A5-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 कर 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 अथवा 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 or 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 Project planning is done using:
A) Gantt
B) Spiral Nodel
C) COCOMO
D) DFDS

1.2 Which is not a software product metric?
A) Size
B) Reliability
C) Productivity
D) Functionality

1.3 A black hole in a DFD is:
A) a data store with no inbound flows
B) a data store with only inbound flows
C) a data store with more than one inbound flow
D) None of the above

1.4 Prototyping is used to:
A) Test the software as an end product
B) Expand design details
C) Refine and establish requirement gathering
D) None of the above

1.5 FAST stands for:
A) Functional Application Specification Technique
B) Fast Application Specification Technique
C) Facilitated Application Specification Technique
D) None of the above

1.6 Software Verification is:
A) Checking the product with respect to customer's expectations
B) Checking the product with respect to specifications
C) Checking the product with respect to constraints of the project
D) None of the above

1.7 In context of modular software design, which one of the following combinations is desirable?
A) High cohesion and high coupling
B) High cohesion and low coupling
C) Low cohesion and high coupling
D) Low cohesion and low coupling

1.8 Spiral model is divided into _____ task regions.
A) 3
B) 6
C) 5
D) 4

1.9 _____ is a blackbox testing method:
A) Boundary value analysis
B) Basic path testing
C) Code validation analysis
D) None of the above

1.10 A lack of normalization can lead to which one of the following problems?
A) Insertion problems
B) Deadlock
C) Lost updates
D) Deferred updates

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 Data Dictionaries are used for process descriptions.

2.2 Decision Trees are easier for most people to understand than decision tables.

2.3 Decision table is a way of representing multiple conditions.

2.4 Flow of information in an organization is always vertical.

2.5 Information hiding is to hide from user, details that are relevant to him.

2.6 Managers who are potential users of the MIS select the optimum equipment configurations.

2.7 The first step in system development life cycle is preliminary investigation and analysis.

2.8 Data flow diagram is a requirements elicitation technique.

2.9 Design phase will usually be top down approach.

2.10 Temporal cohesion means cohesion between local variables.

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	The GUI part of a software system is almost always developed using the	**A.**	White box testing method
3.2	The most fundamental parameter based on which all other estimations and project plan are made	**B.**	Design model
3.3	The measure of coding activity alone is	**C.**	Functional primitives
3.4	The mechanism by which a subclass can inherit attributes and methods from more than one base class	**D.**	Program testing
3.5	The objective of coding phase is to transform the design of a system in a	**E.**	Self-Checking code
3.6	The terms error, fault and defect are considered to be synonyms in the area of	**F.**	Prototyping model
3.7	Basis path testing is	**G.**	High level language
3.8	User interface design involves	**H.**	Performance specification
3.9	Decision trees uses	**I.**	Size
3.10	The process at the most detailed level of the data flow diagrams are called	**J.**	Pictorial depiction of alternate conditions
		K.	LOC
		L.	Data Conversion
		M.	Multiple Inheritence

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.	Data flow diagram	**B.**	functional	**C.**	System development life cycle
D.	Tasks	**E.**	System Analysis	**F.**	Doubly outlined rectangle
G.	validation	**H.**	Top-down	**I.**	Data Dictionary
J.	Program documentation	**K.**	Intrusion	**L.**	Primitive DFD
M.	Hardware and software components				

4.1 When a cracker attempts to misuse or steal data from a system, it is called _____.

4.2 Software project planning involves _____ estimation.

4.3 The lowest level of decomposition for a data flow diagram is _____.

4.4 Structured design methodology is an approach to design that adheres to rules based on principals such as _____.

4.5 ER model uses this symbol to represent weak entity set _____.

4.6 In _____ decomposition, starting at a high level view of the system, each high level function is successively refined into more detailed functions.

4.7 The smallest units of work activities that are subject to management planning and control are called _____.

4.8 Cohesion is a measure of the _____ strength of a module.

4.9 A _____ lists the purpose of all data items and definition of all composite data items in terms of their component data items.

4.10 The aim of _____ is to check whether the deliverable software is error free.

ROUGH WORK SPACE:

PART TWO
(Answer any FOUR questions)

5.

a) Define Software Engineering. What are the objectives of software design? What is need of software engineering?

b) Discuss the various phases of software development life cycle model with suitable diagram.

c) Explain the basic role and need of system analyst.

(7+4+4)

6.

a) Differentiate logical and physical design concepts?

b) Explain the following term:

i) Modularity
ii) Abstraction
iii) Code Inspection
iv) Object Oriented Design

(3+[3x4])

7.

a) Define Cohesion and Coupling. Discuss the classification of each with suitable diagram.

b) Differentiate between object oriented and function oriented design.

c) What is DFD? Discuss the various components used in DFD with appropriate diagram.

(5+5+5)

8.

a) What are various software maintenance process models?

b) What are UML diagrams? Discuss classification of UML diagrams.

c) Explain various levels of software testing techniques in detail with suitable diagram?

(7+4+4)

9.

a) Differentiate between Verification and validation.

b) What is SRS? Discuss in detail the various features of SRS.

c) Discuss CASE tool in detail with its benefits. Draw the architecture of CASE environment.

(5+5+5)

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ROUGH WORK SPACE:

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