yellow - doubt
red - most imp
blue - rev

Process Management

1) Whenever there is an interrupt, the running process stops, and the _____ is invoked every time to select another process for execution.

A) Short-term scheduler
B) Long-term scheduler
C) Medium-term scheduler
D) None of these

2) The collection of user program, data section, stack, and the associated attributes is called the

A) Process control block (PCB)
B) Process environment
C) Process image
D) None

3) CPU bound jobs will hold CPU until exit or I/O. Long periods where no I/O requests are issued, and the CPU is held resulting in poor I/O device utilization. This degradation in performance can be seen in which of the following?

A) FCFS
B) SRTF
C) RR
D) SJF

4) Consider a system having 10 processes where each process spends 75% time waiting in this system.What percent of time is the CPU busy (utilization)?

5) Which one of the following is TRUE.

A) Priority scheduling minimizes average waiting time
B) During periods when the processor spends all of its cycles handling interrupts, the process scheduler is irrelevant to the machine's performance.
C) SRTF could maximize the CPU utilization
D) Round-robin scheduling minimizes average completion time.

6) Which of the following are contents of PCB?

i)Process Number
ii)Registers
iii)Process State

A) Only i,ii
B) All i,ii,iii
C) Only i
D) Only ii,iii

7) Which of the following is not part of the Process control block (PCB) ?

A) Process states
B) CPU scheduling information
C) I/O Status Information
D) None of these.

8) _____ makes a decision about how many processes should be made to stay in the ready state.
.
A) Long term scheduler
B) Short term scheduler
C) Medium term scheduler
D) Swapper

9) The preemption of the running process using a software interrupt moves the process from run state to _____ ?

A) Block state
B) Suspended state
C) Ready state
D) Ready suspended state

10) Assume four processes A, B, C and D with burst time a, b, c and d, respectively arrive at same time in that order. With no context switch delay involved the average turn around time using first come first serve scheduling algorithm is :

A) (3a+b+c+d)/4
B) (3b+2c+d)/4
C) (4a+3b+c+d)/4
D) (4a+3b+2c+d)/4

11) If you want to separate scheduling policy and mechanism, you have to parameterize the scheduling algorithm to set the policy. What is the parameter(s) of First come first serve scheduling (FCFS) algorithm :

A) Burst size
B) Priority
C) Arrival time
D) FCFS is a non-parameterized scheduling algorithm.

12) The collection of user program, data section, stack, and the associated attributes is called the

A) Process control block (PCB)
B) Process environment
C) Process image
D) None

13) Which is true regarding selection of time quantum in RR scheduling?

(a) 50% of the CPU bursts should be smaller than the time quantum.
(b) 70% of the CPU bursts should be greater than the time quantum.
(c) 80% of the CPU bursts should be smaller than the time quantum.
(d) none

14) Match the following with correct advantages of each scheduling algorithm:

Scheduling	Advantage
a) FCFS	i) Minimizes average waiting time
b) SJF	ii) Provides reasonable response times to interactive jobs
c) SRTF	iii) Ensures fast completion of short jobs
d) RR	iv) Ensures fast completion of important jobs
e) Priority	v) Easy to implement

A) a – v, b – i , c – iii, d – ii, e- iv.
B) a – i, b – ii , c – iii, d – iv, e- v.
C) a – v, b – iv , c – iii, d – ii, e- i.
D) a – iii, b – i , c – ii, d – iv, e- v.

15) Consider the following processes arriving at the ready queue and dispatched.

The average waiting time and average turnaround time using FCFS scheduling _____ and _____, respectively. [NAT]

PID	Arrival Time	Burst (ms)	Priority
10	0	15	1
11	2	3	8
12	5	10	13
13	11	21	5
14	12	2	2
15	25	7	4

16) Consider the following processes arriving at the ready queue and dispatched.
The average waiting time and average turnaround time using SRTF scheduling _____ and _____, respectively. [NAT]

PID	Arrival Time	Burst (ms)	Priority
10	0	15	1
11	2	3	8
12	5	10	13
13	11	21	5
14	12	2	2
15	25	7	4

