**Subject Code: 4330703**

**Subject Name: Basics of Operating System**

1) What is Operating System? And list the types of OS and explain any 3 types.

2) Explain Multi-programming and Time Sharing Operating System with example.

3) Explain Process Control Block (PCB) in details.

4) Difference between Process and Thread.

5) Explain process life cycle with diagram.

6) What is scheduling queue? Explain it.

7) Explain Context Switching with details.

8) Explain Critical Section and Mutual Exclusion.

9) Write down Deadlock with its necessary conditions.

10) Explain Resource Allocation Graph with example.

11) Write the requirement and functionality of MMU.

12) What is logical and physical address.

13) Calculate Average waiting time and average turnaround time for Round Robin[RR] (Time Slot = 4) & First Come First Serve[FCFS] & Shortest Job First[SJF] algorithm with gantt chart for following data

| Sr.No. | Process ID | Arrival Time | Burst Time |
|--------|-----------|--------------|------------|
| 1 | P1 | 0 | 4 |
| 2 | P2 | 1 | 7 |
| 3 | P3 | 2 | 8 |
| 4 | P4 | 4 | 5 |
| 5 | P5 | 6 | 2 |

14) Describe Operating System services.

15) Explain Network operating system with diagram.