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 **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. (1x10)

1.1 Backup and Recovery procedures are necessary to
A) Reorganize the disk
B) Control the DBA
C) Handle contingencies like files getting corrupt or becoming irretrievable
D) None of the above

1.2 The basic objective of system analysis is to
A) Understand computer hardware by opening the System Unit
B) Train managers in mathematical analysis
C) Run simulation programs
D) Understand a complex system and modify it in some way

1.3 In object-oriented design
A) Operations and methods are identical
B) Methods specify algorithms whereas operations only state what is to be done
C) Methods do not change values and attributes
D) Methods and constructor are same

1.4 File Conversion is a part of
A) System cut-over
B) Day to day activity of DP
C) System design
D) None of the above

1.5 In a Passenger Seat Reservation system, which of the following is the most critical?
A) Ease of programming
B) GUI
C) Response time
D) None of the above

1.6 A MIS is required because:
A) The size of organization has become larger
B) It is difficult for assistants to process data
C) Computers are available
D) Timely decisions have to be taken based on available data

1.7 A menu-driven software
A) Helps the user reduce errors in data entry
B) Is a software developed for planning meals in a restaurant
C) Contains options for the user to enter his/her choice
D) All of the above

1.8 Which of the following appropriately explain the desirable characteristic of a good system design?
A) Modular approach
B) Proper documentation
C) Neither A) nor B)
D) Both A) and B)

1.9 Entities, Attributes and Relationships are associated with
A) Logical concepts of data
B) Physical concepts of data
C) Persons of an Organization
D) None of the above

1.10 Controls, in processing, must be established in a System in order to
A) Prohibit tampering with information by unauthorized persons
B) Verify that all data has been processed
C) Block or trap faulty data from entering into processing
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. (1x10)

2.1 Output of each phase of the SDLC (System Development Life Cycle) must be verified and validated before starting with the next phase.

2.2 Maintenance is the process of incorporating changes in the existing system.

2.3 Coupling means the level of dependency that exists between modules.

2.4 A Class is a set of objects that has different attributes and behaviour.

2.5 Prototyping model is created at the problem definition stage of system development.

2.6 Hardware selection is an implementation activity.

2.7 Aliases are included in Data Dictionaries.

2.8 Open systems are less safer than closed systems.

2.9 Turn around time is the elapsed time between the submission of a job to a computer system and getting its output.

2.10 The computer's ability to perform complex processing tasks under adverse conditions is termed as reliability.

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. (1x10)

X		Y	
3.1	Data store	**A.**	Facilitating use of application software
3.2	Feedback	**B.**	Decision table
3.3	GUI	**C.**	Cost-benefit analysis
3.4	Action Stub	**D.**	Data Model
3.5	Installation procedure	**E.**	Data Flow Diagram
3.6	Economic feasibility	**F.**	Control
3.7	Encapsulation	**G.**	Separating interface from implementation
3.8	Password	**H.**	Selection of an option by an user
3.9	Work sampling	**I.**	Generic solution to problems
3.10	Conversion method	**J.**	Documentation
		K.	Parallel system
		L.	Access Control
		M.	Fact finding

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. (1x10)

A.	Structured Chart	**B.**	System Specifications	**C.**	Interface
D.	Parallel Run	**E.**	Polymorphism	**F.**	MIS
G.	Flexibility	**H.**	SDLC	**I.**	Critical
J.	Benchmarking	**K.**	Comfort	**L.**	Modularity
M.	Pilot Run				

4.1 Applying same operation to two or more classes in different ways is known as _____.

4.2 The longest chain of activities in a project is called _____ path.

4.3 In converting from an old system, to new one, four methods to cutover exist: Parallel run, Direct cut-over, Phase-in and _____ approach.

4.4 _____ is the method of processing current data by both the old and new system.

4.5 Ergonomics is concerned with the _____ of the computer operator.

4.6 _____ is the property of a system that has been divided into a set of cohesive and loosely coupled modules.

4.7 Audit, Reliability and Security are integral to _____.

4.8 _____ are essential to assure that the developer and the customer have the same perception of the system.

4.9 _____ refers to the capability of the system to adapt to changing environmental factors.

4.10 _____ is a part of the SDLC.

PART TWO

(Answer any **FOUR** questions)

5. Write brief notes on any **three** of the following:

a) Class

b) Module

c) Virus Scanners and Vaccines

d) ROI

(3x5)

6.

a) Differentiate between White Box testing and Black Box testing.

b) What is presentation in system planning? What are the advantages of presentation?

c) Explain the need for normalization in a database.

(6+4+5)

7.

a) Who is DBA? Explain the role of DBA in an organization.

b) Explain primary key and candidate key with examples.

c) What are the objectives of Financial Reporting?

(6+4+5)

8.

a) What is Business Process Re-engineering? What are the principles of Re-engineering?

b) Explain different types of reports produced that help manager to take decisions.

c) What is Project Scheduling?

(4+7+4)

9.

a) Study the following conditions and draw a decision table:

i) If a product code equals A and the customer type equals 1 and if the order amount is less than or equal to Rs. 700, then allow a discount of 5%.

ii) If a product code equals A and the customer type equals 2 and if the order amount is less than or equal to Rs. 700, then allow a discount of 7.5%.

iii) If a product code equals A and the customer type equals 1 and if the order amount is greater than Rs. 700, then allow a discount of 7.5%.

iv) If a product code equals A and the customer type equals 2 and if the order amount is greater than Rs. 700, then allow a discount of 10%.

v) A flat discount of 5% on product code B regardless of the customer type and the order amount.

b) The management of 'Suraksha' Hospital has decided to automate their administration functioning. There are several doctors working in the hospital. The doctor's name, contact numbers and specialization are recorded. Doctor's charges are computed according to the charge slips they submit. When a patient is admitted to the hospital, his particulars along with the reason for admission is to be recorded. If it is an accident case, additional information such as police FIR number and accident description should be recorded.

Patients are admitted into rooms, if needed. Rooms are given categories and the daily charges. There are various labs in the hospital where tests are conducted on the patients. Each test has a fixed charge.

Draw an Entity Relationship Diagram (ERD) for the hospital system.

(6+9)