DipIETE – ET/CS (NEW SCHEME) - Code: DE53/DC53

Subject: COMPUTER FUNDAMENTALS & C PROGRAMMING

Time: 3 Hours   **DECEMBER 2011**   Max. Marks: 100

NOTE: There are 9 Questions in all.
- **Please write your Roll No. at the space provided on each page immediately after receiving the Question Paper.**
- **Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.**
- **The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.**
- **Out of the remaining EIGHT Questions answer any FIVE Questions, selecting TWO questions from part A and THREE questions from part B. Each question carries 16 marks.**
- **Any required data not explicitly given, may be suitably assumed and stated.**

Q.1 **Choose the correct or the best alternative in the following:**   (2×10)

a. The ASCII code of the letter 'F' is

(A) 1000101   (B) 1000110
(C) 1000100   (D) 1000111

b. The radix of binary number is

(A) 1   (B) 3
(C) 2   (D) 4

c. Kilobytes (KB) memory storage equal to

(A) 2^{12} (B) 2^{20}
(C) 2^{14} (D) 2^{10}

d. Central controlling part of an operating system that implements the most primitive system functions

(A) kernel   (B) shell
(C) command   (D) utilities

e. Statement terminator is represented by

(A) :   (B) blank
(C) ;   (D) \n

f. Which operator has the highest priority?

(A) ++   (B) %
(C) +   (D) /

g. The minimum number of times the while loop is executed is

    (A) 0   **(B)** 1
    (C) 2   **(D)** cannot be predicted

h. Two dimensional array elements are store in

    (A) Column major order   **(B)** row major order
    (C) both **(A)** & **(B)**   **(D)** random order

i. The parameters passing mechanism used in 'C' is

    (A) call by reference   **(B)** call by name
    (C) call by value   **(D)** both **(A)** & **(B)**

j. The pointers can be used to achieve

    (A) call by function   **(B)** call by reference
    (C) call by name   **(D)** call by procedure

PART A
Answer any TWO questions. Each question carries 16 marks.

Q.2 a. What is an algorithm? Write an algorithm to find the average number of vowels in a passage.   **(6)**

      b. Convert the following numbers into binary numbers
         (i) $(87.75)_{10}$
         (ii) $(AF1.D4)_{16}$
         (iii) $(754.51)_8$ **(6)**

      c. Convert binary number $(110111101.111)_2$ into hexadecimal number and decimal number.   **(4)**

Q.3 a. What is an OMR device? Explain the technique used by it for recognition of marks.   **(6)**

      b. What are advantages and limitations of high level languages?   **(6)**

      c. Why has UNIX become a popular operating system?   **(4)**

Q.4 a. Define an ideal microcomputer. What is the purpose of control bus in a microcomputer?   **(4)**

      b. What is an Internet? What are the uses of the Internet?   **(6)**

      c. What is wireless LAN? Explain why it is needed and how it is used?   **(6)**

PART B
Answer any THREE questions. Each question carries 16 marks.

Q.5 a. What is an operator? Explain briefly different operators used in 'C'. **(8)**

b. How many types of assignments are possible in C? **(2)**

c. Given i an integer, j a float & k a character type variables. Write a program using a single *printf()* function, to print the values of these variables. **(4)**

d. How do you receive data items through keyboard? **(2)**

Q.6 a. Write down the syntax of *do-while* loop. **(3)**

b. Differentiate between a *while* loop and *do-while* loop. **(3)**

c. Write a program that displays all the prime numbers from 1 to 100. **(6)**

d. What is the purpose of continue statement in loops? Explain with example.**(4)**

Q.7 a. Define an array. How are the two-dimensional array elements stored in memory? **(4)**

b. Write a program that converts an uppercase string into lower case string. **(8)**

c. Explain the *strcpy()* function with example. **(4)**

Q.8 a. What is a function definition? Differentiate between function definition and function declaration. **(4)**

b. Write a recursive function to find factorial of a given number n. **(6)**

c. Differentiate assembly language and higher level language. **(4)**

d. What is the purpose of *main()* function? **(2)**

Q.9 a. What is a pointer value? Compare the value returned by & and *. **(4)**

b. Write a program that display the elements of a two-dimensional array using pointers. **(8)**

c. What is a file? How is *fopen()* used? **(4)**