

## B1.5-R3: STRUCTURED SYSTEM ANALYSIS AND 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. (1 x 10)**

- 1.1 COCOMO is a term in
  - A) Requirement Analysis
  - B) Design
  - C) Testing
  - D) Software Costing
- 1.2 Black box testing can be applied to
  - A) Use cases
  - B) E R Diagrams
  - C) DFD
  - D) Flow charts
- 1.3 Analysis & Design is done and participated by
  - A) Architect
  - B) Programmer
  - C) Software Manager
  - D) Both A) and C)
- 1.4 For internet bookstore system it is possible to have
  - A) 0 level DFD
  - B) level-1 DFD
  - C) level-2 DFD
  - D) All of the above
- 1.5 CASE is meant for
  - A) Commuter aided simple engineering
  - B) Computer aided software elements
  - C) Computer aided scientific engineering

D) Computer aided software engineering

- 1.6 An ER diagram depicts  
A) Entities  
B) Keys  
C) Relationship  
D) All of the above
- 1.7 To develop a software we  
A) Model business  
B) Analyze  
C) Design  
D) All of the above
- 1.8 In an ER diagram noun is treated as  
A) Entity  
B) Relationship  
C) Primary key  
D) Foreign key
- 1.9 Select true statements- Structured approach does have  
A) Objects  
B) Functions  
C) DFD  
D) Both B) and C)
- 1.10 Project planning is done by  
A) PERT  
B) Site visits  
C) Spiral Model  
D) COCOMO

**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. (1 x 10)**

- 2.1 Systems analysis is the science dealing with analysis of complex, large scale systems and the interactions within those systems. This field is closely related to operations research.
- 2.2 An MIS manager deals with strategic planning of MIS.
- 2.3 An open system has a discrete number of interfaces to allow the exchange of matter, energy or information with its surrounding environment.
- 2.4 Reason for normalization is to simplify data communication.
- 2.5 In engineering and computer science, an implementation is the practical application of a methodology or algorithm to fulfill a desired purpose.
- 2.6 CMM is a project management practice to access quality and has different levels to award depending on the process standards existing in the industry.
- 2.7 Reporting capability is optional in a software audit process.
- 2.8 Waterfall model can not be made to achieve incremental approach.
- 2.9 Data dictionary describes every data element and data structure.
- 2.10 Spiral model is not commercially available as a software process.

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. (1 x 10)

X		Y	
3.1	Normalization	A.	Computer-based systems designed to help organization members make decisions; usually composed of a database, model base, and dialogue system.
3.2	Index	B.	A table or other data structure used to determine the location of rows in a file that satisfy some condition.
3.3	Decision Support System	C.	The process of converting complex data structures into simple, stable data structures.
3.4	Process	D.	The work or actions performed on data so that they are transformed, stored, or distributed.
3.5	Expert Systems	E.	An iterative process of systems development in which requirements are converted to a working system which is continually revised through close work between an analyst and users.
3.6	Prototyping	F.	Computer-based systems designed to mimic the performance of human.
3.7	Data Dictionary	G.	The repository of all data definitions for all organizational applications.
3.8	Cohesion	H.	Software tools that provide automated support for some portion of the systems development process.
3.9	Waterfall model	I.	An irreducible part or aggregation of parts that make up a system, also called a subsystem.
3.10	Component	J.	The extent to which a system or a subsystem performs a single function.
		K.	All the design aspects need to be frozen before moving onto the next stage
		L.	Computers systems designed to minimize the performance of human experts in a particular domain
		M.	Computer based systems which provide decisions
		N.	Hierarchical diagram that shows how are information system is organized

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. (1 x 10)

<b>A.</b>	Mathematically	<b>B.</b>	Generalization	<b>C.</b>	Work breakdown structure
<b>D.</b>	Beta testing	<b>E.</b>	Debugging	<b>F.</b>	Software quality assurance
<b>G.</b>	Risk analysis	<b>H.</b>	Test cast design	<b>I.</b>	Configuration
<b>J.</b>	Analysis	<b>K.</b>	Normalization	<b>L.</b>	Business process Re-engineering
<b>M.</b>	auditing				

- 4.1 \_\_\_\_\_ is a set of activities that attempt to understand and model customer needs and constraints.
- 4.2 Formal Methods used in developing computer systems are \_\_\_\_\_ based techniques for describing system properties.
- 4.3 \_\_\_\_\_ is testing that is conducted by the user.
- 4.4 \_\_\_\_\_ is the collection of programs, documents and data that must be controlled when changes are to be made.
- 4.5 Abstraction permits one to concentrate on a problem at some level of \_\_\_\_\_ without regard to irrelevant low level details.
- 4.6 When a defect is introduced early in the software process and remains undetected, it often is amplified into multiple defects later in the software process- this pertains to \_\_\_\_\_.
- 4.7 \_\_\_\_\_ is the set of work tasks required to build the software; defined as part of the process model.
- 4.8 Set of techniques for deriving effective test cases is needed for \_\_\_\_\_.
- 4.9 \_\_\_\_\_ is a series of activities that assist an organization in producing high quality software.
- 4.10 \_\_\_\_\_ is a technique for identifying and evaluating risks.

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

- 5.**  
a) Compare and contrast the object oriented analysis and design models with structured analysis and design model.  
b) Explain the role of a system analyst. **(8+7)**
- 6.**  
a) In what ways do system analyst, programmer and Database Administrator look at a Database System.  
b) What is the difference between structured English and pseudocode? **(8+7)**
- 7.**  
a) What are the problems while designing a software using Waterfall model? Describe spiral model for software development.  
b) Describe Modeling, Network and Implementation stages. **(8+7)**
- 8.**  
a) Why computer security audit is necessary?  
b) Describe UML. **(8+7)**
- 9.** Answer any three:  
i) What is content diagram? What is data flow diagram?  
ii) Describe one time cost and recurring cost? Explain with examples.  
iii) What are four steps used to transform an ER diagram into normalized relations?  
iv) When designing physical table what goals should be kept in mind?  
v) What is form? What is report? Give the examples for each. **(3x5)**