



Name :

Roll No. :

Invigilator's Signature :

CS/MBA (NEW)/SEM-3FT & 5PT/SM-302/2010-11

2010-11

SYSTEM ANALYSIS & 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 any *ten* of the following :

10 × 1 = 10

- i) COCOMO belongs to
 - a) Empirical estimation technique
 - b) Heuristic estimation technique
 - c) Analytical technique
 - d) None of these.

- ii) DSS works in
 - a) strategic information layer
 - b) tactical information layer
 - c) managerial information layer
 - d) operational information layer.



- iii) System test plan is specified
 - a) when the final specifications are drawn up
 - b) during feasibility study
 - c) during the requirements specified
 - d) during system study stage.
- iv) Beta testing is carried by
 - a) the developers
 - b) the friendly customers
 - c) both (a) and (b)
 - d) none of these.
- v) Equivalence class partitioning is followed in the
 - a) white-box testing
 - b) black-box testing
 - c) verification
 - d) none of these.
- vi) Actor is a component of
 - a) component diagram
 - b) activity diagram
 - c) use case diagram
 - d) collaboration diagram.
- vii) Loss of data integrity impels that details
 - a) not suitable for running in an integrated environment
 - b) in consistent
 - c) repeated
 - d) non-durable.



viii) Which of the following process model can be used for the development of a compiler ?

- a) Prototype
- b) Classical waterfall
- c) Spiral
- d) Evolutionary.

ix) Coupling is a measure of

- a) Strength of intramodular connections
- b) Strength of intermodular connections
- c) Both (a) and (b)
- d) None of these.

x) Evolutionary model is sometimes known as

- a) Meta model
- b) Successive incremental model
- c) Both (a) and (b)
- d) None of these.

xi) Which of the following techniques and notations would you find within UML ?

- a) Use cases
- b) Class diagram
- c) State diagrams
- d) All of these.



xii) Which is the most important factor in hardware selection ?

- a) Maintenance and support
- b) Processor speed
- c) Meeting functional requirement
- d) Price and quality.

GROUP – B

(Short Answer Type Questions)

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

- 2. Why is UML (Unified Modeling Language) called “unified” ?
- 3. Define the term ‘Business Process Re-engineering (BPR)’.
What are the benefits of BPR ?
- 4. What is the importance of feasibility study ?
- 5. Discuss the factors to be consider while designing the output.
- 6. What are the objectives of CASE tool ? Mention some of its advantages.

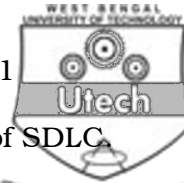


GROUP – C

(Long Answer Type Questions)

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

7. a) Briefly describe the role of DFD (Data Flow Diagram) in process modeling.
- b) Distinguish between logical DFD and Physical DFD. How does a DFD contribute so SAD (System Analysis and Design) ?
- c) Differentiate between DFD and ERD (Entity Relationship Diagram). $3 + (4 + 4) + 4$
8. a) List four desirable characteristics that a good user interface should possess and discuss.
- b) Describe three types user interfaces : Command language-based, Menu-based and Direct manipulation interfaces.
- c) Explain Alpha testing. $4 + 9 + 2$



9. a) Describe in brief the prototyping model of SDLC.
- b) Consider the following requirements of a software to be developed for controlling a chemical plant. The plant has a no. of emergency conditions. When any of the emergency conditions occurs, some pre-specified actions should be taken. The different emergency condition and the corresponding actions to be taken are :
- i) If the temperature of the plant exceeds T_1 C, then water shower should be turned ON and the heater turned OFF.
 - ii) If the temperature of the plant falls below T_2 C, the heater turned ON and the water shower should be turned OFF.
 - iii) If the pressure of the plant is above P_1 , then the valve V_1 should be OPENED.
 - iv) If the concentration of the tank rises above M , and the temperature of the tank is more than T_3 C, then the water shower should be turned ON.
 - v) If the pressure of the plant rises above P_3 and temperature rises above T_1 C, then the water shower should be turned ON, valves V_1 and V_2 OPENED and the alarm bell sounded.

Write the above requirements of the chemical plant software in the form of decision table. Give the structured English representation of the above problem also.

5 + (5 + 5)



10. a) Describe the various phases of SDLC (System Development Life Cycle). Point out the limitations of linear sequential model.
- b) Briefly explain “Spiral model” of system development.
- c) Write down the advantages of Prototyping Model. 4 + 3 + 5 + 3
11. a) Discuss DSS (Decision Support System) with suitable diagram. How could you relate MIS with DSS ? Explain.
- b) Explain the concepts of Unit testing and Integration testing.
- c) Explain how Black Box testing differs form White Box testing. 5 + 3 + 4 + 3
12. Write short notes on any *three* of the following : 3 × 5
- a) Audit trails
- b) Use case diagram
- c) Factors of hardware & software selection
- d) Data dictionary
- e) Classes & objects.
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