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 **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 A cost-benefit analysis is performed to assess
A) economic feasibility
B) operational feasibility
C) technical feasibility
D) all of the above

1.2 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

1.3 Physical DFD specifies
A) what processes will be used
B) who generates data and who processes it
C) what each portion in an organization does
D) what data will be generated

1.4 A menu-driven software
A) helps the user reduce errors in data entry
B) software developed for planning meals at a restaurant
C) contains options for the user to enter his/her choice
D) all of the above

1.5 An update operation in an object instance
A) updates the class
B) has no side-effects
C) deletes an instance
D) alters values of attribute(s) of an object instance

1.6 Normalization is a process of restoring a relation to
A) minimize duplication of data in a database
B) maximize duplication of data to ensure reliability
C) make it of uniform size
D) allow addition of data

1.7 Backup procedure helps in restoring
A) Data files whenever there is a system crash
B) Both Application and System Software whenever there is a Disk corruption/failure
C) Both **A)** and **B)**
D) None of the above

1.8 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

1.9 A Distributed Data Processing System –
A) attempts to capture advantages of both centralized and decentralized processing
B) does not allow greater flexibility
C) provides slow access to data
D) none of the above

1.10 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

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 A decision table is a pictorial representation of data flow.

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

2.3 Decision support systems support structured decisions.

2.4 Unit test is done to test a module comprising of few programs.

2.5 Data validation is not necessary for an online data input.

2.6 The System Review phase is carried out periodically even after the system is successfully implemented.

2.7 By auditing around the computer we mean programs are written to check the functioning of the computer hardware.

2.8 A firewall is used in a system to a wide area network to prevent spread of fire in the network.

2.9 Data dictionaries can be used for detecting errors.

2.10 A polymorphic operation uses different methods to perform on the same class.

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	Gantt Chart	**A.**	Reasonableness of input
3.2	Benchmarking	**B.**	Selection of hardware and software
3.3	Pseudocode precedes	**C.**	Structured English
3.4	if-then-else-endif	**D.**	Analysis
3.5	Data Flow	**E.**	Working Model
3.6	Prototype	**F.**	Arrow
3.7	Interviews	**G.**	Output Design
3.8	Range Check	**H.**	Planning Tool
3.9	Pull-down-menu	**I.**	Input design
3.10	Display Layout Chart	**J.**	Decision Table
		K.	Structured-Unstructured
		L.	Selection by User
		M.	Coding

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.	Data Consistency Checks	**B.**	Documentation	**C.**	System Specification
D.	Open System	**E.**	Audit trail	**F.**	Budget
G.	User Interface	**H.**	Coding	**I.**	Finance
J.	Module	**K.**	Testing	**L.**	External
M.	Authentication				

4.1 The three basic sub-systems (business functions) of any industrial organization are Marketing, Operations and _____.

4.2 _____ is the hardware/software boundary that permits communication between people and computers.

4.3 _____ is the process of making sure that the programs perform the intended procedures.

4.4 Manager performing strategic planning requires _____ information.

4.5 _____ is a management decision.

4.6 _____ testing must precede the unit testing and system testing.

4.7 A permanent record of any update that is made by a program is kept using _____.

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

4.9 In most computer systems, access control is exercised by means of some form of _____.

4.10 If a Data Dictionary is not included in the System Analysis and Design of a software project, then _____ cannot be carried out well.

PART TWO

(Answer any **FOUR** questions)

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

a) Archival Data
b) Primary Key
c) Black-Box testing
d) Data Mining

(3x5)

6.

a) What is the difference between MIS and DSS?
b) What are main principles in designing forms for data entry?
c) What is the difference between a conceptual model and a logical model of the database?
d) What do you understand by the term data integrity?

(4+4+4+3)

7.

a) What is Context diagram? What is the difference between a logical DFD and a physical DFD?
b) Who is DBA? Explain the role of DBA in an organization.
c) What is the difference between a pilot run and a parallel run?

(4+5+6)

8.

a) Define an object. Why is object-oriented modeling used in practice?
b) Distinguish between technical, operational and economic feasibility.

(7+8)

9.

a) An organization has several departments. Each department employs several employees. A job can be done by many employees or by just one employee. Structures of EMPLOYEE, DEPARTMENT and JOB tables are as follows:

EMPLOYEE (Emp_code, Emp_name, Dept_code, Job_code, Grade)
DEPARTMENT (Dept_code, Dept_name, Location)
JOB (Job_code, Duration, Resources)

Draw an E-R diagram for the organization

b) The policy followed by an organization to process customer orders is given by the following rules:

i) If the customer order is less than or equal to that in stock and his credit is OK, supply his requirement.
ii) If the customer credit is not OK, do not supply. Send him intimation.
iii) If the customer credit is OK but items in stock are less than his order, supply what is in stock. Enter balance to be sent in back-order table.

Obtain a decision table for the above policy.

(8+7)