



MCA DEGREE EXAMINATIONS: MAY 2015

(Regulation 2009)

First Semester

MASTER OF COMPUTER APPLICATION

MCA502 : Problem Solving and Programming

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 2 = 10 Marks)

1. Define an algorithm.
2. Recall the factors that are used to analyze the efficiency of an algorithm.
3. Setup an algorithm to swap two numbers.
4. Formulate an algorithm for factorial computation.
5. Give the difference between scanf() and gets () functions.
6. Write a program to check whether the given number is even or odd.
7. What is an array? How do you initialize a two dimensional array?
8. Identify a built in function to copy a string into another and write an example.
9. Give the difference between malloc () and calloc () functions.
10. List out the functions that can be used to read text files from the disk.

PART B (5 x 16 = 80 Marks)

11. a) (i) Explain about the top-down design methodology. (8)
(ii) Discuss the factors to be considered while implementing an algorithm. (8)
- (OR)**
- b) (i) Describe the concepts involved in analysis of algorithm. (8)
(ii) Discuss in detail about efficiency of an algorithm with examples. (8)
12. a) (i) Formulate an algorithm for SINE computation. (8)
(ii) Explain base conversion algorithm with an example. (8)

(OR)

- b) (i) Formulate an algorithm to find the maximum number in an array. (8)
- (ii) Explain the algorithm to remove duplicates from an ordered array. (8)

13. a) Explain in detail about the operators in C programming with examples.

(OR)

- b) (i) Discuss the looping statements used in C programming with suitable examples. (8)
- (ii) Write a C program using loop statements to find whether a given number is prime or not. (8)

14. a) (i) Write a C program to sort an array of n numbers. (8)
- (ii) Explain any four string handling functions with example. (8)

(OR)

- b) (i) Write a C program to find the factorial of a given number using recursion. (8)
- (ii) Explain how union differs from structure with suitable example? (8)

15. a) (i) Write a C program to access a variable using pointer. (4)
- (ii) Explain how read and write operations are performed on files with examples. (12)

(OR)

- b) (i) Explain how dynamic memory allocation is done in C programming. (8)
- (ii) Discuss the preprocessor directives used in C programming. (8)
