A8-R5 : SYSTEMS ANALYSIS, DESIGN AND TESTING

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 ध्यानपूर्वक 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** हैं। **भाग एक** में **चार** प्रश्न और **भाग दो** में **पाँच** प्रश्न हैं।	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 का 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, **ओएमआर उत्तर-पुस्तिका** पर ही दिये जाने हैं। **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. **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 पश्चात् 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** to the Invigilator.
परीक्षार्थी, उपस्थिति-पत्रिका पर हस्ताक्षर किए बिना और अपनी उत्तर-पुस्तिका, निरीक्षक को सौंपे बिना, परीक्षा हॉल/कमरा नहीं छोड़ सकते हैं। ऐसा नहीं 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/her 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 पश्चात् एवं उत्तर लिखना आरम्भ करने से पहले उम्मीदवार जाँच कर यह सुनिश्चित कर लें कि प्रश्न-पुस्तिका प्रत्येक दृष्टि से संपूर्ण है।	After receiving the instruction to open the booklet and before starting to answer 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 A structure chart :

(A) Shows module inter-relationships in a hierarchical manner

(B) Describes the internal structure of a program in a graphical manner

(C) Is a graphical representation of structured English

(D) Depicts data structures in the form of a chart

1.2 A DFD is normally leveled as :

(A) It is a good idea in design

(B) It is recommended by many experts

(C) It is easy to do it

(D) It is easier to read and understand a number of smaller DFDs than one large DFD

1.3 In a DFD external entities are represented by a :

(A) Rectangle

(B) Ellipse

(C) Diamond shaped box

(D) Circle

1.4 An ER diagram represents :

(A) Entities

(B) Keys

(C) Relationship

(D) All of the above

1.5 A context diagram :

(A) describes the context of a system

(B) is a DFD which gives an overview of the system

(C) is a detailed description of a system

(D) is not used in drawing a detailed DFD

1.6 The components that make up any system is known as System :

(A) Boundary

(B) Environment

(C) Description

(D) None of the above

1.7 _____ includes review of the existing procedures and information flow.

(A) Feasibility Study

(B) System Modeling

(C) System Design

(D) System Analysis

1.8 Data Dictionary consists of :

(A) All transaction that have been entered in the system

(B) All words which can be referred to during the spell-check by a word processor

(C) Data about the files and their contents and about the processes used by the system

(D) An indexed sequential file containing frequency of access of each data item in the system

1.9 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.

1.10 UML used to model the behavior of objects with _____.

(A) Use cases

(B) Class diagrams

(C) Actors diagrams

(D) State transition diagrams

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

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

2.3 Cyclomatic number is useful in software testing.

2.4 An SRS should be unambiguous.

2.5 Decision table is a tabular method for describing the logic of the decision to be taken.

2.6 Linked list is an example of a hierarchical data structure

2.7 Integration test is done to test a module comprising of a few programs.

2.8 Program specifications should be prepared after the system is accepted and implemented.

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

2.10 The first four major phases of the predictive Software Development Life Cycle (SDLC) are the planning phase, the analysis phase, the design phase and the prototyping phase.

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	Feasibility Study	**A.**	Black Box Testing
3.2	A system process	**B.**	It is a repository of the data elements in a system
3.3	Data Dictionary	**C.**	Rectangles
3.4	A working model of a system	**D.**	DFD
3.5	This testing, the tester has no knowledge of internals of program being tested	**E.**	Encryption
3.6	In ER modeling, entities are depicted using	**F.**	Testing
3.7	An important security feature	**G.**	Physical Layer
3.8	A diagram which depicts the flow of data in different elements of the system	**H.**	Application Layer
3.9	Common method for checking transposition errors	**I.**	Decryption
3.10	The lowest layer of the OSI reference model	**J.**	Feasibility study phase
		K.	A circle in a DFD
		L.	Check digit
		M.	Prototype

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.	System flow	**B.**	Structural Testing	**C.**	System Analysis
D.	System maintenance	**E.**	Spiral Model	**F.**	System Prototyping
G.	Use Case	**H.**	Level 0 DFD	**I.**	Entity Relationship Diagram
J.	Black holes	**K.**	White Box Testing	**L.**	SRS
M.	Enhancement				

4.1 The context diagram is also known as _____.

4.2 _____ helps the designer in communicating to the user, quickly, how the system, when developed, will look like and get a feedback.

4.3 System design is made up of Data Design and _____ design.

4.4 _____ Diagram in UML is used for describing user and system interaction.

4.5 ERD stands for _____.

4.6 _____ model of the SDLC incorporates the element of risk analysis also.

4.7 Defining the problem and determining the new system objectives are part of the _____ phase of SDLC.

4.8 Changes made periodically to a system after its implementation is called _____.

4.9 In a DFD, processes that have inputs but produce no output are called _____.

4.10 Slice testing falls under the category of _____.

PART TWO

(Answer any FOUR questions)

5. (a) Define Information system. What are the different categories of information system ? List and explain three different strategies of information system development.

(b) Differentiate between Boundary Value Analysis and Cause Effect Graphing Technique. **(10+5)**

6. (a) What is the relationship between structured analysis and fact-finding techniques, such as interview and questionnaires ?

(b) What is Object Oriented Modeling ? What is the difference between Static and Dynamic Modeling ?

(c) What is business process re-engineering ? Explain with the help of an appropriate example. **(5+5+5)**

7. (a) What are the various features of Object Oriented Methodology ? How is an object mapped to real life scenario ?

(b) What is SRS document ? What are the major characteristics of SRS ? **(8+7)**

8. (a) Explain the role and responsibilities of a System Analyst.

(b) Write a short note on :

(i) Mutation Testing

(ii) Decision Support System **(5+[5+5])**

9. (a) What is the difference in economic feasibility, technical feasibility, operational feasibility and schedule feasibility.

(b) Write a program to generate Armstrong number. Draw a program graph for it.

(c) Discuss the relationship between prototyping and JAD. **(8+3+4)**

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SPACE FOR ROUGH WORK

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