*Name :* .....

*Roll No. :* .....

*Invigilator's Signature :* .....

**CS/MBA(N)/SEM-3 FT & 5 PT/SM-302/2011-12**

# 2011

# 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 for the following : 10 × 1 = 10

   i) A feasibility study
      a) is a statement of the problem
      b) considers a single solution
      c) both (a) and (b)
      d) none of these.

   ii) During which phase of SDLC is the SRS performed ?
      a) System analysis phase
      b) System design phase
      c) System development phase
      d) All of these.

   iii) Data dictionary contains details of
      a) data elements input to the system
      b) data elements output form the system
      c) all data elements, data structures and data flow
      d) none of these.

iv) Normalization is used to

a) mathematically optimize the process

b) increase the data integrity

c) minimize the data redundancy

d) both (b) and (c).

v) When all the attributes in a relation describe and depend upon the primary key, the relation is said to be

a) 1NF b) 2 NF

c) 3 NF d) 4 NF.

vi) A context diagram

a) is a DFD that gives an overview of the system

b) is a detailed description of the system

c) in not used in drawing a detailed DFD

d) none of these.

vii) The relationship of data elements in a module is called

a) cohesion b) coupling

c) modularity d) none of these.

viii) A major principle of modularization is called

a) the cohesion of modules is low and coupling between modules is high

b) the cohesion of modules is high and coupling between modules is low

c) minimize the number of modules

d) maximize the number of modules.

ix) Fan-out of a module *A* is a measure of

a) number of modules controlled by *A*

b) number of modules that invoke *A*

c) both (a) and (b)

d) none of these.

x) Alpha testing is done by

a) customer b) tester

c) developer d) all of these.

## GROUP – B

### ( Short Answer Type Questions )

Answer any *three* of the following. 3 × 5 = 15

2. What are the limitations of waterfall model in comparison to spiral model ?

3. What do you mean by the term 'traceability' ? Discuss its advantages. 3 + 2

4. List five desirable characteristics of a good SRS document.

5. What do you mean by the term 'software reverse engineering' ? Why is it required ? 3 + 2

6. What is the importance of feasibility study ?

## GROUP – C

### ( Long Answer Type Questions )

Answer any *three* of the following. 3 × 15 = 45

7. a) List the characteristics that a good user interface should possess.

b) Compare the relative advantages of textual and graphical user interface.

c) What are the differences between white-box and black–box testing ?

8. a) Distinguish between software verification and software validation.

   b) What is the difference between internal and external documentation ? What are the different ways of providing internal documentation ? Out of these which is the most useful ?

   c) What are the objectives of CASE tool ? Mention some of its advantages.

9. a) What is the difference between object-oriented analysis and object-oriented design ?

   b) Describe three types of user interfaces : Command language based, Menu-based, and Direct manipulation interface.

   c) Distinguish between a data-flow diagram and a flow chart.

10. a) Draw the ERD of library management system.

    b) Explain unit testing

    c) Discuss waterfall model

    d) Why is UML called unified ?

11. Consider the following data :

| **Task** | **Preceding Task** | **Duration (in months)** |
|---|---|---|
| A | – | 3 |
| B | – | 4 |
| C | B | 3 |
| D | A | 1 |
| E | A | 2 |
| F | D | 3 |

(i) Draw a PERT chart for the above activities.

(ii) Calculate the earliest start time, earliest finish time, latest start time, latest finish time and slack time for each node.

(iii) Determine the critical path. 5 + 6 + 4