



# AMC ENGINEERING COLLEGE

(Approved by AICTE, New Delhi & Affiliated to VTU, Belagavi)  
18<sup>th</sup> KM, Bannerghatta Road, Bangaluru-560083

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING)

### **OPERATING SYSTEM ASSIGNMENT-1**

- 1) Explain Multiprocessor, Multiprogramming and Multitasking systems.
- 2) Define Operating system and explain dual mode operation in operating system with a neat block diagram.
- 3) List and explain the services provided by OS for the user and efficient operation of system with a neat sketch.
- 4) Differentiate between
  - a) Multiprogramming and multitasking
  - b) Multiprocessor system and clustered system
- 5) Explain Layered approach and microkernels . Mention its advantages and disadvantages.
- 6) Explain the different types of computing environment.
- 7) What are system calls? Briefly pointout its types with illustrations.
- 8) Define virtual machine. Write a neat diagram explain the working of virtual machine.
- 9) Illustrate with a neat sketch, the process states and process control block.
- 10) What is interprocess communication? Explain types of IPC.
- 11) Explain the multithreading models with suitable diagrams and discuss the benefits of multithreading.
- 12) Discuss different types of CPU scheduling algorithm along with mode of execution and criteria.

## PROBLEMS ASSIGNMENT

1) Calculate the average waiting time and average turnaround time by drawing the gantt chart using FCFS & RR (q=2ms).

Processes	Arrival time	Burst time
P1	0	3
P2	1	6
P3	4	4
P4	6	2

2) Calculate the average waiting time and average turnaround time by drawing the gantt chart using FCFS & RR (q=3ms).

Processes	Arrival time	Burst time
P1	0	8
P2	5	2
P3	1	7
P4	6	3
P5	8	5

3) Solve the problem by drawing gantt chart using preemptive scheduling SRTF & Priority scheduling algorithm and calculate the average turnaround time and average waiting time.

Processes	Arrival time	Burst time	Priority
P1	0	8	3
P2	1	4	2
P3	2	9	1(H)
P4	3	5	4(L)

4) Calculate the average waiting time and average turnaround time by drawing the gantt chart using 1) FCFS 2) SJF 3) SRTF 4) Priority scheduling algorithm (non-preemptive and preemptive)

Processes	Arrival time	Burst time	Priority
P1	0	8	3
P2	1	4	2
P3	2	9	1(L)
P4	3	5	4(H)