



Printed Pages : 8

ECS - 101 / ECS - 201

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

PAPER ID : 1602

Roll No.

B. Tech.

(SEM. II) EXAMINATION, 2008-09

COMPUTER CONCEPTS & PROGRAMMING IN C

Time : 3 Hours]

[Total Marks : 100

- Note :**
- (i) This question paper contains **three** sections. **Section - A** contains objective type questions, **Section - B** contains short answer type Questions and **Section - C** contains descriptive types questions.
 - (ii) Attempt all questions.

SECTION - A

Note : This section contains **20** objective type **20×1=20** questions. Answer **all** questions.

1 Multiple choice

- (i) the binary code of $(73)_{10}$ is
 - (a) 1010001
 - (b) 1000100
 - (c) 1100101
 - (d) 1001001
 - (e) 0110110



- (ii) Which of the following is not an input device ?
- (a) Light pen
 - (b) MICR
 - (c) Microphone
 - (d) Speaker
 - (e) None of the above.
- (iii) A block is enclosed within a pair of
- (a) { }
 - (b) ()
 - (c) []
 - (d) < >
 - (e) None of the above.
- (iv) The feature which permits a user to execute multiple programs simultaneously ?
- (a) Multi-user
 - (b) Multi-tasking
 - (c) Multi-process
 - (d) Multi-programming
 - (e) None of the above.
- (v) In which of the following loops the number of iterations remain known prior to the execution of the loop ?
- (a) While
 - (b) Do-while
 - (c) For
 - (d) In none of the above.



- (vi) Which operator is used for accessing the members of a structure ?
- (a) dot (.)
 - (b) arrow (\rightarrow)
 - (c) Both of the above
 - (d) None of the above.
- (vii) Which of the following is not a data structure ?
- (a) queue
 - (b) stack
 - (c) tree
 - (d) variable.
- (viii) Which character terminates strings in C ?
- (a) /0
 - (b) \0
 - (c) '\0'
 - (d) !0
 - (e) None of the above.
- (ix) Which of the following is correct statement for checking a condition in if statement ?
- (a) if (a=b)
 - (b) if (a, b)
 - (c) if (a b)
 - (d) if (a==b)
 - (e) None of the above.



- (x) At which stage 'C' preprocessor works ?
- (a) Before translation
 - (b) Before execution
 - (c) Before linking
 - (d) Before debugging
 - (e) None of the above

State TRUE / FALSE

- (xi) The do... while statement first executes the loop body and then evaluate the loop control expression.
- (xii) C functions can return only one value under their function name.
- (xiii) During the evaluation of mixed expression, an implicit cast is generated automatically.
- (xiv) All static variables are automatically initialized to zero.
- (xv) A struct type in C is a built in data types.

Fill in the blank :

- (xvi) The _____ header file contains mathematical functions.
- (xvii) _____ is used to determine the order in which different operators in an expression are evaluated.
- (xviii) _____ is the process of arranging the elements of an array in order.
- (xix) A variable can be made constant by declaring it with the qualifier _____ at the time of initialization.
- (xx) The parameters used in a function call are called _____.



SECTION - B

Note : Attempt any **three** parts from this section. **10×3=30**

2 (a) (i) Area of a triangle is given by the formula

$$A = \sqrt{S(S-a)(S-b)(S-c)}$$

where a , b and c are sides of the triangle and $S = (a + b + c) / 2$. Write a 'c' program. to compute the area of the triangle given the values of a , b and c .

(ii) Explain different data types in 'C'.

(b) (i) Explain differences between precedence and associativity of operators with suitable example.

(ii) Write a 'C' program to test whether a given year is leap year or not.

(c) (i) Explain difference between a flow chart and an algorithm with an example.

(ii) Write a program in 'c' to accept 10 integer numbers and print them in reverse order.



(d) (i) Write a program in 'C' to receive an integer and find its octal equivalent.

(ii) Write a C program to generate the following pattern

```
*
* *
* * *
* * * *
```

(e) (i) What is a pointer ? Write a 'C' program to swap the values of two variables making use of pointers.

(ii) Write a 'c' program to copy the contents of one file to another.

SECTION - C

Note : There are five questions in the section. $10 \times 5 = 50$
Attempt all questions.

3 Attempt any **one** part :

(a) Convert the following :

(i) $(478A)_{16} = (X)_{10}$

(ii) $(975.55)_{10} = (Y)_2$

(iii) $(11001100.10)_2 = (Z)_{16}$

(iv) $(678)_{10} = (W)_3$

(v) $(752)_8 = (V)_{16}$



(b) Write your own 'C' functions to implement the following standard library string functions :

(i) strlen()

(ii) strcpy()

4 Attempt any **one** part :

(a) A company insures its drivers in the following cases

- If the driver is married.
- If the driver is unmarried, male and above 30 years of age.
- If the driver is unmarried and above 25 years of age.

In all other cases, the driver is not insured. Write a 'c' program without using logical operators to determine whether the driver is insured or not.

(b) Write a 'C' program to add first seven terms of the following series using a for loop :

$$\frac{1}{1!} + \frac{2}{2!} + \frac{3}{3!} + \dots$$

5 Attempt any **one** part :

(a) A 5-digit positive integer is entered through the keyboard write a 'C' function to calculate sum of digits of the 5-digit number :

(i) Without using recursion

(ii) Using recursion.



- (b) Write macro definition with arguments for calculation of simple interest and amount. Store these macro definitions in a file called 'Interst.h'. Include this file in your program, and use the macro definitions for calculating simple interest and amount.

6 Attempt any **one** part :

- (a) Write a program in 'C' that compares two given dates. To store a date, use a structure that contains three members namely day, month and year. If the dates are equal then display message as "equal" otherwise "Unequal".
- (b) What are difference file opening modes in 'C'. Suppose a file contains student's records with each record containing name and age of a student. Write a 'C' program to read these records and display them in sorted order by name.

7 Attempt any **one** part :

- (a) Write a 'C' program to convert a given decimal number to binary number using stack.
- (b) Write short notes on the following :
- (i) Dynamic Memory Allocation in 'C'
 - (ii) Creation of linked list in 'C'

