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Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 65058

5 Year M.Sc. DEGREE EXAMINATION, MAY/JUNE 2013.

First Semester

Information Technology

XCS 115/10677 SW105 — PROBLEM SOLVING TECHNIQUES

(Common to : 5 year M.Sc. Computer Technology/5 year M.Sc. Software Engineering)

(Regulation 2003/2010)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define swapping.
2. Mention the use of a base conversion algorithm?
3. Write an algorithm for calculating the Factorial of a given number?
4. What are the steps used to remove duplication?
5. Mention the difference between merging and sorting?
6. Write the steps for finding a keyword in a text?
7. Define a stack and Mention the operations that can be performed on a stack?
8. Define a queue and Mention the operations that can be performed it?
9. Define recursion with an example?
10. Mention the steps for constructing a tree?

PART B — (5 × 16 = 80 marks)

11. (a) Write short notes on

(i) Program verification (8)

(ii) Base conversion algorithm (8)

Or

(b) Write short notes on

(i) Implementation of algorithms (8)

(ii) Analysis of algorithms (8)

12. (a) Explain about the types of array techniques with examples?

Or

(b) Mention the difference between a random number and a Fibonacci number? Write an algorithm for finding both and explain each algorithm with an example?

13. (a) Explain about the various types of sorting techniques with examples?

Or

(b) Explain about the various types of searching techniques with examples?

14. (a) Define a linked list and explain its operations with an example?

Or

(b) Explain the operations that can be performed on a binary tree with an example?

15. (a) Explain the towers of Hanoi problem?

Or

(b) Discuss about Recursive quick sort with example?
