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ECS-101

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

**PAPER ID : 1601**

Roll No.

**B. Tech.**

(Only for the candidates admitted/Readmitted in the session 2008-09)

(SEM. I) EXAMINATION, 2008-09

**COMPUTER CONCEPTS & PROGRAMMING IN C**

Time : 3 Hours]

[Total Marks : 100

*Note : (1) This question paper contains **three** sections. SECTION - A contain Objective type questions, SECTION - B contains short answer type questions and SECTION - C contains descriptive type questions.*

*(2) Attempt all questions.*

**SECTION - A**

**20×1=20**

**Note :** This section - contains **20 objective type** questions.  
Answer **ALL** questions.

**1 Multiple Choice**

- (i) Which of the following is not an Operating System?
- (a) UNIX
  - (b) LINUX
  - (c) DOS
  - (d) BASIC



(ii) Which of the following is based on Objective Oriented Programming Concepts?

- (a) C
- (b) COBOL
- (c) FORTRAN
- (d) C++

(iii) What is an Algorithm?

- (a) A Computer Program
- (b) Programming Language
- (c) An error in Program
- (d) None of the above

(iv) Which of the following is a Valid Octal number?

- (a) F03
- (b) 991
- (c) 125
- (d) None of the above

(v) Typically an Operating System is classified as:

- (a) System Software
- (b) Application Software
- (c) Both A & B
- (d) None of the above



- (vi) Which character is used as an assignment operator in C language?
- (a) =
  - (b) →
  - (c) ==
  - (d) ~
- (vii) Which of the following is not a data structure?
- (a) Stack
  - (b) Variable
  - (c) Queue
  - (d) List
- (viii) What will a PUSH statement do in a stack?
- (a) Insert an element between two elements
  - (b) Delete an element
  - (c) Always add element at top
  - (d) None of the above
- (ix) How many elements will be there in A[10][5] array?
- (a) 50
  - (b) 36
  - (c) 55
  - (d) None of the above



- (x) At which stage a C Pre-processor works?
- (a) Before Translation
  - (b) Before Linking
  - (c) After Execution
  - (d) None of the above

**State TRUE / FALSE**

- (xi) Fourth Generation Languages are Low Level Languages.
- (xii) A program is a collection of instructions and a compiler translates a program written in high level language to machine to machine language.
- (xiii) `&&` and `||` are logical operators in C language.
- (xiv) Each addition to Queue increases the value of rear and front pointer by one.
- (xv) A function in C Language can not call itself.

**Fill in the Blank :**

- (xvi) The user interface where a user interacts by typing commands is known as .....
- (xvii) The statement `for (i = 0; i ≤ 10; i++)` will iterate the loop.....times.
- (xviii)..... is data type used in C that is used to represent real numbers.
- (xix) ..... is used to close a file.
- (xx) The program that is generated after the compilation is generally called.....



SECTION - B

10×3=30

*Note : There are FIVE questions in this section. Attempt any three question from this Section.*

- 2 (i) (a) Draw the functional block diagram of a Digital Computer and discuss its components in brief.
- (b) Draw the flow chart for finding out largest of given three positive integers.
- (ii) (a) Write various data types and storage classes supported in C with example.
- (b) What is the use of bitwise operators? Describe any **two** bitwise operators with example.
- (iii) (a) Write a program in C which inputs ten integers and print their average.
- (b) What is the use of 'switch' statement? Write the syntax of 'switch' statement and explain how it is different from 'if' statement.
- (iv) (a) Write a program in C that accepts N x N matrix as input and prints transpose of this matrix.
- (b) What is dynamic memory allocation? Explain; **malloc** function with a suitable example.
- (v) (a) What is sorting? Explain any **one** sorting technique with the following data.
- 76, 89, 31, 11, -6, -15, 0, 17
- (b) Write a program in C that takes ten integers from a file and write square of these integers into another file.



SECTION - C

10×5=50

*Note : There are FIVE questions in this section. Attempt ALL questions.*

3 Attempt any **one** part :

- (a) Convert the following:
  - (i)  $(1101101)_2$  to Decimal
  - (ii)  $(4567)_8$  to Binary
  - (iii)  $(B678A)_{16}$  to Decimal
  - (iv)  $(125)_{10}$  to Binary
- (b) Write short notes on following :
  - (i) Structured Programming
  - (ii) Flow Chart

4 Attempt any **one** part :

- (a) Write an algorithm to input the date in the **dd/mm/yyyy** format and prints YES if it is a valid date otherwise prints NO.
- (b) Write a program to calculate the sum of following series up to first 100 terms  
$$S = 1^4 + 3^4 + 5^4 + 7^4 + \dots \dots \dots 100 \text{ terms}$$

5 Attempt any **one** part :

- (a) Show with the example how arguments are passed using 'call by value' and 'call by reference' respectively.
- (b) Write a program in C to check whether a given string is a palindrome or not?



6 Attempt any one part.

- (a) Write a program in C to multiply TWO matrices of  $N \times N$  dimension.
- (b) Declare a structure which contains the following members and write a program in C to list all students who scored more than 75 marks.

Roll No, name, father's name, age, city, marks

7 Attempt any one part.

- (a) Given an array of 20 integers. Write a program in C to search for a given integer in that array.
- (b) How the macros are defined and called in C ? Explain with example.

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