17) Consider a uniprocessor system with n processes in the ready queue. Round robin scheduling with time quantum x is used for process scheduling. Assume each process requires kx seconds to complete and the context switch takes 0 seconds. At what time the first process will complete the execution? (assume all the variables as integers).
A) nkx
B) k(nx-1)
C) k(nk+n)
D) x(nk-n+1)

18) Consider a system with round robin scheduling with a quantum of 4 units, and 50 processes present in a ready queue waiting to run on the CPU. Assuming each process requires 4 units of CPU to complete its execution, the average waiting time is _____ units [NAT]

19) Consider a uniprocessor system with 100 processes in the ready queue. Round robin scheduling with time quantum 4 seconds is used for process scheduling. Assume each process requires 24 seconds to complete and no context switch overhead.The time at which the first process will complete the execution is _____ seconds. [NAT]

20) Consider three processes P1, P2, and P3 scheduled in same order starting at time 0. It is known that each process takes a total of 40, 50 and 60 ms to complete, respectively. For each of the processes the first 20% time is spent on IO, and all IO devices are readily available. Assuming that an FCFSscheduling is used, the total time for which the CPU remains idle is _____ ms. [NAT]

21) Consider the set of processes with given information. Non preemptive priority scheduling is used with low priority number as high priority.

Process	Arrival Time	Burst Time	Priority
P1	0	10	4
P2	0	3	1
P3	3	8	2
P4	4	16	3
P5	7	2	5

22) Consider a system with a round robin algorithm for process scheduling. It is given that the time slice for every process is K units and the context switch overhead takes C units. The percentage overhead on the CPU can be calculated as:

A) C/(C+K)

B) K/(C+K)
C) C/K
D) K/C

23) Which of the following statements are correct? [MSQ]

A) The FCFS scheduling algorithm can lead to increased waiting time for processes if a long process starts executing, leading to starvation of smaller processes.
B) FCFS scheduling algorithm can lead to convoy effect.
C) HRRN scheduling algorithm tries to reduce the waiting time of the processes and at the same time avoids starvation.
D) The SJF algorithm can lead to starvation.

24) Consider a time sharing operating system that uses the round-robin scheduling algorithm. Suppose there are N processes in the ready queue, with time quantum D and context-switch overhead of d. Assume that the average CPU burst time of a process is B. The average waiting time for a process before it again gets a chance to run on the CPU ?

A) (N-1) * [d + min(D,B)]
B) (N-1) * [D + min(d,B)]
C) (N-1) * [d - max(D,B)]
D) (N-1) * [D + max(d,B)]

25) Consider the following set of process information. Which of the following is in increasing order of average waiting time for the following scheduling algorithms:
(i) FCFS
(ii) SJF
(iii) SRTF
(iv) RR with quantum = 3.

Process	P1	P2	P3	P4	P5	P6
Arrival Time (msec)	0	2	3	5	6	8
CPU Burst (msec)	7	4	6	2	8	5

A) FCFS, SJF, SRTF, RR
B) SRTF, SJF, RR, FCFS
C) SJF , RR, SRTF, FCFS
D) SRTF, SJF, FCFS, RR

26) Consider the following set of process information. Which of the following is in increasing order of average turnaround time for the following scheduling algorithms:
(i) FCFS

(ii) SJF
(iii) SRTF
(iv) RR with quantum = 3.

Process	P1	P2	P3	P4	P5	P6
Arrival Time (msec)	0	2	3	5	6	8
CPU Burst (msec)	7	4	6	2	8	5

27) Which of the following scheduling algorithms will tend to schedule I/O bound jobs before CPU bound jobs?

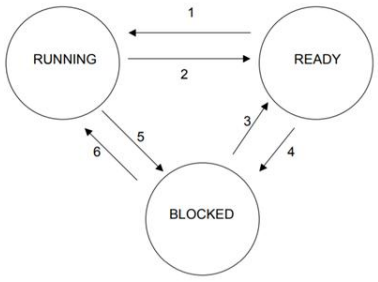
Process	P1	P2	P3	P4	P5	P6
Arrival Time (msec)	0	2	3	5	6	8
CPU Burst (msec)	7	4	6	2	8	5

A) SRTF
B) FCFS
C) Round Robin
D) None of these.

