

(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

2010-11

COMPUTER CONCEPTS & PROGRAMMING IN C

Time : 3 Hours

Total Marks : 100

- Note :**
- (1) This question paper contains **three** sections.
 - (2) Attempt **all** questions.

SECTION-A

1. There are 10 multiple choice types of questions. Only one of the answers is correct. State correct answer : (10×1=10)
 - (a) Which of the following is not an operating system ?

(A) Linux	(B) JAVA
(C) DOD	(D) WINDOWS
 - (b) Program written in High Level Language is converted to Machine Code by :

(A) Operating System	(B) Assembler
(C) Compiler	(D) Machine Language

(c) Which of the following doesn't make use of condition in its execution ?

- (A) Loop (B) Case
(C) Function (D) Decision

(d) Which of the following is not a binary number ?

- (A) 0 (B) 1
(C) 2 (D) 10

(e) Which of the following clause is used to include I/O function library ?

- (A) include # <io.h> (B) include # <stdio.h>
(C) # include <stdio.h> (D) none of the above

(f) Which one of the following is a correct statement for checking a condition in IF THEN ELSE statement ?

- (A) IF (A == B) (B) IF (A = B)
(C) IF (A & B) (D) IF (A * B)

(g) Which keyword is used to define structure ?

- (A) structure (B) STRUCTURE
(C) STRUCT (D) None of the above

(h) Which method of input-output is used in stack ?

- (A) First In First Out (B) First In Last Out
(C) Both A & B (D) None of the above

(i) How many elements will be there in A[5][5] array ?

- (A) 5 (B) 25
(C) 50 (D) None of the above

(j) In a C program, the statement for (i=0; i<5; i++) will iterate the loop :

- (A) 4 Times (B) 5 Times
(C) 6 Times (D) None of the above

2. State whether the following statements are True or False:

(5×1=5)

- (a) An identifier in C must start with a letter or underscore. It is not allowed to have a space or a hyphen.
(b) Initialization of all elements of an array can be done at the time of declaration and definition.
(c) List is a non linear data structure.
(d) A function in C cannot be invoked by other function.
(e) The name of an array is a pointer only to the first element, not the whole array.

3. Fill in the blanks : (5×1=5)
- (a) The _____ function reads data from keyboard.
- (b) An _____ is a sequence of operators and operands that reduces to a single value.
- (c) The statement _____ will declare *pa* as pointer to character variable.
- (d) Mode _____ opens an existing file for read operations only.
- (e) _____ is a predefined macro of C Preprocessor.

SECTION-B

4. There are seven (07) parts. Attempt any five (05) parts. (6×5=30)
- (a) (i) What are differences in GUI interface and CUI interface? Give one example of each to explain your answer.
- (ii) Convert the following decimal numbers to equivalent binary numbers :
575, 311.55.
- (b) (i) Draw a neat schematic of a digital computer and explain the role of each functional unit.


- (ii) What is Algorithm ? Discuss basic characteristics of an algorithm.
- (c) (i) Draw a flow chart for arranging three numbers a, b and c in ascending order.
- (ii) What is a role of SWITCH statement in C programming language ? Give the syntax of SWITCH statement with a suitable example.
- (d) (i) What are Functions ? What are advantages of using multiple functions in a program ?
- (ii) What do you mean by Call by Value technique for function call ? Explain with a suitable example.
- (e) (i) What is difference in searching and sorting ? Write an algorithm to sort a list containing ten numbers.
- (ii) What are differences in Array and Structures ? Explain with an example.
- (f) (i) What is a pointer ? How pointers are declared in C programming language ? Illustrate with a suitable example.
- (ii) Write a program segment in C to swap the values of two variables using pointers.
- (g) (i) What are differences in Stack and List ? Explain how an element can be deleted from a Stack and List.



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- (a) The _____ function reads data from keyboard.
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SECTION-B

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 - (ii) Convert the following decimal numbers to equivalent binary numbers:
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- (ii) What is Algorithm? Discuss basic characteristics of an algorithm.
 - (c) (i) Draw a flow chart for arranging three numbers *a*, *b* and *c* in ascending order.
 - (ii) What is a role of SWITCH statement in C programming language? Give the syntax of SWITCH statement with a suitable example.
 - (d) (i) What are Functions? What are advantages of using multiple functions in a program?
 - (ii) What do you mean by Call by Value technique for function call? Explain with a suitable example.
 - (e) (i) What is difference in searching and sorting? Write an algorithm to sort a list containing ten numbers.
 - (ii) What are differences in Array and Structures? Explain with an example.
 - (f) (i) What is a pointer? How pointers are declared in C programming language? Illustrate with a suitable example.
 - (ii) Write a program segment in C to swap the values of two variables using pointers.
 - (g) (i) What are differences in Stack and List? Explain how an element can be deleted from a Stack and List.

- (ii) What do you mean by C Preprocessor? Give example of any two preprocessor directives.

SECTION-C

5. This section contains seven (07) programming problems.

Attempt any five (05) problems. (5×10=50)

- (a) Draw a flowchart and write a function in C to calculate factorial of given number and also write a program to calculate the sum of the following series using the above fn:

$$S = 1! + 2! + 3! + \dots + N!$$

- (b) Write a program in C that accepts roll number and name of student's of a class size of one hundred students along with the marks obtained by them in Physics, Chemistry and Mathematics. Print roll number and the name of top ten students in the order of merit. The merit is based on the sum of the marks obtained in the three subjects.
- (c) Write a program in C that accept the length and width of a rectangle and print the area. The area of a rectangle is calculated by a function and returns its value to main program where it is printed. The values of length and width of rectangle are accepted from the keyboard. Also give the flowchart and algorithm.

- (d) Write a program in C to calculate the sum of the following series upto n^{th} term.

$$F(x) = x^1 - x^3 + x^5 - x^7 + \dots$$

- (e) Draw flow chart and write a program in C to print the multiplication of two matrices A and B of size $N \times N$.
- (f) Draw flowchart and write a program in C to calculate the sum of Fibonacci series upto 100 terms.
- (g) Using dynamic memory allocation, write a program in C to accept element of a matrix of size 3×3 and print transpose of it.