B1.5-R4: 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 **OMR ANSWER SHEET** only, supplied with 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 "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

1.1 Which step of SDLC performs cost-benefit analysis?
A) Coding
B) Testing
C) Design
D) None of the above

1.2 Project planning is done by
A) Gantt
B) State visits
C) Spiral Model
D) COCOMO

1.3 Which of the following is not a tool for data collection?
A) On-site observations
B) Program flowcharts
C) Interviews
D) Questionnaires

1.4 An ER diagram represents
A) Entities
B) Keys
C) Relationship
D) All of the above

1.5 Prototyping means
A) creating, developing and refining a working model of the operational system
B) testing the computer system
C) designing the computer system
D) none of the above

1.6 COCOMO stands for
A) Cost Constructive Model
B) Constructive Cost Model
C) Common Cost Model
D) None of the above

1.7 A DBMS is
A) another name for database systems
B) independent of a database
C) dependent on application programs
D) a set of procedures which manage a database

1.8 CASE stands for
A) Computer Aided Software Engineering
B) Component Aided Software Engineering
C) Cost Analysis Software Engineering
D) Computer Application & Software Engineering

1.9 Glass Box Testing is also known as
A) White box testing
B) Black box testing
C) A) and B) both
D) None of the above

1.10 A DFD specifies
A) Different processes that the system performs
B) Data interchange among the processes
C) A) and B) both
D) None of the above

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

2.1 A data dictionary is used for spelling checks in Word Processor.

2.2 White-box testing can be started after installation.

2.3 A Database Administrator is the one who analyze the database for an application.

2.4 Interoperability is a desirable characteristic of a good system design.

2.5 Beta testing refers to the system testing carried out by the test team within the developing organization.

2.6 MIS stands for Management Information Security.

2.7 Design should be traceable to the requirement specifications.

2.8 Once we write the program and test it, the development work is not over.

2.9 Sandwiched Testing is one type of Integration Testing.

2.10 The physical connections between elements of the OO design represent coupling within an OO system.

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 "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

X		Y	
3.1	Process	**A.**	Functional Testing
3.2	Black Box Testing	**B.**	Alpha Testing
3.3	White Box Testing	**C.**	Planning Tool
3.4	Password	**D.**	Model
3.5	Pull down Menu	**E.**	Critical Path
3.6	PERT Chart	**F.**	Glass Box Testing
3.7	The longest chain of activities in a project	**G.**	Data Dictionary
3.8	Aggregation	**H.**	Part of relation
3.9	Prototype	**I.**	Selection of an option by an user
3.10	A structured repository of data about data is called	**J.**	Meta Data
		K.	Bubble
		L.	Access control
		M.	Is a relation

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 "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

A.	SRS	**B.**	Module Testing	**C.**	Branch Testing
D.	Integration Testing	**E.**	Control Flow Graph	**F.**	Delphi Cost Estimation
G.	Cohesion	**H.**	Coupling	**I.**	User Interface
J.	Expert Decision Technique	**K.**	Brainstorming	**L.**	Bar
M.	Common Coupling				

4.1 The _____ contains all the user requirements in an informal form.

4.2 The _____ of software is responsible for all interactions with the user.

4.3 Unit testing is known as _____.

4.4 A linearly independent path can be defined in terms of _____.

4.5 Edge Testing is also known as _____.

4.6 In a good design, the modules should have low _____.

4.7 _____ is one of the Empirical Estimation Techniques.

4.8 A Gantt chart is fundamentally a _____ chart.

4.9 Interviews and _____ may be used to elicit information regarding the user's requirements.

4.10 If two modules share some global data items then this type of coupling is known as _____.

PART TWO

(Answer any **FOUR** questions)

5.

a) Explain the role and responsibilities of a system analyst.

b) Elaborate the concepts of Coupling and cohesion and their types in reference to modular design approach.

(6+9)

6.

a) Explain alpha testing and beta testing.

b) What are the characteristics of a good design?

c) What do you mean by SDLC? Describe the different phases of SDLC?

(4+4+7)

7.

a) Compare the Object-Oriented approach with Module Oriented Approach.

b) Explain different data and fact gathering techniques.

(6+9)

8.

a) Explain different types of Information System in an organization.

b) Differentiate between Verification and Validation.

(9+6)

9. A supermarket needs to develop the following software to encourage the regular customer. For this, the customer needs o supply his residential address, telephone number, and the driving license number. Each customer who registers for this scheme is assigned a unique customer number (CN) by the computer. A customer can present his CN to the check-out staff when he makes any purchase. In this case, the value of his purchase is credited against his CN. At the end of each year, the supermarket awards surprise gifts to 10 customers who make the highest total purchase over the year. Also, it awards a 22 carat gold coin to every customer whose purchases exceed Rs. 30,000. The entire values against the CN are reset on the last day of every year after the prize winners' lists are generated.

a) Draw the DFD for above defined Supermarket Prize Scheme.

b) Draw the Use Case Model for above defined Supermarket Prize Scheme.

(9+6)