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**3 (Sem-1/CBCS) CSC HC 1**

**2021**

**(Held in 2022)**

**COMPUTER SCIENCE**

**(Honours)**

Paper : CSC-HC-1016

**(Programming Fundamentals using C/C++)**

Full Marks : 60

Time : Three hours

**The figures in the margin indicate  
full marks for the questions.**

1. Answer the following as directed : . 1×7=7

(a) C was invented and first implemented  
by Dennis Ritchie.

*(State true or false)*

(b) \_\_\_\_\_ refer to fixed values that the  
program cannot alter.

*(Fill in the blank)*

Contd.



(c) id is a named location in memory that is used to hold a value that may be modified by the program.

(Fill in the blank)

(d) In C, we cannot find the address of a pointer variable using the '&' operator.

(Fill in the blank)

(e) We may add or subtract floating point numbers to or from pointers.

(State true or false)

(f) strcmp library function is used to compare two strings.

(Fill in the blank)

(g) By default all members of a class are \_\_\_\_\_.

(Fill in the blank)

2. Write output of the following code segments :  $2 \times 4 = 8$

(a) `int a;  
a=(5+2*3)>>2;`

`printf("%d",a);`

(b) `for(int x=5;x;x--);`

`cout <<x;`

(c) `int arr[]={3,5,7,9};`

`cout<<*(arr+2);`

(d) `#define MULTIPLY (a,b) a*b  
cout<<MULTIPLY(2+3,7-2)`

3. Answer **any three** of the following questions :  $5 \times 3 = 15$

(a) Explain different types of operators available in C/C++.

(b) What is a reference variable ? Explain the use of reference variable. Give example.

(c) Differentiate between :

(i) while and do-while

(ii) break and continue

(d) What is inline function ? In which situations inlining does not work ? What are the benefits of inline function ?  $1+2+2=5$

(e) What is constructor ? What are the characteristics of constructor ?

4. Answer **any three** of the following questions :  $10 \times 3 = 30$

(a) Write a program to find the smallest of numbers passed as command line arguments.

(b) What is variadic function? Describe with an example.



(c) Define functions to perform the following operations on strings :

5+5=10

(i) Compare two strings without using strcmp function

(ii) Concatenate two strings without using strcat function

(d) Write a program to —

(i) create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks;

(ii) create 10 students and store them in a file;

(iii) retrieve the student information from the file created and display.

(e) Create Matrix class using templates. Write constructors, destructor and overload + operator.

(f) Briefly explain the following :

(i) Inheritance and different types of inheritance

(ii) Exception handling