# B1.5-R4: STRUCTURED SYSTEM ANALYSIS & DESIGN

**अवधि: 03 घंटे** **अधिकतम अंक: 100**

**DURATION: 03 Hours** **MAXIMUM MARKS: 100**

| **ओएमआर शीट सं.:** **OMR Sheet No.:** | | | | | | |
|---|---|---|---|---|---|---|

**रोल नं.:** **Roll No.:** | | | | | | |

**उत्तर-पुस्तिका सं.:** **Answer Sheet No.:** | | | | | | |

**परीक्षार्थी का नाम:** **परीक्षार्थी के हस्ताक्षर**:

**Name of Candidate: _____; Signature of candidate: _____**

| **परीक्षार्थियों के लिए निर्देश:** | **Instructions for Candidate:** |
|---|---|
| कृपया प्रश्न-पुस्तिका**,** ओएमआर शीट एवं उत्तर-पुस्तिका में दिये गए निर्देशों को ध्यान पूर्वक पढ़ें। | Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet. |
| प्रश्न-पुस्तिका की भाषा अंग्रेजी है। परीक्षार्थी केवल अंग्रेजी भाषा में ही उत्तर दे सकता है। | Question Paper is in English language. Candidate can answer in English language only. |
| इस मॉड्यूल/पेपर के **दो भाग** है। **भाग एक** में चार प्रश्न और **भाग दो** में पाँच प्रश्न है। | There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions**.** |
| **भाग एक** "वैकल्पिक" प्रकार का है जिसके कुल अंक 40 है तथा **भाग दो**, "व्यक्तिपरक" प्रकार है और इसके कुल अंक 60 है। | **PART ONE** is Objective type and carries 40 Marks. **PART TWO** is subjective type and carries 60 Marks. |
| **भाग एक** के उत्तर, इस प्रश्न-पत्र के साथ दी गई **ओएमआर उत्तर-पुस्तिका** पर**,** उसमें दिये गए अनुदेशों के अनुसार ही दिये जाने है। **भाग दो** की उत्तर-पुस्तिका में **भाग एक** के उत्तर **नहीं** दिये जाने चाहिए। | **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 for **PART TWO**. |
| **भाग एक** के लिए अधिकतम समय सीमा **एक घण्टा** निर्धारित की गई है। **भाग दो** की उत्तर-पुस्तिका, **भाग एक** की उत्तर-पुस्तिका जमा कराने के पश्चात दी जाएगी। तथापि, निर्धारित एक घंटे से पहले **भाग एक** पूरा करने वाले परीक्षार्थी **भाग एक** की उत्तर-पुस्तिका निरीक्षक को सौंपने के तुरंत बाद, **भाग दो** की उत्तर-पुस्तिका ले सकते हैं। | 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.** |
| **परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना एवं अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हाल नहीं छोड़ सकता हैं। ऐसा नही करने पर, परीक्षार्थी को इस मॉड्यूल/पेपर में अयोग्य घोषित कर दिया जाएगा।** | **Candidate cannot leave the examination hall/room without signing on the attendance sheet and handing over his Answer sheet to the invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.** |
| प्रश्न-पुस्तिका को खोलने के निर्देश मिलने के पश्चात एवं उत्तर देने से पहले उम्मीदवार यह जाँच कर यह सुनिश्चित कर ले कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है। | After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question booklet is complete in all respect. |

जब तक आपसे कहा न जाए तब तक प्रश्न-पुस्तिका न खोलें।

**DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**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 main objective of feasibility study is:
A) To assess whether it is possible to meet the requirements specifications.
B) To assess if it is possible to meet the requirements specified subject to constraints of budget, human resource and hardware.
C) To assist the management in implementing the desired system.
D) To remove bottlenecks in implementing the desired system.

1.2 Which of the following is a true statement regarding the SDLC phases?
A) The SDLC is not iterative.
B) The life cycle is always a sequentially ordered set of phases.
C) It is not possible to complete some activities in one phase in parallel with those of another phase.
D) The life cycle may be thought of as a circular process in which the end of the useful life of one system leads to the beginning of another project to develop a new version of or replace an existing system.

1.3 Decision tree uses:
A) Pictorial depictation of alternate conditions
B) Nodes and branches
C) Consequences of various depicated alternates
D) All of the above

1.4 This is another name for a working model that demonstrates how part of an information system works.
A) CASE tool
B) Prototype
C) Data flow diagram
D) Decision Tree

1.5 The data base design activity deals with the design of the
A) Logical data base
B) Physical data base
C) Both A) & B)
D) None of the above

1.6 UML used to model the behavior of objects with _____.
A) Use cases
B) Class diagrams
C) Actors diagrams
D) State transition diagrams

1.7 Testing each module alone in an attempt discovering any errors in its code best describes:
A) Module Testing
B) Integration Testing
C) Unit Testing
D) Function Testing

1.8 The coding of data to keep it safe from unauthorized users is called _____.
A) Locking
B) Hiding
C) Masking & Shading
D) Encryption

1.9 Which of the following is important to a successful implementation process for a software project?
A) Commitment to the project
B) Commitment to change
C) Extent of project definition and planning
D) All of the above

1.10 _____ level supply information to strategic tier for the use of top management
A) Operational
B) Environmental
C) Competitive
D) Tactical

**2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)**

2.1 System Analysis can be defined as most recent and perhaps the most comprehensive technique for solving computer problems.

