Operating system imp question

1) Explain use of chmod command in Linux with example.
2) What is operating system? Functions of operating system.
3) Difference between process and threads.
4) Explain monolithic kernel and microkernel.
5) Explain process states with diagram.
6) What is system call? Explain types of system call?
7) What is scheduler? Explain types of scheduler?
8) Explain Shell.
9) Consider the processes P1, P2, P3, P4 given in the below table, arrives for execution in the same order, with Arrival Time 0, and given Burst Time. Draw the Gantt chart and find the average waiting time using the FCFS and SJF (Non-Pre-emptive) scheduling algorithm.

process	Burst time
P0	21
P1	3
P2	6
P3	2

10) Explain various file allocation techniques.
11) Consider the following set of processes, assuming all are arriving at time 0.

process	Burst time	Priority
P1	2	2
P2	1	1
P3	8	4
P4	4	5
P5	5	3

12) Calculate average waiting time and turn-around time for FCFS, SJF (Non-Pre-emptive), Priority and RR (Quantum=2).
13) What is Mutual exclusion? Explain its significance

14) What is deadlock? Explain the necessary and sufficient condition for deadlock?

15) Explain Banker's Algorithms in details.

16) Explain synchronization problem in detail. How counting semaphore can be used to solve readers writers problem.

17) Explain counting semaphore with examples.

18) Given memory partitions of 150k,500k,200k,300k,550k(in order) how would each of the first fit, best fit and worst fit algorithm places the processes of 220k,430k,110k,425k(in order).Evaluate, which algorithm makes most efficient use of memory?

19) Calculate number of page faults and page hits for the page replacement policies FIFO, Optimal and LRU for given reference string 6, 0, 5, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 5, 2, 0, 5, 6, 0, 5 (assuming three frame size).

20) What is paging? Explain LRU, FIFO and Optimal page replacement policy for the following string. Page frame size is 4. 1,2,3,4,5,3,4,1,6,7,8,7,8,9,7,8,9,5,4,5,4,2

21) Explain various file allocation techniques.

22) What is Linux virtual file?

23) Explain disk scheduling algorithm.

24) Compare disk scheduling algorithm.