



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/MBA (NEW)/SEM-3 (FT)/SM-302/2009-10**

**2009**

**SYSTEM ANALYSIS AND DESIGN**

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives of the following :  $10 \times 1 = 10$ 
  - i) The first step in SDLC is
    - a) investigation and analysis
    - b) system design
    - c) signing a contract for software development
    - d) database design.
  - ii) Which of the following is *not* concerned with the feasibility study of a proposed system ?
    - a) identifying the costs and benefits
    - b) identifying the technical feasibility
    - c) how the system will fit current operations
    - d) defining the software architecture and algorithms.



- iii) UML stands for
  - a) Unified Modeling Language
  - b) Unified Modular Language
  - c) Unique Modeling Language
  - d) None of these.
- iv) A new instance of a class is created by
  - a) query operation                      b) constructor operation
  - c) update operation                      d) destructor operation.
- v) A decision table consists of two parts are
  - a) stub and entry                      b) pros and cons
  - c) condition and result                      d) none of these.
- vi) Actor is a component of
  - a) component diagram                      b) use case diagram
  - c) data flow diagram                      d) collaboration diagram.
- vii) Audit Trial is
  - a) Audit around the computer
  - b) Audit through the computer
  - c) Audit with the computer
  - d) All of these.
- viii) Loss of data integrity implies that data is
  - a) not suitable for running in an integrated environment
  - b) inconsistent
  - c) repeated
  - d) outdated.



- ix) Structured Analysis and Design uses
- documentation produces on Word Processors
  - trained programmers only in all phases
  - prototypes generated using object oriented methods
  - diagrams like DFDs.
- x) A prototype
- is a working system which will be changed through several iterations
  - helps to crystallize essential design requirements
  - will produce preliminary information on the workability of the concept
  - all of these.

**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.  $3 \times 5 = 15$

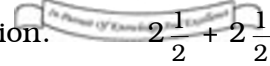
- Why is maintenance performed ? What are the different types of maintenance ? 5
- Explain the role and responsibilities of a system analyst. 5
- What do you understand by Business Process Reengineering ? 5
- What are the advantages of using prototype model of SDLC ? Discuss the characteristics of CASE tools. 5

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6. a) What are the contents of a document of a system ?

b) Explain different types of documentation.



**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. A module of an Employee Management System computes salary of the employees. Each employee can have the status of worker, instructor or manager. Each of these is given fixed salary per week. However, if the employees work more than 40 hours per week, they are given fixed salary plus extra money per hour as per the following rates :

Worker — Rs. 100

Manager — Rs. 200

Instructor — Rs. 150

In case an employee works more than 80 hours in a week he is also given an additional allowance of Rs. 1000.

Prepare a decision tree, a decision table and a pseudocode representation to show the logic of the module.  $5 + 5 + 5$



8. An Art Gallery is in the business of buying and selling paintings. Artists can register with the gallery for selling their paintings by paying a nominal amount. Whenever artists approach the gallery for registration, it checks the past auction records to know about the artist's standing. If satisfied, artist is given a registration code. In case artist is a new artist he is given a six months temporary registration code to prove himself/herself, failing which his/her registration is cancelled. Paintings can be classified as masterpiece, masterwork and other paintings. They can also be categorized as landscape, portrait, spiritual, etc. For every painting to be sold, its title, date of work, artist name, medium used, size, classification, expected price by the artist and target selling price are recorded. Once the painting is sold, status is changed to sold. Every three months, payments to be made to various artists are computed and cheques are dispatched. The gallery also maintains the record of customer who visit the gallery. Based on their liking for the artists so that the gallery can contact them when paintings by those artists are available. The gallery also keeps updating the auction records. The gallery also gives its exhibition hall on rent to the customers for holding exhibition.

Draw a context diagram and DFDs for these requirements. 15

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9. An educational institute admits students every year, a batch of 60 students for 1st year MBA course. Following procedures are done for admission :

- a) Newspaper advertisement
- b) Submission of filled up application forms by the candidates
- c) Written test & GD + PI is conducted
- d) Final list of 60 students published
- e) The selected candidates are asked to deposit Rs. 60,000 within a week.

In this domain, perform the following :

- i) Identify actors
- ii) Develop the use cases
- iii) Complete the class diagram with properties
- iv) Draw interaction diagram
- v) Draw activity diagram
- vi) Draw tool system diagram with packages.

$6 \times 2 \frac{1}{2}$



10. a) Discuss in detail Top-down and Bottom-up design approaches. 10
- b) What is data dictionary ? Explain the rules to be followed for constructing a data dictionary. 2 + 3
11. a) What is a CASE tool ? Illustrate the role of CASE tools in System Analysis and Design. 2 + 5
- b) What are the advantages and limitations of CASE tools ? 8
12. Write short notes on any *three* of the following : 3 × 5
- a) Use Case diagrams
  - b) Types of feasibility
  - c) Delphi method
  - d) Benchmarking
  - e) ISO standards.
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