28) Which of the following are correct? [MSQ]

A) FCFS results in its minimum average response time possible, if the processes arrive in the increasing order of the burst time.
B) FCFS results in its minimum average response time possible, if the processes have the same burst time.
C) If there are N processes of all the same length L, the first process will finish at N*(L – T), where T is the length of the time slice.
D) Round robin scheduling behaves identically to FCFS, when the burst size is the same for all the processes.

29) Consider the following state-transition diagram and identify correct set of statement(s):[MSQ]



A) Transition 2 is possible in FCFS scheduling.

B) Transition 4 is not possible.
C) Transition 6 is possible when a process sleeping over a Semaphore is invoked.
D) Transition 5 is not possible.

30) Identify the correct statement(s): [MSQ]

A) Ignoring the overhead of context switching, the I/O utilization of a round robin system increases as the time-slice length is increased.
B) Ignoring the overhead of context switching, the I/O utilization of a round robin system decreases as the time-slice length is increased.
C) Ignoring the overhead of context switching, some processes may take longer to finish, if the time-slice length is decreased in a round robin system.
D) Ignoring the overhead of context switching, if the time-slice length is decreased in a round robin system then some process may starve.

31) What state information and content do you need to save/restore about processes when performing a context switch [MSQ]

A) Stack
B) Program Counter
C) Registers
D) Stack Pointer

32) Identify the correct statement(s): [MSQ]

A) Timer Interrupt may lead to context switch.
B) Round-Robin scheduling tends to favor IO bound processes.
C) A scheduling algorithm which gives priority to processes based on how much CPU time they have consumed (processes whose total CPU time is higher have higher priority) may lead to starvation.
D) Medium term scheduler is complex and not time critical when compared to short term scheduler.

33) Assume three processes arrive at the same time 0, of length 30,20,and10(they arrive in the same order). Assume that Sort() procedure is used to sort these processes. The time involved in Sort() takes Number of processes x 10 units of time, and that Switch() function is used for context switching (when one process ends and another begins, or to switch in a new process for the first time), which takes 10 units of time. Assume non--preemptive SJF Policy is used.

The average turn-around time is _____ units [NAT]

34) Assume three processes arrive at the same time 0, of length 30,20,and10(they arrive in

the same order). Assume that Sort() procedure is used to sort these processes. The time involved in Sort() takes Number of processes x 10 units of time, and that Switch() function is used for context switching (when one process ends and another begins, or to switch in a new process for the first time), which takes 10 units of time. Assume Round Robin Policy with a time slice of 10 units is used.

The average turn-around time is _____ units [NAT]

35) Assume we have three processes that enter a system and need to be scheduled. The first Process A needs 10 seconds of CPU time. The second Process B, which arrives just after A, needs 15 seconds of CPU time. The third, Process C, arrives just after B, and needs 10 seconds of CPU time. Assume that there is no cost to context switching and Round Robin Scheduling is used. What is the minimum integer value of the time -slice for which Process B finishes before C? [NAT]

36) Which of the following is/are TRUE: [MSQ]

A) On a uniprocessor machine, multiple processes can be in running state at the same time.
B) Performing I/O could cause a process's state to be changed from ready to waiting
C) Performing I/O could cause a process's state to be changed from running to waiting
D) OS uses timer interrupts to prevent a process from using the CPU forever.

37) Consider the set of processes with given information:

Process	Arrival Times	Burst Time
A	1	3
B	2	3
C	5	1
D	8	3

In terms of tie, the first arrival process is scheduled. The difference between the average turn around time using FCFS scheduling and SRTF scheduling is _____ units [NAT]

38) Consider the following process information with arrival times and the service times (burst time). A first come first serve scheduling algorithm is used. The average turn around time and the average waiting time are _____ and_____, respectively. **[NAT]**

39) Consider the following process information with arrival times and the service times (burst time). A first come first serve scheduling algorithm is used. The average turn around time and the average waiting time are _____ and_____, respectively. **[NAT]**

Process:	A	B	C	D	E
Arrival time:	0	1	2	3	10
Service time:	3	1	4	1	5

40) Consider the following process information with arrival times and the service times (burst time). A first come first serve scheduling algorithm is used. In case of same arrival times, the process is scheduled in lexicographical order. The average turn around time and the average waiting time are _____ and_____, respectively. **[NAT]**

