

(Please write your Exam Roll No.)

Exam Roll No

Bharti Vidyapeeth's
Institute of Computer Applications and Management
A-4, Paschim Vihar, New Delhi-63
FIRST SEMESTER [MCA] Internal Examination, September-2019

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| Paper Code: MCA –103 | Subject: Programming in C |
| Time: 2 Hours | Maximum Marks: 45 |

Note: Attempt THREE questions in all. Question No. 1 is compulsory and attempt one question from each unit.

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| 1. | Answer all the following questions briefly:- | 1.5 x 10 = 15 |
| (a) | int printf(char[] format, arg1,arg2,...); Identify the components of the format string ? | |
| (b) | Predict the output of the following code? #include<stdio.h> int main(){ printf("Characters:%d %c\n",'a',65); printf(Different Radices:%d %x %o %#x %#o\n",100,100,100,100,100); printf("%4s\n","A String"); return 0;} | |
| (c) | Formulate a read only function in C? | |
| (d) | Identify the two mechanisms for referencing an array element using appropriate examples? | |
| (e) | Propose through appropriate code how do you zero pad a number in C? | |
| (f) | Assess subscripts? How are they written? What restrictions apply to the values that can be assigned to subscripts | |
| (g) | Summarize the advantages in defining an array size in terms of a symbolic constant rather than a fixed integer quantity? | |
| (h) | Assess how an integer command line argument passed to a C function can be converted back to int type? | |
| (i) | Discuss the situation when you add a value say 1 to a pointer. Explain, what is really added? | |
| (j) | Explain the usage of a pointer to a function? | |

UNIT - I

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| 2. | (a) A company store the information regarding the sales made for three of its products (PA, PB and PC) by five of its salespersons (SP1, SP2, SP3, SP4, SP5) in four different zones (N, E, S, W) in a 3D array. Here, the first dimension represents the products, the second dimension represents the salespersons and the third dimension represents the zones. Develop down a menu driven program that generates: a. Total sales made. b. Zone wise sales. c. Product wise sales. | 5 |
| | (b) Design a function to calculate the average of n numbers input by the user. Then compute the deviation of each number about the average. | 5 |
| | (c) Develop a function to accept a positive integer through the keyboard and find the binary equivalent of the same using recursion. | 5 |

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| 3. | (a) | Compose a function to reorder an integer array entered by the user from smallest to largest. Use this function to create a full C program. | 5 |
| | (b) | Construct a function to count the number of empty spaces in a string entered by the user. Demonstrate use of this function in a complete C program. | 5 |
| | (c) | Design a function to delete all vowels from a sentence. Assume that the sentence is not more than 80 characters long. Implement a C program for the same and test for all possible inputs with appropriate messages | 5 |
| UNIT – II | | | |
| 4. | (a) | Design a function to compare two given dates by the user. To store a date use a structure that contains three members namely date, month and year. If the dates are equal then display message as “Equal” otherwise “Unequal”. i. Optimize the above code so that it utilizes minimum possible bits and allows for easy variable creation. ii. Compose a function that accepts an array of dates and checks total number of duplicate date entries in the same. | 5 |
| | (b) | Elaborate with suitable example how a dynamic array can be created in C? | 5 |
| | (c) | Create appropriate declaration for each of the following situations involving pointers. (a) A function that accepts an argument which is a pointer to an integer quantity and returns a pointer to a six-element character array. (b) A function that accepts an argument which is a pointer to an integer array and returns a character. (c) A function that accepts an argument which is an array of pointers to integer quantities and returns a character. (d) A function that accepts an argument which is an integer array and returns a pointer to a character. (e) A function that accepts an argument which is a pointer to an integer array and returns a pointer to a character. | 5 |
| 5. | (a) | Compose appropriate functions to implement following operations of dynamic Stack. 1. Push the element. 2. Pop the element. 3. Display 4. Exit. | 5 |
| | (b) | Distinguish between a null, wild and void pointer in C. | 5 |
| | (c) | Create a structure to specify data on students enlisted below: Roll number, Name, Department, Course, Year of joining. Assuming that there are not more than 100 students in the college. (a) Formulate a function to print names of all students who joined in a particular year. (b) Formulate a function to print the data of a student whose roll number is given. | 5 |