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

Subject: COMPUTER FUNDAMENTALS & C PROGRAMMING

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

NOTE: There are 9 Questions in all.

- **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 E is

(A) 1000110   (B) 1000101
(C) 1001001   (D) 1000111

b. A COBOL program is divided into _____ divisions

(A) 4   (B) 3
(C) 5   (D) 6

c. A language directly understandable by a computer

(A) Assembly language   (B) High level language
(C) Machine language   (D) None

d. Megabytes (MB) memory storage equal to

(A) 2^{21} (B) 2^{20}
(C) 2^{18} (D) 2^{19}

e. Which operator has the lowest priority?

(A) &   (B) +
(C) <=   (D) ||

f. Identify the correct statement given double X;

(A) scanf("%d", &X);   (B) scanf("%f", X);
(C) scanf("%d", *X);   (D) scanf("%1f", &X);

g. A block is enclosed with a pair of

(A) { }   (B) ()
(C) []   (D) <>

h. One-dimensional array is known as

(A) vector   (B) table
(C) matrix   (D) an array of arrays

i. How many main() functions can be defined in a 'C' program?

(A) 1   (B) 2
(C) 3   (D) any no of times

j. The declaration float *a[5]; is

(A) an ordinary array   (B) a pointer to an array
(C) an array of pointer   (D) pointer to array element

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

Q.2 a. What is computer? List and explain some important characteristics of a computer. **(6)**

b. Convert the following numbers into binary numbers
   (i) $(174.50)_{10}$ (ii) $(DF2 - 7C)_{16}$
   (iii) $(477.75)_8$ **(6)**

c. Convert binary number $(111111011.101)_2$ into hexadecimal number and decimal number. **(4)**

Q.3 a. What is a printer? Explain the commonly used types of printers. **(8)**

b. Define operating system. What facilities are provided by an operating system to a user? **(5)**

c. Write a short note on Java. **(3)**

Q.4 a. What is a microprocessor? What is the purpose of the address and data bus of a microprocessor? **(7)**

b. Write short note on the following:-
   (i) Electronic mail
   (ii) FTP
   (iii) The World Wide Web. **(3×3)**

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

Q.5 a. Name and describe the four basic data types in 'C'. **(6)**

      b. Describe the use of conditional operator to form conditional expressions. How is a conditional expression evaluated? **(6)**

      c. What is the purpose of the *getchar* function? How is it used within a 'C' program? **(4)**

Q.6 a. Write a loop that will calculate the sum of every third integer, beginning with i = 2. (i.e. calculate the sum 2+5+8+11+…) for all value of i that are less than 100. Write the loop in three different ways
        (i) using a *while* statement
        (ii) using a *do-while* statement
        (iii) using a *for* statement. **(6)**

      b. Write the syntax of switch case structure. **(4)**

      c. What is the purpose of the break statement? Within which control statements can the break statement be included? **(6)**

Q.7 a. What is array initialization? What happens if the number of values in the initializer is less than the size of array? **(4)**

      b. Write a program which adds two given matrices. **(8)**

      c. What is string? Differentiate between *gets()* and *scanf()* using %s conversion specification. **(4)**

Q.8 a. What is a function? What is the basic difference between a user defined function and a built in function? **(4)**

      b. Write a program that calculates the power of x raised to y $\left(x^y\right)$ using recursion. **(8)**

      c. What are the advantages and disadvantages of call by value? **(4)**

Q.9 a. What is a pointer variable? How do you declare a pointer variable? **(4)**

      b. Write a program that accesses the array element using pointer variable. **(6)**

      c. What is meant by file opening? How is a file closed? **(4)**

      d. What is FILE? **(2)**