2.2 In the development phase of the SDLC, programmers either create software from scratch or purchase commercially available software.

2.3 The data flow Diagram is the basic component of conceptual system.

2.4 The primary objective of system design is to design the programs, databases and test plan.

2.5 An attribute defines specific tasks that an object can perform.

2.6 Actual programming of software code is done during the development and documentation step in the SDLC.

2.7 Feasibility study is carried out by the users of the proposed system.

2.8 System evaluation is carried out after the system has been operational for a reasonable time.

2.9 The code used for the validation purpose is known as group classification code.

2.10 An entity in an ER diagram is basically the same as an entity in a DFD, the only difference being that in the former it stores data and in the latter it processes data.


**ROUGH WORK SPACE:**

**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 | In ER modeling, entities are depicted using | **A.** | Data Dictionary |
| 3.2 | A repository of information about a database that documents data elements of a database | **B.** | GUI |
| 3.3 | An important security feature | **C.** | DBMS |
| 3.4 | A diagram which depicts the flow of data in different elements of the system | **D.** | LAN |
| 3.5 | The name for tools that support high-level program development | **E.** | Rectangles |
| 3.6 | A complete software facility of building, maintaining and generating reports from a database. | **F.** | CASE |
| 3.7 | A display using icons and other graphical images rather than typed lines of text. | **G.** | Encryption |
| 3.8 | The lowest layer of the OSI reference model. | **H.** | Document |
| 3.9 | In SDLC, the stage which refers to the technical specifications for input, output, file and processing that will be applied in implementing the candidate system, is known as | **I.** | DFD |
| 3.10 | Common method for checking transposition errors | **J.** | Physical Layer |
| | | **K.** | Tuples |
| | | **L.** | Batch Processing |
| | | **M.** | Check Digit |

**4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Choose the most appropriate option, enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)**

| | | | | | |
|---|---|---|---|---|---|
| **A.** | Feedback | **B.** | System | **C.** | Interface |
| **D.** | Testing | **E.** | Black box | **F.** | Data dictionary |
| **G.** | Module | **H.** | DFD | **I.** | System Analysis |
| **J.** | Structured design | **K.** | Environment | **L.** | Structure Charts |
| **M.** | Data Dictionary | | | | |

4.1 A(n) _____ is a set of interacting components that operate within a boundary for some purpose.

4.2 _____ is a process by which the output of a system is measured against a standard and any difference is corrected by altering the input.

4.3 Under the _____ concept, the system is defined in terms of inputs and outputs rather than in terms of how the system effects a transformation.

4.4 The _____ of a system is defined as anything outside the boundary of the system.

4.5 The _____ is the region between the boundaries of system and also the medium for transporting the output from one system to the input of another system.

4.6 The _____ is a listing of all data elements in a database.

4.7 _____ is a method for modeling and understanding complex systems.

4.8 A _____ is the primary tool used in structured system development to graphically depict system.

4.9 Procedural manuals are generally written concurrently with coding and _____.

4.10 _____ is the process of designing the computer programs that will be used in the program.



**ROUGH WORK SPACE:**

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

**5.** Define the following terms:
a) Management Information System (MIS)
b) System Users
c) Joint application development (JAD)

**(5+5+5)**

**6.**
a) What is the difference between system analysis and system synthesis?
b) What role does a repository play in system analysis?
c) What is the object – oriented analysis? How is it similar to, and different from modern structured analysis and information engineering?

**(5+3+7)**

**7.**
a) What is model? Describe the difference between the logical model and physical model. Why the data modeling is required? Discuss the usefulness of ER diagrams to represent data modeling.
b) Explain why a system analyst might want to draw logical models of an automated portion of existing information system rather than simply accepting the existing technical information systems documentation, such as systems flow charts and program flowcharts.

**(8+7)**

**8.**
a) Define the terms economic feasibility, technical feasibility, operational feasibility and schedule feasibility.
b) What three phases make up the system design?
c) Discuss the relationship between prototyping and JAD.

**(8+3+4)**

**9.**
a) Explain the difference between batch and on-line input methods.
b) List the several input data validation techniques.
c) List the five common format styles for graphic outputs.
d) Identify three types of tools that can be used to prototype computer outputs.
e) What is the fastest-growing medium for computer outputs?

**(5+3+2+3+2)**

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**ROUGH WORK SPACE:**

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