

A3/B1.3-R4 : PROGRAMMING & PROBLEM SOLVING THROUGH 'C' LANGUAGE

अवधि : 03 घंटे
DURATION : 03 Hours

अधिकतम अंक : 100
MAXIMUM MARKS : 100

ओएमआर शीट सं. :					
OMR Sheet No. :					

रोल नं. :

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Roll No. :

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उत्तर-पुस्तिका सं. :

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Answer Sheet No. :

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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 हैं तथा भाग दो "व्यक्तिपरक" प्रकार का है और इसके कुल अंक 60 हैं।	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 Which of the following is a keyword used for a storage class ?

- (A) printf
- (B) external
- (C) auto
- (D) scanf

1.2 Which pair of functions below are used for single character I/O ?

- (A) getchar() and putchar()
- (B) scanf() and printf()
- (C) input() and output()
- (D) none of these

1.3 What is the output of below program ?

```
void main(){  
    char *p="Hello world";  
    int *q;  
    p++;  
    q = (int *)p;  
    q++;  
    printf("\n %s\n%s",p,q); }
```

- (A) ello world
Ello world
- (B) Compiler error
- (C) lo world
lo world
- (D) ello world
world

1.4 Which of the following is a Scalar Data type ?

- (A) Float
- (B) Union
- (C) Array
- (D) Linked list

1.5 Header files in C contain :

- (A) Compiler commands
- (B) Library functions
- (C) Header information of C programs
- (D) Operators for files

1.6 What is the binary number equivalent of the decimal number 12 ?

- (A) 1100
- (B) 1010
- (C) 1001
- (D) 1110

1.7 Pointers are of :

- (A) integer data type
- (B) character data type
- (C) unsigned integer data types
- (D) none of these

- 1.8 In C, if you pass an array as an argument to a function, what actually passed ?
- (A) Value of elements in array
 - (B) First element of the array
 - (C) Base address of the array
 - (D) Address of the last element of array
- 1.9 Which of the following fopen() statements is illegal in C ?
- (A) `fp = fopen("abc.txt", "r");`
 - (B) `fp = fopen("c:/user1/abc.txt", "w");`
 - (C) `fp = fopen("abc", "w");`
 - (D) none of the mentioned
- 1.10 Which one of the following is not a keyword in C language ?
- (A) `main`
 - (B) `endl`
 - (C) `float`
 - (D) `switch`
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 Array `int a[5]` can be used to store five character a, b, c, d and e into it.
 - 2.2 C language was initially designed and developed at Microsoft Corporation of USA.
 - 2.3 A semicolon must be placed after closing the conditional expression in a do-while construct.
 - 2.4 Ternary expression is a selective control construct.
 - 2.5 All the functions, except `main()` function do not execute on their own, they require a calling function.
 - 2.6 Recursive call is not allowed for `main()` function.
 - 2.7 A structure cannot contain the structure itself as its member.
 - 2.8 Pointers to pointers is a term used to describe pointers whose contents are the address of another pointer.
 - 2.9 In C, there is a function name `strcat()` used to concatenate two strings.
 - 2.10 Values of predefined macros can be printed using `printf` statement in C program.

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	Keyword used to transfer control from a function back to the calling function	A.	fseek()
3.2	Statement used to go to the next iteration in a loop	B.	malloc()
3.3	Library function used to clear the specified buffer	C.	switch-case control
3.4	Relational operators cannot be used on	D.	loops control
3.5	Function that allocate and clear allocated memory	E.	argument
3.6	If you have to use many if-else conditions, they can be usually implemented by	F.	fflush()
3.7	A piece of information passed to a method	G.	for(; ;)
3.8	Function that allocates memory but does not clear allocated memory	H.	return
3.9	Function used for file pointer movement	I.	continue
3.10	Unending loop if no break statement inside the body	J.	break
		K.	main()
		L.	structure
		M.	calloc()

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. (1×10=10)

A.	Ternary	B.	sizeof	C.	null
D.	void	E.	semicolon	F.	#
G.	increment	H.	extern	I.	static
J.	structure	K.	pointer to pointer	L.	reference
M.	getch()				

- 4.1 C language is well suited for _____ programming.
- 4.2 An _____ storage class can be used to declare global variable known to all the functions in the file.
- 4.3 _____ function can be used to read a single character.
- 4.4 The operator "++" is known as _____ operator.
- 4.5 The _____ operator can be used to allocate memory space dynamically to variables during execution of a program.
- 4.6 A _____ variable points to another pointer.
- 4.7 A function with no return type is declared as _____.
- 4.8 A function prototype is always terminated by _____ sign.
- 4.9 When a structure is passed to a function, then it should pass by _____.
- 4.10 The conditional operator (?:) is a _____ operator.

PART TWO

(Answer any FOUR questions.)

5. (a) What do you mean by pre-processor directives ? List and explain its different categories.
- (b) List out the advantages of functions in C. Also write a function to find second largest number from 1D array of n numbers.
- (c) What is the recursive function ? List out their merits and demerits. Also write a C program to calculate factorial of a number using recursion.
(5+5+5=15)
6. (a) Write a C Program using function to print equivalent binary number of decimal number input by keyboard.
- (b) What do you mean by algorithm ? Also write the algorithm to find multiplication of two matrices.
- (c) Differentiate between the following :
- (i) Function definition and function declaration
- (ii) Actual parameter and formal parameter
(5+5+5=15)
7. (a) Write a C Program to print and count all numbers between 1 to 100 divisible by 11.
- (b) What is difference between Pass by value and Pass by reference with example ?
- (c) Write a C program to swap values of two variables without using temporary variable.
(5+5+5=15)

8. (a) Write a C language program to copy the contents of one file to another file.
- (b) What is command line argument ? Give Example through 'C' program.
- (c) What do you understand by 'pointer to function'? Explain it using an example.
(5+5+5=15)
9. (a) What do you mean by linked list ? Write a function in C to delete a node at particular position from linked list.
- (b) Differentiate between do-while loop and while loop with the help of one example for each.
(10+5=15)

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SPACE FOR ROUGH WORK

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