

A5-R3: STRUCTURED SYSTEM ANALYSIS & DESIGN

NOTE:

1. There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.
2. **PART ONE** is to be answered in the **TEAR-OFF ANSWER SHEET** only, attached to the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book.
3. Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the answer sheet for **PART ONE** is returned. However, candidates, who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the answer sheet for **PART ONE**.

TOTAL TIME: 3 HOURS

TOTAL MARKS: 100
(PART ONE – 40; PART TWO – 60)

PART ONE **(Answer all the questions)**

1. **Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the “tear-off” answer sheet attached to the question paper, following instructions therein. (1 x 10)**
 - 1.1 UML are used for
 - A) Coding the system
 - B) System designing
 - C) Testing the system
 - D) Object oriented module development
 - 1.2 Which step of the SDLC performs cost/benefit analysis?
 - A) Feasibility study
 - B) Analysis
 - C) Design
 - D) Testing
 - 1.3 At the highest level, a DFD is referred to as a
 - A) Level 0 DFD
 - B) Level 1 DFD
 - C) Context diagram
 - D) Scope diagram
 - 1.4 To construct a system, which key element must be considered?
 - A) Control
 - B) Output & Input
 - C) Feedback
 - D) All of the above
 - 1.5 To show the relationships and permissible subsequent actions, one uses
 - A) Decision table
 - B) Decision tree
 - C) Decision box
 - D) All of the above

- 1.6 ER diagram is a tool, which is used for?
A) Data designing
B) Data modeling
C) Data processing
D) All of the above
- 1.7 Which of the following are commonly used output formats?
A) Tabular output
B) Zoned output
C) Screen output
D) All of the above
- 1.8 Prototype is a
A) Working model of the existing system
B) Mini-model of the existing system
C) Mini-model of the processed system
D) None of the above
- 1.9 Encryption is technique:
A) To safeguard data transmission
B) To identify the need of system
C) To hide the data
D) None of the above
- 1.10 CASE tools are used for
A) System requirement analysis
B) System designing
C) Input output Design
D) All of the above

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the “tear-off” sheet attached to the question paper, following instructions therein. (1 x 10)

- 2.1 A system is an organized way of achieving a goal without any consideration of the people involved.
- 2.2 In the development phase of the SDLC, programmers either create software from scratch or purchase commercially available software.
- 2.3 During the analysis phase, fellow analysts can provide solutions that have been applied to similar system problems.
- 2.4 Joint Application Design and prototyping can help in keeping the analysis effort at a minimum and yet still be effective.
- 2.5 The diagram that shows the scope of the system, indicating what elements are inside and which are outside the system, is called a level-2 diagram.
- 2.6 Sometimes the systems development life cycle is iterative.
- 2.7 A PERT diagram shows, how tasks must be ordered and when an activity should begin and end.
- 2.8 Coupling is the extent to which subsystems depend on each other.
- 2.9 limit checks is a procedural control.
- 2.10 An entity in an ER diagram is basically the same as an entity in a DFD, the only difference being that in the former it stores data and in the later it processes data.

3. Match words and phrases in column X with the closest related meaning/ word(s)/phrase(s) in column Y. Enter your selection in the “tear-off” answer sheet attached to the question paper, following instructions therein. (1 x 10)

X		Y	
3.1	In ER modeling, entities are depicted using	A.	Data Dictionary
3.2	A repository which keeps information regarding data elements of a database	B.	Triangles
3.3	An important security feature	C.	DBMS
3.4	A diagram which depicts the flow of data in different elements of the system	D.	LAN
3.5	The name for tools that support high-level program development	E.	Rectangles
3.6	A complete software facility of building, maintaining and generating reports from a database.	F.	CASE
3.7	A display using icons and other graphical images rather than typed lines of text.	G.	Encryption
3.8	The lowest layer of the OSI reference model.	H.	Document
3.9	In SDLC, the stage which refers to the technical specifications for input, output, file and processing that will be applied in implementing the candidate system, is known as	I.	DFD
3.10	Common method for checking transposition errors	J.	Physical Layer
		K.	Tuples
		L.	Batch Processing
		M.	Check Digit
		N.	GUI

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Enter your choice in the “tear-off” answer sheet attached to the question paper, following instructions therein. (1 x 10)

A.	Feedback	B.	System	C.	Interface
D.	Testing	E.	Black box	F.	Data dictionary
G.	Module	H.	DFD	I.	Program Stubs
J.	Structured design	K.	Environment	L.	Structure Charts
M.	Data Dictionary	N.	System Analysis	O.	Walk through

- 4.1 A(n) _____ is a set of interacting components that operate within a boundary for some purpose.
- 4.2 _____ is a process by which the output of a system is measured against a standard and any difference is corrected by altering the input.
- 4.3 Under the _____ concept, the system is defined in terms of inputs and outputs rather than in terms of how the system effects a transformation.
- 4.4 The _____ of a system is defined as anything outside the boundary of the system.
- 4.5 The _____ is the region between the boundaries of system and also the medium for transporting the output from one system to the input of another system.
- 4.6 The _____ is a listing of all data elements in a database.
- 4.7 _____ is a method for modeling and understanding complex systems.
- 4.8 A(n) _____ is the primary tool used in structured system development to graphically depict system.
- 4.9 Procedural manuals are generally written concurrently with coding and _____.
- 4.10 _____ is the process of designing the computer programs that will be used in the program.

PART TWO
(Answer any **FOUR** questions)

5.

- a) Explain the methods of interacting while designing Human Computer Interface.
- b) A module of an Employee Management System computes salary of the employees. Each employee can have status or worker, instructor or manager. Each of these is given fixed salary per week. However if the employees work more than 30 hours per week, they are given fixed salary plus extra money per hours as per following rate.

Worker	-	Rs. 75
Manager	-	Rs. 150
Instructor	-	Rs. 100

- In case an employee works more than 60 hours in a week he also gave an additional allowance of Rs. 800. Prepare a decision table to show the logic of the module.
- c) Write a note on the responsibilities of system analyst.

(4+6+5)

6.

- a) What is the difference between system analysis and system synthesis?
- b) What role does a repository play in system analysis?
- c) What is the object – oriented analysis? How is it similar to, and different from modern structured analysis and information engineering?

(5+3+7)

7.

- a) What is model? Describe the difference between the logical model and physical model. Why the data modeling is required? Discuss the usefulness of ER diagrams to represent data modeling.
- b) Explain why a system analyst might want to draw logical models of an automated portion of existing information system rather than simply accepting the existing technical information systems documentation, such as systems flow charts and program flowcharts.

(8+7)

8.

- a) Define the terms economic feasibility, technical feasibility, operational feasibility and schedule feasibility.
- b) What three phases make up the system design?
- c) Discuss the relationship between prototyping and JAD.

(8+3+4)

9.

- Write short notes on:
- a) Management Information System (MIS)
 - b) System Users
 - c) Difference between DFDs and ER diagrams

(5+5+5)