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Reg. No.

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I Semester M.C.A. Degree Examination, May/June - 2025

COMPUTER APPLICATIONS

The Art of Programming

(CBCS Scheme Y2K21)

Paper : 1MCA1

Time : 3 Hours

Maximum Marks : 70

Instructions to Candidates :

Answer All Parts.

PART - A

Answer any Five questions. Each question carries Six marks.

(5×6=30)

1. Describe and compare the standard asymptotic notations used to express the lines complexity of algorithms.
2. Write an algorithm to find $1^2+3^2+5^2+ \dots +n^2$.
3. Write an Algorithm to reverse the digits of an integer check for the input 9876.
4. Give an example for pass by Value and pass by reference. Discuss the differences.
5. What is the advantage of Binary Search? Write the Binary Search Algorithm.
6. Write an Algorithm to generate Pseudo random number.
7. Explain the impact of control and Branching structure in programming.
8. What is pattern searching? How do you search for a keyword in a given text?

PART - B

Answer any Four questions. Each question carries Ten marks.

(4×10=40)

9. a) Write an algorithm for converting decimal number to binary.
b) Discuss with example command line arguments.

(6+4)

[P.T.O.]



10. a) Write an Algorithm for generating 4th fibonacci number.
b) Explain two-way merge with an example. (5+5)
11. Write an Algorithm to remove duplicates from a given list. Trace your Algorithm for the following list. 1 22 41 5 6 7 7 8 9 9 9. (10)
12. Write Insertion sort Algorithm. Trace the algorithm taking an example of 8 numbers. (10)
13. Write an algorithm for multiplication of two matrices. (10)
14. Write an Algorithm to find maximum number and a given list. Trace your algorithm for the following list. {7, 6, 12, 1, 4, 3, 2}. (10)
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