Z 3502

M.C.A. DEGREE EXAMINATION, JANUARY 2007.

First Semester

MC 1602 — PROBLEM SOLVING AND PROGRAMMING

(Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define an Algorithm and Program.

2. What are the factors used to analyze the efficiency of an algorithm?

3. What is Swapping? Give an example.

4. Write an algorithm for Factorial computation.

5. What is the purpose of Switch statement? How it is differ from an If statement?

6. List the difference between Continue and Break.

7. What is the difference between Structure and an Array?

8. What is Call by value? Give an example.

9. What is a pointer variable? Give an example.

10. What is the primary advantage of using a file?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the problem solving aspects. (8)

    (ii) Discuss in detail Program Verification. (8)

    Or

    (b) (i) Explain the steps involved in the analysis of an algorithm. (6)

    (ii) Compare Top Down and Bottom up Design approach in solving a problem. (10)

12. (a) (i) Explain Base conversion algorithm with an example. (8)

(ii) Design an algorithm to count the number of digits of a given number. (8)

Or

(b) (i) Explain the significance of Array Techniques. (6)

(ii) Develop an algorithm to read two one dimensional arrays and merge them in to the third array. (10)

13. (a) Write a menu driven program which has the following options. (16)

(i) Factorial of a given number.

(ii) To find whether the given number is prime or not.

(iii) To find odd or even.

(iv) Exit.

Or

(b) (i) Using conditional operator determine whether the character entered through the keyboard is a lowercase alphabet or not. (6)

(ii) Discuss the looping statements with an example. (10)

14. (a) (i) Write a program to find the Binomial coefficient. Use Recursive function to find the factorial. (8)

(ii) Briefly explain with an example the String handling functions. (8)

Or

(b) Write a program to create structure called "cricket" with the data members player name, team name, batting average for 50 players. Read the array of structure and display the Teamwise list. (16)

15. (a) Write short notes on the following :

(i) Dynamic memory allocation. (5)

(ii) Linked Lists. (6)

(iii) Preprocessors. (5)

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(b) Write an interactive, file oriented C program that will maintain a list of names, addresses and telephone numbers in alphabetical order. Include a menu that will allow the user to select any of the following features.   (16)

(i)   Add a record.

(ii) Modify an existing record.

(iii) Retrieve and display an entire record for a given name.

(iv) Exit.

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