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**J-3659[S-1515]**

**[2037]**

**M.Sc. (IT) (Semester - 1<sup>st</sup>)  
PROGRAMMING IN C (M.Sc. (IT) - 102)**

**Time : 03 Hours**

**Maximum Marks : 75**

**Instruction to Candidates:**

- 1) Section - A is **compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

**Section - A**

**Q1)**

**(15 x 2 = 30)**

- a) What is a compiler?
- b) How will you declare a constant in C?
- c) Define logical operation.
- d) What is the size of int in C?
- e) Why does a character constant require two bytes of memory space in C?
- f) Can we write a C program without #include?
- g) What are command line arguments?
- h) How can you find the number of elements stored in a static array at a time?
- i) How to store some value at desired address using C?
- j) What happens when the macro  
`#define square(x) x * x`  
is invoked as `square( z+ 1)`
- k) Are the following statements valid? Justify your answer.  
`int m;`  
`k = (char*) & m;`
- l) List down two file opening modes in C.
- m) Give an example of enumerated data type in C.
- n) What is a random access file?
- o) Is the following statement correct? Explain.  
`printf ("%d", printf ("abc"));`

**P.T.O.**

## Section - B

(9 × 5 = 45)

- Q2)** Write a C program to compute the sum of first n terms ( $n \geq 1$ ) of the following series using 'for' loop.  $1 - 3 + 5 - 7 + 9 - \dots$
- Q3)** Write a C program to convert a binary number to its corresponding octal number.
- Q4)** Given are two one dimensional arrays A and B stored in ascending order. Write a program to merge them into a single sorted array C that contains every element of A and B in ascending order.
- Q5)** Given an array of characters, write a program in C to reverse the array.
- Q6)** Write a program in C to compute the length of a string.
- Q7)** Write a C program that reads a line of text and counts all occurrences of a particular word.
- Q8)** What is a macro? Write a nested macro that gives the minimum of three values.
- Q9)** What is parameter passing? Explain call by value with an example.
- Q10)** Write a C program fragment using "do...while" construct to print out even numbers between 10 to 100 making sure that three numbers are written per line.
- Q11)** Write a recursive function in C to compute the value of  $x^n$  where n is a positive integer and x has a real value.
- Q12)** Describe the syntax for defining the composition of a structure. Explain the difference between declaring a structure and defining a structure variable.
- Q13)** Write a program in C that reads n elements of an integer array from a file and outputs the sum of all the elements into the same file.

