

**Bharti Vidyapeeth's
Institute of Computer Applications and Management
A-4, Paschim Vihar, New Delhi-63**

Model Question Paper II, MCA-I Sem

Paper Code: MCA - 103	Subject: Programming in C
Time: 3 Hours	Maximum Marks: 75
Note: Attempt FIVE questions in all. Question No. 1 is compulsory and attempt one question from each unit.	

1. Answer all the following questions briefly:- 2.5 x 10 = 25
- (a) Inspect why shall ++a execute faster than a+1. Explain 2.5
 - (b) Describe the use of a void pointer. 2.5
 - (c) Differentiate between a constant pointer and pointer to a constant 2.5
 - (d) Compare between exit () with atexit () 2.5
 - (e) Illustrate the use of break and continue in C 2.5
 - (f) Distinguish between a structure and union 2.5
 - (g) Describe the usage of ternary operators with an example 2.5
 - (h) Contrast between call by reference and call by value with an example. 2.5
 - (i) Examine the make utility with an example 2.5
 - (j) Explain the usage of bitfields with an example. What are the limitations on bitfields 2.5

UNIT - I

- 2. (a) Construct a program that reads a single character from the user and determines if it is an alphabet, digit or a special character. 6
- (b) Appraise the different storage classes in C with help of an example 6.5
- 3. (a) Develop a program to check whether a triangle is valid or not, when the three angles of the triangle are entered through the keyboard 6
- (b) Design appropriate functions to search for a given number in an array through binary search? 6.5

UNIT - II

- 4. (a) Appraise a macro; with an example explain how it is better from a function. 6
- (b) Elaborate pointer to pointer with an example. 6.5
- 5. (a) Outline preprocessor directives through appropriate examples. 6
- (b) Evaluate an array of pointer over an array of values through suitable examples. 6.5

UNIT - III

- 6. (a) A dequeue is an ordered set of elements in which elements may be inserted or retrieved from either end. Using an array simulate a dequeue of characters and the operations retrieve left, retrieve right, insert left, insert right. Exceptional conditions such as dequeue full or empty should be indicated. Two pointers (namely, left and right) are needed in this simulation. 6
- (b) Describe the different modes in which a file can be opened in C with examples. 6.5

7. (a) Write a program to copy the contents of a file to another file. 6
(b) Differentiate between the working of `calloc()` and `malloc()` with an example. 6.5

UNIT - IV

8. (a) If a program contains four calls to `fork()` one after the other how many total processes would get created? Create an appropriate example to support your answer? 6
(b) Discuss `waitpid()`. How does `waitpid()` prevent creation of Zombie or Orphan processes? 6.5
9. (a) Differentiate between a zombie process and an orphan process? 6
(b) Appraise the concept of threads. Explain the complete process of thread creation through suitable codes? 6.5