Name : ....

Roll No. : ....

Invigilator's Signature : ....

CS/MCA/SEM-2/MCA-202/2012

2012
INFORMATION SYSTEMS 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.
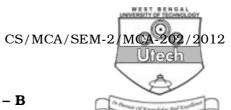
GROUP – A

(Multiple Choice Type Questions)

1.   Choose the correct alternatives for the following questions :

$10 \times 1 = 10$

   i)   Software requirement specification (SRS) document does not contain

   a)   Functional requirements

   b)   Non-functional requirements

   c)   Goals of implementation

   d)   Algorithms for software implementation.

   ii) Which diagram is not included in Unified Modelling Language (UML) ?

   a)   Function hierarchical diagram

   b)   Activity diagram

   c)   Sequence diagram

   d)   Use case diagram.

   iii) CMM level-4 is

   a)   Managed   b)   Optimizing

   c)   Repeatable   d)   Defined.

2054   [Turn over

iv) Which symbol is used in extended ER diagram ?

    a)   Triangle   b)   Rectangle

    c)   Circle   d)   Rhombus.

v) CMM stands for

    a)   Capacity Maturity Model

    b)   Capability Maturity Model

    c)   Cost Management Model

    d)   Comprehensive Maintenance Model.

vi) Which one is not a size measurement for software ?

    a)   LOC

    b)   Function Count

    c)   Halstead's program length

    d)   Cyclomatic complexity.

vii) Behavioural specifications are required for

    a)   Modelling   b)   Verification

    c)   Validation   d)   None of these.

viii) Reliability of a software is dependent on number of errors

    a)   Removed   b)   Remaining

    c)   Both (a) and (b)   d)   None of these.

ix) Which is the costliest phase of software development ?

    a)   Analysis   b)   Coding

    c)   Maintenance   d)   Testing.

x) IEEE standard for SRS is

    a)   837-1998   b)   830-1998

    c)   832-1998   d)   839-1998.

GROUP – B

(Short Answer Type Questions)

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

2. Explain Capability Maturity Model (CMM) and its levels.   5

3. The discount policy of a manufacturer producing two products :

    a)   Mechanical typewriter

    b)   Electronic typewriter and who has three types of customers Retailers (R), Dealers (D, Institutions (I).

    Rules : In case of mechanical typewriter

    (i)   If the order is from retailer for amount up to Rs. 5000, 6% discount is allowed.

    (ii)   If the order is from dealer for amount up to Rs. 5000, 7.5% discount is allowed.

    (iii)   On amount exceeding Rs. 5000 retailer gives 7.5% discount.

    (iv)   On amount exceeding Rs. 5000 dealer gives 11% discount.

    (v)   In other cases 7.5% discount is given.

    (vi)   In case of electronic typewriter discount given is 6% to all.

    Develop the decision table for the above problem.   5
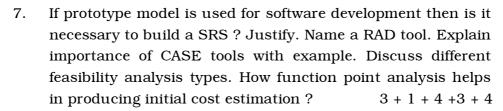
4. What are coupling and cohesion ? Give suitable example.   5

5. Discuss smoke and regression testing.   5

6. What do we mean by the term , "The Table is in 3NF" ? Briefly explain.

GROUP – C

(Long Answer Type Questions)

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

7. If prototype model is used for software development then is it necessary to build a SRS ? Justify. Name a RAD tool. Explain importance of CASE tools with example. Discuss different feasibility analysis types. How function point analysis helps in producing initial cost estimation ?   3 + 1 + 4 +3 + 4

8. Differentiate between error and defect ? What do you mean by total Quality Management ? Explain merits and demerits of ISO certification. Name two ISO standards and their work area. What are six sigma qualities ?   2 + 3 + 5 + 3 + 2

9. a) What is Normalization ? What are the benefits of a normalized database ?

   b) Explain 2NF with the help of a suitable example.

   c) What is a key ? Differentiate between a candidate key and a super key.

   d) What are the advantages of choosing a key of a relationship ? What is Referential Integrity ?

   2 + 3 + 2 + 4 + 4

10. Why is it necessary to keep quality assurance checks separate from system development ? Describe some common roles used in inspections. What are the roles used in Walk-through ?   5 + 5 + 5

11. Define Generalization and specialization. What is aggregation ? Illustrate with examples. Draw an ERD of a hospital will all its entity and activities.   4 + 2 + 9