A5/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 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 सकते हैं।	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, इस प्रश्न-पत्र के साथ दी गई **ओएमआर उत्तर-पुस्तिका** पर, उसमें दिये गए अनुदेशों के अनुसार 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, 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 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 एवं 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=10)**

1.1 The activity diagram…

(A) focuses on flows driven by internal processing

(B) models the external events simulating one object

(C) focuses on the transitions between states of a particular object

(D) models the interaction between objects

1.2 Which model would be preferred for college level students to develop a software ?

(A) Waterfall model

(B) Spiral model

(C) Prototyping

(D) Code and Fix model

1.3 Independence of module is assessed using two qualitative criteria. What are those criteria ?

(A) Cohesion and coupling

(B) Module and modularity

(C) Cyclomatic complexity and modularity

(D) Cohesion and Modularity

1.4 Which one of the following models is **not** suitable for accommodating any change ?

(A) Build and Fix Model

(B) Prototyping Model

(C) RAD Model

(D) Waterfall Model

1.5 How many layers are present in the OO design pyramid ?

(A) three

(B) four

(C) five

(D) one

1.6 How is generalization implemented in Object Oriented programming languages ?

(A) Inheritance

(B) Data Hiding

(C) Encapsulation

(D) Overloading

1.7 Software feasibility is based on which of the following ?

(A) business and marketing concerns

(B) scope, constraints, market

(C) technology, finance, time, resources

(D) technical prowess of the developers

1.8 Testing helps to :

(A) Fix Defect

(B) Improve Quality

(C) Measure Quality

(D) All of the above

1.9 Management Information Systems (MIS) :

(A) create and share documents that support day-today office activities

(B) process business transactions (e.g., time cards, payments, orders, etc.)

(C) capture and reproduce the knowledge of an expert problem solver

(D) use the transaction data to produce information needed by managers

1.10 Who writes the Software Requirement Specifications (SRS) ?

(A) Software Analyst

(B) Software Tester

(C) Software Developer

(D) None of the above

2. Each statement below is either TRUE or FALSE. Choose the most appropriate one and ENTER in the "OMR" answer sheet supplied with the question paper, following instructions therein.

(1x10=10)

2.1 Systems analysis and design focuses on understanding the business problem and outlining the approach to solve it.

2.2 The first four major phases of the predictive systems development life cycle (SDLC) are the planning phase, the analysis phase, the design phase and the prototyping phase.

2.3 Feasibility analysis investigates economic, organizational, technical, resource and schedule feasibility.

2.4 During the design phase, analysts begin to define a computer-system solution.

2.5 The data flow diagram is used with the structured analysis system development technique.

2.6 Software Engineering doesn't concern with the customer problem.

2.7 Building the software does not require a different mindset from testing the software.

2.8 Software development is a discipline in the computer science field that focuses on the creation of programs that control computer hardware.

2.9 Understanding the problem fully and detailing the requirements of an information system is one of the tasks conducted during the development phase.

2.10 Software Engineer must design the modules with the goal of low cohesion and high coupling.

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=10)**

X		Y	
3.1	Maintenance	**A.**	Prototype
3.2	Black Box testing is applied to	**B.**	Decision tree
3.3	Planning tool	**C.**	Development and Integration
3.4	Condition stub	**D.**	Automate SDLC activities
3.5	Tuple	**E.**	Requirements Capture
3.6	Working Model of a System	**F.**	Performance Tuning
3.7	DDL	**G.**	Gantt Chart
3.8	Domain Analysis	**H.**	Partitioning of the project into stages
3.9	CASE tools	**I.**	Relation
3.10	Cost Estimation Model	**J.**	Decision Table
		K.	DBMS
		L.	Requirements Specification
		M.	COCOMO

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 "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10=10)

A.	Module Testing	**B.**	Overloading	**C.**	Black box testing
D.	Coupling	**E.**	Level-0 DFD	**F.**	Strategic
G.	Process	**H.**	System Testing	**I.**	Entity
J.	Software development	**K.**	Encapsulation	**L.**	Corrective maintenance
M.	Attribute				

4.1 The context diagram is also known as _____.

4.2 _____ is a measure of the degree of interdependence between modules.

4.3 Activities and action taken on the data are represented by circle or round-edged rectangles is called _____.

4.4 Software Requirement Specification (SRS) is also known as specification of _____.

4.5 OOD languages provide a mechanism where methods performing similar tasks but vary in arguments, and that can be assigned to the same name is called _____.

4.6 Unit Testing is also known as _____.

4.7 In software maintenance removing errors spotted by users is known as _____.

4.8 Top down approach is used for _____.

4.9 _____ is real world object, such as person, place.

4.10 The first phase of IT planning is called _____.

PART TWO

(Answer any FOUR questions.)

5. (a) What are the similarities and dissimilarities between waterfall and prototyping model ?

(b) What is Requirement Engineering ? What are the objectives of Requirement Analysis ?

(c) What are the roles of System Analysts ?

(7+4+4=15)

6. (a) What is Modularity ? What are the benefits of Modular Design ?

(b) What is inheritance ? What are the various types of inheritance in Object Oriented Design and also give example for each ?

(c) What is UML ? What are different types of UML Modeling ?

(4+7+4=15)

7. (a) What is MIS ? Discuss in detail. Discuss the objectives and characteristics of MIS.

(b) Explain "Physical or Abstract Systems" and "Open or Closed Systems".

(8+7=15)

8. Differentiate between : **(5+5+5=15)**

(a) Black box testing and White box testing

(b) Verification and Validation in software development

(c) Object oriented and function oriented design

9. Write a Short Note on : **(5+5+5=15)**

(a) Feasibility Study

(b) Cohesion

(c) DFD

- o 0 o -

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK