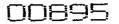
No. of Printed Pages: 4

MMT-001

M.Sc. (MATHEMATICS WITH APPLICATIONS IN COMPUTER SCIENCE)

M.Sc. (MACS)



Term-End Examination

December, 2019

MMT-001 : PROGRAMMING AND DATA STRUCTURES

Time: $1\frac{1}{2}$ hours

Maximum Marks: 25

(Weightage: 20%)

Note: Question no. 1 is compulsory. Answer any three questions from questions no. 2 to 5. All programs should be written in 'C' language only. Use of calculators is not permitted.

- 1. Write the output of the following pieces of code in 'C'. Justify your answer with short explanations.
 - (a) main() { int x = 10, y = 20, z = 5, i; i = x < y < z;

printf("ln %d", i);

}

}

(b) main()
{

int i = -3, j = 2, k = 0, m;

m = ++i && ++j || ++k;

printf("ln %d %d %d %d", i, j, k, m);

MMT-001

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P.T.O.

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```
(c)
      main()
      {
          float a = 0.7;
          if (a \le 0.7)
      {
          printf("C");
      }
          else
      {
          printf("C++"); }
      #define Max(a, b) (a > b ? a : b)
(d)
      main()
         int x;
         x = Max(3 + 2, 2 + 7);
         printf("%d", x);
      }
(e)
      main()
          int a = 10, *j;
          void *k;
         j = k = &a;
         j++; k++;
         printf("ln %u %u", j, k);
      }
```

2.	(a)	Assume the following structure for every node of a queue, and write a function to insert a node to the queue:	3
		const max = 100;	
		type def struct q_type	
		{	
		int queue [m a x];	
		int front, rear;	
		}	
		Qtype;	
	(b)	Write a macro to find the biggest of three given integers.	2
3.	(a)	Write a recursive function to print the Fibonacci series.	2
	(b)	When is the indexed sequential, file organization used? What are the two approaches used in indexing in this file	
		organization?	3
4.	(a)	Explain "call by value" and "call by reference" with an example of each.	2
	(b)	How does a Binary tree differ from a Binary search tree? Illustrate the	.
		differences also through an example.	3

5. (a) Define a structure called 'student' to store the name, age and roll number of a student.

2

- (b) Write printf statements in C language for printing the number 573.429, using
 - (i) 8 places, right justified;
 - (ii) 8 places, left justified up to two decimal digits; and
 - (iii) scientific notation.

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