



Printed Pages : 7

ECS101

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1601

Roll No.

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B.Tech

**(SEM I) ODD SEMESTER THEORY EXAMINATION 2009-10
COMPUTER CONCEPTS & PROGRAMMING IN C**

Time : 3 Hours]

[Total Marks : 100

- Note :**
- (1) This question paper consists of three sections. Section A contains objective type questions and is of 20 marks. Section B consists of short answer type questions which is of 30 marks and Section C contains long answer type questions of total 50 Marks.
 - (2) Your answers for Section B and C should be precise and to the point.
 - (3) Answer to the questions of each section must be done at one place in your answer books.
 - (4) You are required to attempt all the questions.

SECTION - A

- 1 There are total 20 multiple choice questions. **10×1=10**
Only one of the answer out of given four choices is correct. Write the correct answer.
- (i) In evaluation an expression $a + b * C$, which one of the following is correct
 - (a) + has higher precedence over *
 - (b) * has higher precedence over +
 - (c) both * and + have the same precedence
 - (d) The order of evaluation does not matter



- (ii) A Stack is
- (a) LIFO (Last in First out)
 - (b) FIFO (First in First out)
 - (c) LILO (Last Last out)
 - (d) None of the above
- (iii) An array can store
- (a) Finite data of similar type
 - (b) Infinite data of similar type
 - (c) Finite data of mix type
 - (d) All of the above
- (iv) How many bytes of storage an unsigned short integer in C language would require
- (a) 2
 - (b) 4
 - (c) 6
 - (d) 8
- (v) Decimal number 10 can be represented in unary (a number system with base 1) as
- (a) 1010
 - (b) 64
 - (c) A
 - (d) None of the above

- (vi) If $k = 5$ then the value of variable x after the execution of a C statement $x = k ++$ will be
- (a) 5
 - (b) 6
 - (c) randomly any one of the above
 - (d) value of x will not depend on k
- (vii) Typically an operating system
- (a) manages all the hardware resources of the computer
 - (b) compiles a high-level program
 - (c) Both (a) and (b)
 - (d) None of the above
- (viii) For a C program code for $(i=0; i \leq 10; i ++)$ {A};
A will run
- (a) 10 times
 - (b) 11 times
 - (c) 12 times
 - (d) None of the above
- (ix) Which of the following is not a functional programming language
- (a) SML
 - (b) HASKELL
 - (c) C
 - (d) LISP



- (x) A pointer in C language
- (a) is a address of some location
 - (b) is useful in describing linked list
 - (c) can be used to access the elements of an array
 - (d) all of the above.

2 State whether the following statements are True or False : 5×1=

- (i) Normal binary operators like + and - can be combined with assignment operator = to form new operators in C Language.
- (ii) A compiler translates a High-level program into a machine understandable language.
- (iii) An algorithm might never terminate.
- (iv) In C language pointers can be used as a function argument.
- (v) MS-WORD may be classified as an application software.

3 Fill in the blanks. 5×1=5

- (i) _____ is used to open a file.
- (ii) _____ is used as a statement terminator in C.

- (iii) The operator `&&` is an example for AND operator.
- (iv) A function is called _____ when it calls itself.
- (v) An Editor can be classified as _____ software.

SECTION - B

- 4 There are total ~~six~~⁵ questions in this section. $6 \times 5 = 30$
- Attempt all questions *selecting one part from each question of this section.*
- (a) (i) Write a C program to swap two integer variables without using third variable.
- (ii) What is the difference between initialization and assignment of a variable.
- (b) (i) Differentiate between WHILE...DO and DO....WHILE loops.
- (ii) Write a recursive C program to calculate the factorial of a given integer.
- (c) (i) Draw a flow chart to sort three integers.
- (ii) What is dynamic memory allocation? Explain malloc function.
- (d) (i) Write a C program to sequentially search a given integer element from a given list of numbers.
- (ii) What is the purpose of using Structures in C? Explain with the help of a suitable example.



- (e) (i) Find the value of X in the equation $(1230)_4 = X_6$.
- (ii) Draw the functional block diagram of a Digital Computer and discuss its components in brief.

SECTION - C

5 This section contains SEVEN programming questions. Attempt any FIVE questions. All answers must contain Flow chart/Algorithm for your program logic : **10×5=50**

- (a) Write a C program to read in 10 integer numbers and print their average, minimum and maximum numbers.
- (b) Write a C program to add, multiply two $N \times N$ matrix.
- (c) Write a simple database program in C which stores personal details of 100 persons such as Name, Date of Birth, Address, Phone number etc.
- (d) Write a C program which reverses the digits of the integer input given to it. For example an input 65367 is outputted as 76356.



- (e) Write a C program to calculate the sum of the following series upto 50 terms

$$\text{SUM} = -1^3 + 3^3 - 5^3 + 7^3 - 9^3 + 11^3 - \dots$$

- (f) Write a C program to print n^{th} Fibonacci number.
- (g) Write a C program to arrange given n strings in lexicographical order.
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