

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code : 80286

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

- Second Semester

Computer Science and Engineering

CS 6202 — PROGRAMMING AND DATA STRUCTURES – I

(Common to Information Technology)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate between call by value and call by reference.
2. What are preprocessor directives? Give examples.
3. Write the different file manipulators.
4. Mention the functions for opening the file in read mode.
5. What is an ADT?
6. What is data structure? How it is classified?
7. Define Queue.
8. Give any two applications of stack.
9. Name the sorting techniques which use the divide and conquer strategy.
10. What is the difference between linear search and binary search?

PART B — (5 × 16 = 80 marks)

11. (a) Explain functions with variable number of arguments in detail. Write a C program to find the sum of n numbers using functions with variable number of arguments. (16)

Or

- (b) Explain the following:
 - (i) Function pointer in C (8)
 - (ii) Control Statements in C. (8)

12. (a) (i) What is a structure? Write a C program to add and subtract the two complex numbers using structures. (8)
- (ii) Explain the concept of random access files with an example. (8)

Or

- (b) Store ten names of students in a file called 'data .txt'. Perform operations to sort their names alphabetically. Write the sorted names into another file called 'names .txt'. Display the names from 'names .txt' by opening the file in read mode. Close the files after performing all operations. (16)

13. (a) What is singly linked list? Write a C program that uses functions to perform the following operation on singly list with suitable diagrammatic representations. Consider all cases:
- (i) Insertion (ii) Deletion (iii) Traversal in both ways. (16)

Or

- (b) Illustrate the necessary algorithms to implement doubly linked list and perform all the operations on the created list. (16)

14. (a) Develop an algorithm to implement Stack ADT. Give relevant examples with diagrammatic representations. (16)

Or

- (b) (i) Write an algorithm to implement circular queue using arrays. (10)
- (ii) Show the simulation using stack for converting the expression $p*q+(r-s/t)$ from infix to prefix. (6)

15. (a) (i) Sort the given integers and show the intermediate results using selection sort. 45, 25, 10, 2, 9, 85, 102, 1. (8)
- (ii) Write a C code to sort an integer array using selection sort. (8)

Or

- (b) What is hashing? Explain open addressing and separate chaining methods of collision resolution techniques with examples. (16)