ID ? What are the advantages of using it ? 5
- (c) Explain two-way associations in design model. 5
- (d) Differentiate between Aggregation and Composition. Also, give an example for each. 5

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