B1.5-R3: STRUCTURED SYSTEM ANALYSIS AND 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 1answered 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   Which phase of Waterfall model decides whether the system is worthwhile executing or not?
A)   Requirement Analysis
B)   Feasibility Analysis
C)   Coding
D)   System Design

1.2 Running the system under a live environment using Live data in order to find errors is known as
A)   Beta Testing
B)   Alpha Testing
C)   Acceptance Testing
D)   System Testing

1.3 The detailed Graphical representation of the logic flow of data within the module is called as
A)   Pseudo code
B)   Program Flow chart
C)   Structure Chart
D)   None of the above

1.4 In an ER-Diagram, a weak entity is defined as
A)   An Entity which is not dependent on any key.
B)   An Entity, which is neither a key nor a part of a key.
C)   An Entity, which is not a key itself but a part of a key.
D)   An Entity, which is a key as well as part of a key.

1.5 The purpose of Database Normalization is
A)   To eliminate the redundancy of data
B)   To simplify planning of data
C)   To achieve incremental approach of database
D)   All of the above

1.6 The systems which are composed of only ideas, policies and theories and not of any physical entity are called as
A)   Closed Systems
B)   Abstract Systems
C)   Decision Support Systems
D)   Adaptive systems

1.7 Which of the following tool of structured Analysis uses, narrative statements to describe a procedure
A)   Data Dictionary
B)   Warnier – Orr Diagrams
C)   Structure Chart
D)   Structured English

1.8 Costs that are known to exist but whose financial value can not be accurately measured are called as
A)   Indirect Costs
B)   Intangible Costs
C)   Tangible Costs
D)   Variable Costs

1.9 A Design concept which is natural extension of the information hiding concept and is defined as the strength of different elements with in a module: -
A)   Coupling
B)   Cohesion
C)   Abstraction
D)   Problem Partitioning

1.10 The solution to the problem of Risk analysis is attributed to –
A)   Iterative Model
B)   Spiral Model
C)   Waterfall Model
D)   Fountain Model

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 Random File organization is not suited for applications requiring online enquiry.

2.2 Development of system with prototyping is always cheaper.

2.3 Testing is an expensive method for identification and removal for faults (bugs) in the system.

2.4 Data Dictionary is used to locate errors in the system descriptions.

2.5 An SRS should not be unambiguous.

2.6 Questionnaire is more expensive than conducting interviews of users scattered in many branches.

2.7 The Net Benefit method does not consider the time value of money.

2.8 Owing to Technical Feasibility study, financial resources and budget is not considered.

2.9 The Analyst need not be a good trainer.

2.10 A Prototype is not an example of graphical method.

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	Bottom-Up Design	**A.**	It is the process of creating, developing and refining a working model of the final operational system.
3.2	Integration Testing	**B.**	It is dataflow-based methodology that identifies inputs and outputs and describes the functional aspects of the system.
3.3	Structure design	**C.**	It is a diagram showing the alternative actions that can be performed in a process depending upon different sets of conditions.
3.4	Data Dictionary	**D.**	A Type of maintenance that changes the software to correct defects.
3.5	Adaptive Maintenance	**E.**	It is isolated from environmental influences.
3.6	Closed System	**F.**	Testing the interfaces between related modules of a system.
3.7	Structured Walkthrough	**G.**	It is a design tool used to show the flow of data through a system.
3.8	MIS	**H.**	It is a catalogue of all data elements, data structure and processes described in logical DFD's.
3.9	Library Files	**I.**	It is a refined orientation of available sources of information, which enables managers to tie planning and control procedures to operational system of implementation.
3.10	Prototyping	**J.**	It is an interchange of ideas among peers who review a product presented by its author and agrees on the validity of a proposed solution to a problem.
		K.	This design approach is basically based on the principle of data abstraction.
		L.	These files generally contain application programs, utility programs and system software package.
		M.	These files are copies made for long-term storage of data that may be required at a much later date.
		N.	A Type of maintenance, which results in modification to the software to accommodate changes to its external environment.

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.	DBA	**B.**	Subsystem	**C.**	Data Collection
D.	Encryption	**E.**	Coupling	**F.**	Legal Feasibility
G.	DBMS	**H.**	Password	**I.**	Operational Feasibility
J.	Implementation	**K.**	Decryption	**L.**	Logical DFD
M.	Design	**N.**	Physical DFD	**O.**	Cohesion
P.	Technical Feasibility				

4.1 Control is _____ that controls the activities of inputs, outputs and processors.

4.2 The first level of Network security is the _____ protection.

4.3 _____ is an effective and practical method to secure data?

4.4 System documentation is generally prepared during _____ phase of SDLC.

4.5 _____ is the person who is responsible for overall control of DBMS.

4.6 The advantage of _____ is that it maintains the integrity to ensure that the data is correct.

4.7 _____ is the strength of interconnections between modules.

4.8 The DFD, which represent the model of the current system (manual or computerized), are known as _____.

4.9 _____ is an important part of feasibility analysis and system analysis phases of SDLC.

4.10 _____ Ensures that the proposed system abides by all the laws of the business.

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

5.
a) Discuss the important characteristics of a system with proper examples.
b) Distinguish between initial investigation and feasibility study. In what way are they related to each other?
c) Elaborate the technical and interpersonal skills required for a system analyst.

(5+5+5)

6.
a) What is 'Payback Method' of cost evaluation? Determine the feasibility of a project based on this method for following data:

- Capital invested on purchase of h/w and s/w – Rs. 100,000
- Benefits - Rs. 200,000
- Investment Credit - 10%
- Cost Investment - Rs. 20,000
- Company's Income Tax Bracket - 40%
- Local Taxes - 4%
- Installation Period - 1 Year
- Expected Life of Capital - 5 years

b) Distinguish in brief between the following:
i) Brainstorming and Delphi Method
ii) Dichotomous and multiple choice questions
iii) Structural and Functional Testing

(9+6)

7.
a) Enumerate the steps of structured Design Methodology.
b) Elaborate the concepts of Coupling and cohesion in reference to modular design approach.
c) What are the different rules used while constructing the DFD?

(6+5+4)

8.
a) List and illustrate the primary uses and elements of a decision table with rules, which should be followed in constructing decision tables.
b) Write short notes on BPR (Business Process Reengineering) and CASE Tools.
c) Compare the Object-Oriented approach with Module Oriented approach.

(5+5+5)

9.
a) What is the role of the audit control trail in conversion? Who performs it? Explain.
b) What is the purpose behind Normalization? How does one normalize a file? Illustrate.
c) What is a form? Summarize the characteristics of action, memory and report forms.

(5+5+5)