

01654

**ADCA/MCA (III Yr)**  
**Term-End Examination**  
**June, 2011**

**CS-16 : OBJECT ORIENTED SYSTEMS**

*Time : 3 hours*

*Maximum Marks : 75*

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

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1. (a) A clinic is having various departments such as orthopaedics, Cardiology, X-Ray, etc. Whenever, a patient visits a clinic, the visit is recorded in a register and a token number is issued to the patient. Also, the fee for the consultation is taken and a receipt is issued. The clinic management want to develop a computerised system to manage the above mentioned activities. Identify classes for the system. Draw the class diagram. Each class must have atleast three attributes and three operations. Explain the classes and associations, if any. Make necessary assumptions wherever needed. 10

- (b) Prepare an instance diagram for the expression  $(y + \frac{z}{4})(\frac{y}{2} + z)$ . Parentheses are used in the above expression for grouping, but are not needed in the diagram. 5
- (c) Justify that the abstraction and encapsulation are complementary to each other. 4
- (d) How does object oriented analysis differ from object oriented design ? Give atleast three differences. 6
- (e) Differentiate between activity and action with the help of an example. 5
2. (a) What is specialization ? Explain, with an example, how specialization is different from generalization. 5
- (b) What is a purpose of use-case diagram ? Draw a use-case diagram for cash withdrawal from a bank. 10
3. (a) What is design optimisation ? Does the rearrangement in execution order affect the design ? Explain with the help of an example. 5
- (b) List the advantages and disadvantages of merging an association into a class. 5

- (c) Explain five differences between an OMT methodology and the structure software development approach. 5
4. (a) What is over riding ? How is it different from overloading of functions ? Explain two situations in which one would need to use over riding, with an example each. 10
- (b) What is Recursive aggregate ? Explain this with an example. 5
5. Explain the following terms with an example each : 5x3=15
- (a) Collaboration Diagram
  - (b) Integrity Constraints
  - (c) Encapsulation
  - (d) Polymorphism
  - (e) Abstract Class
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