B1.5-R4: STRUCTURED SYSTEM ANALYSIS & DESIGN

NOTE:

IMPORTANT INSTRUCTIONS:

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 The next major step before system design and after feasibility study is
A) Analysis
B) Equipment selection
C) Implementation
D) Testing

1.2 _____ is a collection of programs written to service other programs.
A) Application S/W
B) Real Time S/W
C) Business S/W
D) System S/W

1.3 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

1.4 _____ is a measure of the time between observed system failures.
A) MTTF
B) MTTQ
C) PORF
D) AVLL

1.5 UML stands for
A) Unified Modeling Language
B) Unified Modular Language
C) Unique Modeling Language
D) None of the above

1.6 When using _____ testing, test drivers must be written to exercise the lower-level components.
A) Top-down
B) Bottom-up
C) Up-down
D) None of the above

1.7 _____ integration testing is an incremental approach to construction of program structure.
A) Top-down
B) Bottom-up
C) Up-down
D) None of the above

1.8 _____ refers to the set of activities that ensure that software correctly implements a specific function.
A) Validation
B) Verification
C) Conversion
D) Correction

1.9 Design phase includes?
A) data, architectural and procedural design only
B) architectural, procedural and interface design only
C) data, architectural and interface design only
D) data, architectural, interface and procedural design

1.10 In object oriented design of software, objects have?
A) attributes and names only
B) operations and names only
C) attributes, name and operations
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 Cyclomatic number is useful is software testing.

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

2.4 CMM is a project management practice to assess quality and has different levels to award depending on the process standards existing in the industry.

2.5 Coupling is the extent to which subsystems depend on each other.

2.6 A WBS diagram shows how tasks must be ordered and when an activity should begin and end.

2.7 PERT stands for Program Evaluations & Review Technique**.**

2.8 Modular refers to the relationship among elements within a module cohesion**.**

2.9 DFD is used to represent the functional view of the application Domain.

2.10 An SRS should be unambiguous.

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	Password	**A.**	Facilitating use of application software
3.2	Inheritance	**B.**	Concepts that products can be developed faster and of higher quality
3.3	Interviews	**C.**	Table showing the decision rules that apply when certain conditions occur.
3.4	Data Flow	**D.**	Testing the interfaces between related modules of a system.
3.5	Decision table	**E.**	Building a modifiable model before the actual system is installed
3.6	Prototyping	**F.**	Arrow
3.7	Integration Testing	**G.**	Analysis
3.8	GUI	**H.**	Access Control
3.9	RAD	**I.**	Part of relationship
3.10	Aggregation	**J.**	Is a relation
		K.	This marks the completion of the requirements phase of the SDLC, when the economic and practical feasibility of the new system is determined.
		L.	System development Model
		M.	Management Information System

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.	Common coupling	**B.**	MICR	**C.**	Software quality assurance
D.	Static	**E.**	Stress Testing	**F.**	Use case
G.	Analysis	**H.**	Biometric	**I.**	Content coupling
J.	DBA	**K.**	Work breakdown structure	**L.**	Network diagram
M.	Maintenance				

4.1 If two modules share their code then this type of coupling is known as _____.

4.2 _____ is also known as endurance testing.

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

4.4 _____ is a series of activities that assist an organization in producing high quality software.

4.5 _____ is used to decompose a given task set recursively into small activities.

4.6 _____ can be classified as corrective, adaptive or perfective.

4.7 _____ translates the special fonts printed in magnetic ink on checks into direct computer input.

4.8 PERT and _____ are techniques for scheduling project activities.

4.9 _____ diagram in UML is used for describing user and system interaction.

4.10 A device to measure or detect fingerprints or signature is called a(n) _____ device.

PART TWO

(Answer any **FOUR** questions)

5.

a) Explain the purpose and outcome of feasibility study.

b) Distinguish: Structural and Functional Testing.

(9+6)

6.

a) Elaborate the concepts of Coupling and cohesion in reference to modular design approach.

b) Compare the Object-Oriented approach with Module Oriented approach.

(9+6)

7.

a) Explain SDLC with all its different phases.

b) What is the importance of SRS document? Explain major characteristics of SRS.

(9+6)

8.

a) What is the significance of Graphical User Interface (GUI) in input and output design of a system? Describe characteristics of good user interface design.

b) Write short notes on: Management Information System (MIS).

c) List out the benefits and limitations of PERT.

(5+5+5)

9.

a) What is a CASE tool? Explain advantages of CASE tool with its features. Briefly explain types of CASE tools.

b) State diagram is one of the diagrams of UML. With the help of a suitable example of state diagram, explain the terms: state, transition and event.

c) A Book-Bank Membership Software (BMS) should support the following three options: new member, renewal and cancel membership. When the new member option is selected, the software should ask for the member's name, address and phone number. If proper information is entered, the software should create a membership record for the new member and print a bill for the annual membership charge and the security deposit payable. If the renewal option is chosen, the BMS should ask for the member's name and the membership number. If the member details entered are valid, then the membership charge payable by the member should be printed. If the membership details entered are invalid, an error message should be displayed. If the cancel membership option is selected and the name of a valid member is entered, then the membership is cancelled, a cheque for the balance amount due to the member is printed and his membership record is deleted. Draw the decision tree for BMS.

(5+5+5)