Programme	**:**	**B.Tech**	**Semester**	**:**	**Fall 20-21**
Course	**:**	**Data structures and Algorithms (Embedded Lab)**	**Code**	**:**	**CSE2003**
Faculty	**:**	**Dr.B. Saleena / Prof.V.M.Nisha**	**Slot**	**:**	**L43+L44**

Exercise -3 (28/7/2020)

Application of Stacks, Queues

- **Upload a single WORD/ PDF document in the Moodle with all the programs, screenshots of input, and output for each program.**
- **The Upload File must be named in this convention only Regno_Name (Example, 19BCE1001_Rahul) – Strictly to be followed.**

1. Evaluate the given postfix expression A B C + * D* using stacks. Assume your values for A, B, C, and D. Implement the same using C.

2. 'Data structure laboratory' has got 60 systems connected to a server and a printer. After the coding gets over, the student wants to take a print out. The printer can serve only one person per time with a buffer to hold 10 programs at a time including the one that is printing at that time. Write a C Program to automate the process of getting the files printed according to the time of arrival. Use an appropriate data structure. The printer at any time should show the list of files waiting for service.

3. EXCEL Airways (EA) is a new airline company in India. EA is a small company and can only afford to rent one check-in counter at Chennai airport. Most customers of EA are from business accounts and the manager wishes to ensure that these customers are treated best. She thought of a plan where the passengers would wait in two different rows, one for normal customers and one for business customers. Passengers are served alternatively when the two rows are equal. One from the business row and another from the normal row. In case the normal row is less than half of the business row then the order is jumped such that every two business passengers served, one normal passenger is served. Write a C program to implement the same.

Additional Exercises (Only for Practice)

1. Write a program to convert any given Infix expression to a postfix form.

Example:

Infix: A * (B + C) * D

Postfix: A B C + * D*

2. Write a program to simulate the functions of a traffic signal display (Hint: Circular Queue)