

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

Subject: COMPUTER FUNDAMENTALS & C PROGRAMMING**Time: 3 Hours****Max. Marks: 100****DECEMBER 2009****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.
 - Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
 - Any required data not explicitly given, may be suitably assumed and stated.
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Q.1 Choose the correct or the best alternative in the following: (2×10)

a. Which statement is valid?

- (A) 1 KB = 1024 bytes (B) 1 MB = 2048 bytes
(C) 1 MB = 1000 kilobytes (D) 1 KB = 1000 bytes

b. Which statement is valid about computer program?

- (A) It is understood by a computer
(B) It is understood by programmer
(C) It is understood by user
(D) Both (B) & (C)

c. Software in computer _____

- (A) enhances the capabilities of the hardware machine
(B) increase the speed of central processing unit
(C) Both of above
(D) None of above

d. Identify the invalid pointer arithmetic

- (A) Addition of float value to a pointer
(B) Comparison of pointers that do not point to the element of the same array
(C) Subtracting an integer from a pointer
(D) Assigning the value 0 to a pointer variable

e. A Compiler is _____

- (A) a combination of computer hardware
(B) a program which translates from one high-level language to another
(C) a program which translates from one high-level to a machine level
(D) None of these

- f. When a key is pressed on the keyboard, which standard is used for converting the keystroke into the corresponding bits?
- (A) ANSI (B) EBCDIC
(C) ASCII (D) ISO
- g. C language is available for which of the following Operating Systems?
- (A) DOS (B) UNIX
(C) Windows (D) All of these
- h. Which of the following are tokens in C?
- (A) Keywords (B) Variables
(C) Constants (D) All of the above
- i. An expression contains relational, assignment and arithmetic operators. If Parenthesis is not present, the order will be
- (A) Assignment, arithmetic, relational
(B) Relational, arithmetic, assignment
(C) Assignment, relational, arithmetic
(D) Arithmetic, relational, assignment
- j. If the size of the array is less than the number of initializers then,
- (A) Extra values are being ignored
(B) Generates an error message
(C) Size of Array is increased
(D) Size is neglected when values are given

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

- Q.2** a. Differentiate between a program and programming. Develop an algorithm to find the greatest of three numbers. (6)
- b. Give the representation of characters and fractions in a computer with an example. (6)
- c. Find the binary equivalent of 23 and 0.8125. (4)
- Q.3** a. Write a brief note on the following input and output devices:-
- (i) Keyboard (ii) Scanners
(iii) CRT displays (6)
- b. Mention the advantages and disadvantages of Machine and Assembly level language. (4)

- c. What is a multi-user operating system? Mention the advantages and disadvantages of multi-user operating systems. **(6)**
- Q.4** a. What is the need for having computer networks? Differentiate between LAN and WAN. **(8)**
- b. What is an interrupt? Explain various types of interrupts. **(8)**
- Q.5** a. Describe salient features of C and write a C Program to display logic 0 if one reads a character through a keyboard otherwise 1 (ASCII values for 0 to 9 are 48 to 57 respectively). **(8)**
- b. What are the basic data types and size supported in C? **(4)**
- c. Write a C program to divide a sum of two numbers by their difference. **(4)**
- Q.6** a. Write a C program to calculate an Air ticket fare after discount using if-then-else construct, given the following conditions: **(10)**
- (i) If passenger is below 14 years then there is 50% discount on fare
(ii) If passenger is above 50 years then there is 20% discount on fare
(iii) If passenger is above 14 and below 50 then there is 10% discount on fare
- b. Write a program to generate the following pattern given below using for loop
- ```
1
1 2
1 2 3
1 2 3 4
```
- (6)**
- Q.7** a. Write a program to print multiplication table using two-dimensional array. **(6)**
- b. Explain with an example how character array initialization is done. **(4)**
- c. Write a program to illustrate how the marks of 10 students are read in an array and then used to find the maximum marks obtained by a student in the class. **(6)**
- Q.8** a. What is need for user-defined functions? Write a function using recursion to find factorial of a number n and show dry run by using n = 3. **(6)**
- b. Write a C program to calculate the square of a given integer using a user-defined function. **(6)**
- c. What are the advantages and disadvantages of Call by value? **(4)**
- Q.9** a. What are various arithmetic operations that can be performed on pointers? What do you mean by NULL Pointer assignment? **(8)**
- b. Write a C Program that accesses array elements of a one-dimensional array using pointers. **(8)**