Code: DE53/DC53   Subject: COMPUTER FUNDAMENTALS & C PROG.

DipIETE – ET/CS (NEW SCHEME)

Time: 3 Hours | JUNE 2012 | **Max. Marks: 100**

PLEASE WRITE YOUR ROLL NO. AT THE SPACE PROVIDED ON EACH PAGE IMMEDIATELY AFTER RECEIVING THE QUESTION PAPER.

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. Database Management should:
      (1) be possible to store, access & maintain the large size of data
      (2) Permit data storage in integrated fashion by fragmenting in different application which control redundant data
      (3) Have a central repository with data description at both logical & physical levels

      (A) 1,2   **(B)** 1,3
      (C) 2,3   **(D)** 1,2,3

   b. Unprocessed facts and figures are called

      (A) Information   **(B)** Data
      (C) Knowledge   **(D)** None of the above

   c. The type of a function/procedure/module is determined by

      (A) Its arguments   **(B)** The value returned
      (C) Its name   **(D)** None of the above

   d. 'C' is a

      (A) Procedure oriented programming language
      (B) Object oriented programming language
      (C) Machine language
      (D) None of the above

   e. Which of the following is a valid octal constant?

      (A) 32   **(B)** 032
      (C) 049   **(D)** 0×49

f. What is the output of
int z, x=5,y=-10,a=4,b=2;
z = x++ - --y * b / a;

(**A**) 5   (**B**) 6
(**C**) 10   (**D**) 11

g. The role of IP is to

(**A**) Link the packets
(**B**) Put destination addressing information on packets
(**C**) Inform the packets
(**D**) Collect the packets

h. char ** array [12][12][12];
Consider array, defined above. Which one of the following definitions and
initializations of p is valid?

(**A**) char ** (* p) [12][12] = array;
(**B**) char ***** p = array;
(**C**) char * (* p) [12][12][12] = array;
(**D**) const char ** p [12][12][12] = array;

i. Which of the following devices can be used to directly input printed text?

(**A**) OCR   (**B**) OMR
(**C**) MICR   (**D**) None of the above

j. Operating system is

(**A**) A collection of hardware components
(**B**) A collection of software routines
(**C**) A collection of input-output devices
(**D**) none of the above

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

Q.2 a. Give the architectural diagram of a computer. Explain the role of a control
unit.   **(6)**

b. What do you understand by loading and linking of a program?   **(4)**

c. Convert (10000000) from octal to binary.   **(2)**

d. Define the terms: microprocessor and microcontroller. Give examples. **(4)**

Q.3 a. Explain the functioning of a laser printer.   **(6)**

b. How does an Input/Output Device and its Interface work? Explain.   **(6)**

c. Differentiate between an assembly language and a high level language.   **(4)**

Q.4 a. Differentiate between registers, cache and primary memory.   **(4)**

b. What is World Wide Web? What are the basic requirements of connecting the computer to the internet?   **(4)**

c. Write a brief note on – Data Bus and Address Bus.   **(4)**

d. What is need for computer communication networks? Explain.   **(4)**

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

Q.5 a. Write a 'C' program to compute the following series:
(x) + (x+2) +(x+4)+(x+ 6) +…….for a total of n terms.
Where n and x is to be accepted by the user   **(6)**

b. Write a note on
(i) Logical operators
(ii) Bitwise operators   **(8)**

c. What is the output of   **(2)**
```
   char* myFunc (char *ptr)
    {
    ptr += 3;
    return (ptr);
    }
    int main()
    {
    char *x, *y;
    x = "HELLO";
    y = myFunc (x);
    printf ("y = %s \n", y);
    return 0;
    }
```

Q.6 a. Write a program using if-then-else to check whether the entered 5 digit number is a Palindrome or not.   **(6)**

b. Write a program to print the first five Fibonacci numbers   **(4)**

c. Differentiate between break, continue and a goto statement. Give suitable examples.   **(6)**

Q.7 a. How two-dimensional arrays are declared and initialized? Explain by giving suitable example.   **(4)**

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b. Develop a flowchart and then write a 'C' program to sort strings passed to the program through the command line arguments. Also display the sorted strings. **(6)**

c. Write a C program to enter 2 matrices A and B of order m and n respectively and print the sum and difference of the two matrices (A+B) and (A-B)   **(6)**

Q.8 a. Write a function in 'C' to find the factorial of a number.   **(5)**

b. Differentiate between a zero argument function and a parameterized function. **(3)**

c. Give the syntax of getch () and gets (). Give examples also.   **(4)**

d. Differentiate between a subroutine and a function with examples.   **(4)**

Q.9 a. Write a program using pointers to compute the sum of all the elements stored in an array.   **(6)**

b. Discuss how following functions are used in files
    fopen(), getc(), putc(), fclose()   **(4)**

c. What is a pointer? What is an array of pointers? How is an array of pointer declared?   **(6)**