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# Paper ID [A0502]

(Please fill this Paper ID in OMR Sheet)

## MCA (102) (Old/S05) (Sem - 1st)

## PROGRAMMING IN C

**Time : 03 Hours** **Maximum Marks : 75**

**Instruction to Candidates:**

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

### Section - A

*(15 × 2 = 30)*

***Q1)***

a) What does this sigmant print?

```
for (ch = (int) 'd';
        ch < (int) 'n';
        ch + = 3)
printf ("%c", (char) ch);
printf ("\n");
```

b) How many elements does array m have? Show how you would reference each one, double m [2] [4];

c) Which is generally more efficient, recursion or iteration?

d) Explain the use of stack in recursion.

e) What is a pre-processor in C? Explain in brief.

f) When should you use a union type component in a structured variable?

g) What is wrong with the following enumerated type definition?

```
Type def, enum
        {2, 3, 5, 7, 11, 13}
Prime - t;
```

h) If A, B and C are inserted into a stack, what will be the order of removal for the stack.

i) Explain the commands to open and close data files.

j) What is the common cause of a stack overflow error?

k) How does the C compiler know whether to book for an included file in the system directory or in the program's directory.

l) What is the relationship between the keys of the left child, the right child and their parent in a binary search tree?

m) What are header files? Explain.

n) Write the algorithmic step to perform selection sort.

o) Explain the differences between a simple linked list and a binary tree?

## Section - B

***(9 × 5 = 45)***

***Q2)*** Input 15 numbers in an array of 3 x 5 dimension, write a program in C to them ask user to input a number. Search this number in the array. If it is present, print, 'FOUND' else print 'NOT FOUND'.

***Q3)*** Write C code to input 5 numbers in an array and print the sum of all the elements.

***Q4)*** Explain the function of the following header files.

(a) stdlib. h

(b) math.h

(c) stdio.h

(d) string.h

(e) time.h

***Q5)*** Write a program in C to input a number between 1 to 99, convent it into words and print it using array of pointers.

***Q6)*** Write a program in C to input a string and print number of occurrences of a's, e's, i's o's, u's in the string.

***Q7)*** Write a program in C to input roll number, name and marks of 3 subjects. Calculate & print the total and percentage. Write all the details in a file called "marks. dat". Allow the user to enter any number of records.

***Q8)*** Write a program in C to bubble sort 10 given numbers.

***Q9)*** Explain recursion and iteration with suitable programing examples.

***Q10)*** Write short note on Enumeration.

***Q11)*** Write a program in C to append. Some characters in an already existing file and also find the number of characters in the resultant file after appending.

***Q12)*** Design an algorithm and draw corresponding flow chart to convert a decimal number to its octal equivalent.

***Q13)*** Write short note on Dynamic Memory Allocation with examples.