

DATA STRUCTURES WITH C (Common to CSE & ISE)

Written by Administrator

Sunday, 08 November 2009 06:16 -

Sub Code

:

06CS35

IA Marks

:

25

Hrs / Week

:

04

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Exam Hours

Total Hrs

Exam Marks

PART – A

C Language Features

UNIT 1:

1. Pointers: Concepts, Pointer variables, Accessing variables through pointers, Pointer declaration and definition, Initialization of pointer variables, Pointers and functions, Pointer to pointers, Compatibility, Lvalue and Rvalue, Arrays and pointers, Pointer arithmetic and arrays, Passing an array to a function, Understanding complex declarations, Memory allocation functions, Array of pointers.

7 Hours

UNIT 2:

2. Strings: String concepts, C strings, String I/O functions, Array of strings, String manipulation function, Memory formatting.

2 Hours

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3. Derived types-Enumerated, Structure, and Union: The type definition, Enumerated types, Structure, Accessing structures, Complex structures, Array of structures, Structures and functions, Unions

3 Hours

4. Binary Files: Classification of Files, Using Binary Files, Standard Library Functions for Files

2 Hours

UNIT 3:

5. The Stack: Definition and Examples, Representing Stacks in C, An Example – Infix, Postfix, and Prefix

6 Hours

UNIT 4:

6. Recursion: Recursive Definition and Processes, Recursion in C, Writing Recursive Programs, Simulating Recursion, Efficiency of Recursion

4 Hours

7. Queues: The Queue and its Sequential Representation

2 Hours

PART – B

UNIT 5:

8. Lists: Linked Lists, Lists in C, An Example – Simulation using Linked Lists

7 Hours

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UNIT 6:

9. Lists *contd.*: Other List Structures

6 Hours

UNIT 7:

10. Trees: Binary Trees, Binary Tree Representations

6 Hours

UNIT 8:

11. Trees *contd.*: Representing Lists as Binary Trees, Trees and their applications

7 Hours

Text Books

1. **Computer Science A Structured Programming Approach Using C, Second Edition**, Behrouz A. Forouzan and Richard F. Gilberg, , Thomson, 2003

(Chapter 9.1 to 9.9, Chapter 10.1 to 10.6, Chapter 11.1 to 11.6, Chapter 12.1 to 12.8, Chapter 13.1 to 13.3).

2. **Data Structure using C**, Aaron M. Tenenbaum, Yedidyah Langsam & Moshe J. Augenstein, Pearson Education/PHI, 2006.

(Chapter 2, 3, 4, 5.1, 5.2, 5.4, 5.5).

Reference Books

3. **Data Structures A Pseudocode approach with C**, Richard F. Gilberg and Behrouz A. Forouzan, Thomson, 2005.
4. **Data Structures & Program Design in C**, Robert Kruse & Bruce Leung, Pearson Education, 2007.