

# END TERM EXAMINATION

FOURTH SEMESTER [MCA] MAY 2017

Paper Code: MCA-208

Subject: Object Oriented Analysis & Design

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five questions including Q.no.1 which is compulsory. Select one question from each Unit.

Q1 Attempt all the questions:

(2.5x10=25)

- (a) Functional & Non Functional Requirements.
- (b) Extend, Uses & Grouping relationship in use case.
- (c) Uses of Synchronization & Swim lanes in Activity diagram.
- (d) Port & dependencies in Component diagram.
- (e) Actor object, Boundary Object, Controller object & Entity Object.
- (f) OMT (Object Modeling Techniques).
- (g) Provide & Required Interface.
- (h) Difference between Patterns & Framework.
- (i) CRC (Class Responsibilities Collaboration).
- (j) Conceptual Modeling.

## Unit-I

Q2 (a) What is CRC (Class Responsibilities Collaboration) card? How classes are represented in CRC card? (6.25)

(b) What is Booch Methodology? Briefly describe the Booch Macro & Micro development Process. (6.25)

Q3 (a) Write the Use Case Scenario & Draw Activity diagram for Modeling the e-shop system (major functions of e-shop system are User Authentication, Search product Shopping cart, Payment, Debit/Credit Card verification, Billing & Dispatch etc.). (6.25)

(b) Compare RumBaugh's, Booch, Coad-yourdon & Ivar Jacobson Methodology with relative advantages & Disadvantages. (6.25)

## Unit-II

Q4 (a) The Requirements Model aims to delimit the system and define the Functionality that the system should offer." Give the comment and explain with example. (6.25)

(b) Draw a use-case diagram for an educational Institute that would like to keep track of each students. In order to maintain strong ties to its alumni, the college holds various events. The college needs to keep track of which student have attended which events. The college keeps in contact with students by mail, email, telephone and fax to announce each event and keep students information up to date. The college would like to be able to produce a report showing the latest information about a student and the event the graduate attended. (6.25)

Q5 A University gives the loan to students before getting a loan, there is a evaluation process after which if the loan is approved, agreement is reached. A transaction records each step of the evaluation process, and another transaction records the overall loan agreement. A student can

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take any number of loans, but only one can be active at any time. Each loan is initiated by a separate transaction. Then, the student repays the loan with a series of repayments. Each repayment transaction is recorded. After the complete settlement, finally the loan account is closed.

- (a) What is Collaboration diagram? Draw the Collaboration diagram for apply for Loan & balance enquiry use case. (6.25)
- (b) Draw Object diagram & Class diagram for student Loan system given in Q.no.5(a). (6.25)

### Unit-III

- Q6 (a) What is Design Model? Develop Design Model for Library Management System. (6.25)
- (b) What is RUP (Rational Unified Process) Model? Explain Iterations, Workflow & Outcomes of each Phase of this model. (6.25)
- Q7 (a) What is incremental integration testing? Explain thread based, use case based and cluster strategies for integration testing. (6.25)
- (b) List the steps involved in construction of Component diagram. Draw component diagram for CCMS system discussed in Q.8 (a). (6.25)

### Unit-IV

- Q8 (a) SBI is a Global Commercial Bank. It plans to build an online credit card management system (CCMS). In order to obtain an SBI credit card, customers may fill the application through the CCMS. In the application, they need to specify the type of credit card they want to apply, e.g. platinum Gold or Standard. The difference among them are the requirement on the minimum personal annual income, credit limit & annual fee. Information such as personal contact information, current employment and financial status, is also required to application. Once SBI accepts the application, it will send a confirmation mail to the applicant and state the available date, expiration date and credit limit of the credit card. When the applicants receive the mail with credit card, they need to call the CCMS to activate the card. Draw Sequence diagram for applying, verification of Credit Card & Bill statement generation. (6.25)
- (b) Describe basic building blocks of UML and explain structural modeling. (6.25)
- Q9 (a) What are the consequences of implementation environment? Why analysis objects are required before design objects? Explain with example. (6.25)
- (b) What is State Chart Diagram? Draw the state chart diagram for phone Call System. (6.25)

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