

Reg. No.:			66801

Question Paper Code: 40899

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018 Second Semester

Computer Science and Engineering
CS6202 – 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. What are the advantages and limitations of using functions in a program?
- 2. What are the preprocessor derivative?
- 3. Differentiate structure and union.
- 4. In what different modes files can be opened using fopen function?
- 5. Define Abstract Data Type (ADT). What are the advantages of using ADT?
- 6. What are the disadvantages of using simple array implementation of lists?
- 7. Differentiate Stack and Queue ADT.
- 8. List and justify any two real world applications of Queue ADT.
- 9. Compare Bubble Sort, Insertion Sort, Merge Sort and Quick Sort in terms of their average and worst case time complexities.
- 10. Given input {4371, 1323, 6173, 4199, 4344, 9679, 1989} and a hash function h (x) = x mod 10, show the resulting Separate Chaining hash table. Assume that the collisions are added to the end of the list.

PART - B

 $(5\times16=80 \text{ Marks})$

11. a) Explain function pointers in detail, highlighting their need, use and advantages with an example. (16)

(OR)



b) i) Write a C program to implement the function int Myatoi (const char *str) which converts given string into an integer, without using C's atoi library function. Assume that given string contains a positive integer only. Write appropriate main() function and trace your program for the input string "30462".

(8)

ii) Write a C program to find roots of a quadratic equation (ax² +bx +c) when a, b and c values are given. Assume that the roots are real numbers.

(8)

12. a) Write a C program to implement the following.

(16)

- 1) Define a structure for employees with employee ID number (integer), name (64 characters), salary (floating point value) and performance rating (valid values are integers 1, 2, 3, 4 and 5).
- 2) Get user input entries for 100 employees to get ID, name, salary and performance rating value.
- 3) Then allow user to search using employee ID. Once the matching employee is found, print all details about the employee. Continue till user wants to continue searching.
- 4) Then compute bonus amount for each employee, using table below. Finally display all employee IDs and their corresponding bonus amounts.

Performance rating	Bonus percentage on salary		
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2	10		
3	15		
i kilik saf 4 a Bilgini (nga	20		
5	25		

(OR)

b) i) Write a C program to concatenate the content of two text files into a third file.

(8)

- ii) Define the following terms with respect to file handling, with an example each.
 - 1) Data Field

(2)

2) Record

(2)

3) File in the second of the month of the second of the se

(2)

4) File Access Method

(2)