A3-R4 : PROGRAMMING & PROBLEM SOLVING THROUGH 'C' LANGUAGE

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 :
Name of Candidate : _____

परीक्षार्थी के हस्ताक्षर :
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 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=10)**

1.1 What of the following is invalid header file in C ?

(A) math.h

(B) mathio.h

(C) string.h

(D) ctype.h

1.2 Which of the following is not a keyword of 'C' ?

(A) auto

(B) case

(C) break

(D) function

1.3 Strings are character arrays it always ends with _____.

(A) \n (B) \t

(C) \0 (D) \1

1.4 Find an integer constant

(A) 3.145

(B) 34

(C) "125"

(D) None of the above

1.5 Standard ANSI C recognizes _____ number of keywords.

(A) 16 (B) 32

(C) 64 (D) 128

1.6 Which is the only function that all C program must contain ?

(A) start()

(B) system()

(C) main()

(D) scanf()

1.7 Find output of the following program

```
#include<stdio.h>
#include<conio.h>
void main()
{
char a[] = { 'A', 'B', 'C', 'D' };
char* ppp = &a[0];
*ppp++;
printf("%c %c ", *++ppp, --*ppp);
}
```

(A) C A (B) C B

(C) B C (D) B A

1.8 Find output of the following program

```
#include <stdio.h>
#include<conio.h>
void main()
{
char ch;
int i;
ch = 'G';
i = ch-'A';
printf("%d", i);
}
```

(A) 5 (B) 6

(C) 7 (D) 8

1.9 How many times is a do while loop guaranteed to loop ?

(A) 0

(B) Infinitely

(C) 1

(D) Variable

1.10 Which of the following is not a proper storage class in 'C' ?

(A) auto

(B) dec

(C) static

(D) extern

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 In C, upper and lower cases letter are same.

2.2 = is used for comparison, whereas, = = is used for assignment of two quantities.

2.3 A function can be defined inside another function.

2.4 In switch statement, the default case is optional.

2.5 strlen() function counts the number of characters in a given string and returns the integer value.

2.6 The continue statement cannot be used with switch statement.

2.7 The basic meaning of the C keywords can be changed.

2.8 Functions can be called either by value or reference.

2.9 The + + operator increments the operand by 1, whereas, the − − operator decrements it by 1.

2.10 #define lines should end with a semicolon.

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	It is an unconditional jump statement.	**A.**	Exit controlled loop
3.2	Function that concatenate strings.	**B.**	Shift Left
3.3	It is used to link the related expression together.	**C.**	sizeof
3.4	Symbol '='	**D.**	Character test function
3.5	getw()	**E.**	Entry controlled loop
3.6	int*p	**F.**	Declare a pointer
3.7	While	**G.**	Assignment operator
3.8	isalpha()	**H.**	Comma
3.9	do….while	**I.**	strcat()
3.10	<<	**J.**	goto
		K.	Read an integer from a file
		L.	Declare an array
		M.	strlen()

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.	Newline	**B.**	Increment	**C.**	sizeof
D.	Overlooking	**E.**	Bell	**F.**	math.h
G.	Dot	**H.**	Structured	**I.**	islower()
J.	And	**K.**	Union	**L.**	Link
M.	&&				

4.1 C language was implemented at the _____ laboratories.

4.2 C language is well suited for _____ programming.

4.3 The operator "++" is known as _____ operator.

4.4 The _____ operator can be used to determine the length of array and structures.

4.5 The standard mathematical functions are included in the _____ header file.

4.6 The _____ section provides instruction to the compiler to link functions from system library.

4.7 The _____ operator is true only when both the operands are true.

4.8 _____ operator is used to connect structure name to its member name.

4.9 _____ function checks whether the entered alphabets are lower case letter or not.

4.10 _____ is a character used to represent the end of a line of text and the beginning of a new line.

PART TWO
(Answer any FOUR questions)

5. (a) What is flow chart ? List the symbols that are used to draw a flow chart. Develop a flowchart to find out the minimum of the given three numbers.

(b) What do you mean by decision making in C ? Which are the statements in C that provide the facilities of decision making and Branching ? Explain nested if else statement with suitable example. **(7+8)**

6. (a) What do you mean by user defined Function ? Explain the function definition, function declaration and function call with syntax and suitable example ?

(b) What do you mean by an Array ? How to declare and initialize 1-D array in C ? What is a limitation of an array ? Write a program to perform the addition of 3x3 matrices using an array. **(7+8)**

7. (a) Define a Structure named "Student" with roll_no,name and percentage as members read the data of 3 students from user and display them in proper format.

(b) List the various types of loop available in C and explain any one with the syntax and suitable example.

(c) What is a string ? How to declare and initialize a string ? Explain the use of strcpy(),strcat() function. **(5+5+5)**

8. (a) What do you mean by Recursion ? Write a program to find factorial of given number using recursive function.

(b) Write a program using pointer to find greatest number in an array.

(c) What is type conversion ? Explain Implicit and Explicit type conversion with suitable example. **(5+5+5)**

9. Explain briefly any three froms the following :

(a) Explain the use of malloc() and calloc() in dynamic memory allocation.

(b) Define pointer. How to declare and initialize pointer ? Narrate any two advantages of pointer.

(c) What are the uses of following file handling function :

fopen(), fclose(), fseek(), ftell(), rewind()

(d) Write a program to swap two numbers without using third variable. **(3x5)**

- o 0 o -

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK