A5-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 of the following is *not* a tool of data collection?
A) Interview
B) Questionnaires
C) Observation
D) Data Flow Diagram

1.2 Which of the following diagram of Object Oriented Design is used for representation of behavioral model of the system?
A) State chart
B) Class diagram
C) Object diagram
D) DFD

1.3 Which one of the following Testing is done by user?
A) Acceptance testing
B) Stub Testing
C) Unit Testing
D) All of the above

1.4 Project planning is done by
A) PERT
B) Site visits
C) Spiral Model
D) COCOMO

1.5 UML is used for
A) object oriented module development
B) coding of system
C) testing of system
D) none of the above

1.6   The first step in the SDLC is
A)   Preliminary investigation and analysis
B)   System design
C)   Database design
D)   None of the above

1.7   PERT is a model for
A)   Project management
B)   Project development
C)   Analyzing tables
D)   All of the above

1.8   White-box testing can be started
A)   after SRS creation
B)   after designing
C)   after programming
D)   after installation

1.9   Information is gathered by a system analyst in order to
A)   find out whether a computer based system is required
B)   find out how the organization works.
C)   find out how the current system works and what is expected from a new computer based system
D)   find out who will use the system

1.10   A major principle of modularization is
A)   The cohesion of each module should be low and coupling between modules should be high
B)   The number of modules should be as low as possible
C)   The number of modules should be as high as possible
D)   Each module should have a high degree of cohesion

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   Modular coupling refers to the relationship among elements within a module.

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

2.3   PERT stands for Programme Evaluation & Review Technique.

2.4   CMM is a project management practice to access 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   An SRS should be unambiguous.

2.8   Cyclomatic number is useful is software testing.

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

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

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.	Dividing into components
		L.	Scheduling the project
		M.	Ensuring privacy

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.**	Static
D.	Software quality assurance	**E.**	Structured chart	**F.**	Use case
G.	Biometric	**H.**	Analysis	**I.**	Content coupling
J.	DBA	**K.**	Network model	**L.**	Work breakdown structure
M.	CPM				

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

4.2 PERT and _____ are techniques for scheduling project plans.

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

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

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

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

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

4.8 _____ is also known as endurance testing.

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

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

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

5.
a) What are the three views of modeling? Explain briefly their purpose and also name the Models used to represent these views.
b) Explain the role of a system analyst.

(9+6)

6.
a) What do you mean by SDLC? Describe the different phases of SDLC?
b) Explain importance of Gantt chart.

(9+6)

7.
a) What are the problems while designing a software using Waterfall model? Describe Spiral model for software development.
b) Explain the difference between DFDs and ER diagrams.

(9+6)

8.
a) Elaborate the concepts of Coupling and Cohesion in reference to modular design approach.
b) What is SRS document? What are the major characteristics of SRS?

(8+7)

9.
a) Library Membership Software (LMS) 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 LMS 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 LMS.
b) DFD is part of analysis or design? What roles does it play?
c) Explain alpha testing and beta testing.

(7+4+4)