Process:	A	B	C	D	E
Arrival time:	0	1	1	3	4
Service time:	3	1	4	1	5

41) Consider the following process information with arrival times and the service times (burst time). A first come first serve scheduling algorithm is used. The completion time of process C is _____. **[NAT]**

Process:	A	B	C	D	E
Arrival time:	0	1	2	3	4
Service time:	3	1	4	1	5

42) Consider the following process information with arrival times and the service times (burst time). A first come first serve scheduling algorithm is used. The scheduling incurs a context switch delay of 1 unit (ignore the first and last context switch). The completion time of process P3 is _____. **[NAT]**

Process:	Arrival Time:	Burst Time:
P1	0	5
P2	1	2
P3	2	4
P4	3	1
P5	4	2

6) Consider the following process information with arrival times and the service times (burst time). A first come first serve scheduling algorithm is used. The scheduling incurs a context switch delay of 1 unit (ignore the first and last context switch). The percentage overhead on the CPU is _____. **[NAT]**

Process:	Arrival Time:	Burst Time:
P1	0	5
P2	1	2
P3	2	4
P4	3	1
P5	4	2

43) Consider the following process information with arrival times and the service times (burst time). All the IO devices are available. A first come first serve scheduling algorithm is used. The Process P2 completes its IO at _____ units. **[NAT]**

44) Consider the following process information with arrival times and the service times (burst time). All the IO devices are available. A first come first serve scheduling algorithm is used. The CPU is idle for _____ units. **[NAT]**

Process name	Arrival	CPU burst	IO burst
P1	0	5	3
P2	6	2	1
P3	7	4	4

45) Consider the following information about five processes, P0,P1,P2,P3 and P4. Using FCFS Scheduling algorithm, calculate the CPU utilization (in %) by assuming context switch delay of 1 unit (Consider first context delay and ignore the last context switch). **[NAT]**

PID	Arrival Time	Burst Time
0	0	2
1	1	6
2	2	4
3	3	9
4	4	12

46) Consider the following preemptive priority-scheduling algorithm based on dynamically changing priorities. Larger priority numbers imply higher priority. When a process is waiting for CPU (in the ready queue, but not running), its priority changes at a rate of a (i.e., P(t) = P0 +a * (t - t0) where t0 is the time at which the process joins the ready queue) . Similarly, when it is running, its priority changes at a rate b. All processes are given a priority 0 when they enter the ready queue. The parameters a and b can be set to obtain many different scheduling algorithms.

Prove that when b > a > 0, it results in an FCFS scheduling algorithm.

47 is missing

48) Identify the correct statement(s) from the following: **[MSQ]**

A) FCFS can *always* be used to implement a non-preemptive priority scheduling algorithm.
B) Non-preemptivePriority scheduling can *always* be used to implement a FCFS scheduling algorithm.
C) SJF can *always* be used to implement a non-preemptive priority scheduling algorithm.
D) Non-preemptive Priority scheduling can *always* be used to implement a SJF scheduling algorithm.

49) Consider a set of processes with given information. A non-preemptive priority scheduling is used. The average waiting time was found to be 4.8 units, which is minimum among any non preemptive scheduling (FCFS and SJF).

Process	Arrival Time	Burst Time
P1	3	1
P2	1	4
P3	4	2
P4	0	6
P5	2	3

The priority of each process in correct order (Highest priority to lowest priority) is:

A) P4>P1>P3>P5>P2
B) P4>P2>P1>P5>P3
C) P2<P5<P3<P1<P4
D) P4>P2>P5>P1>P3

~~50~~) Consider the following set of process information. The IO devices are available as requested. A preemptive priority scheduling is used (lower number indicates higher priority). The scheduling incurs a context switch delay of 1 unit (ignore the first and last context switch). The completion time of process P1 is_____ **[NAT]**

Process:	Arrival Time:	Burst Time:	Priority:
P1	0	5	4
P2	1	2	2
P3	2	4	3
P4	4	1	1

51) Consider a uniprocessor system executing three tasks T1, T2 and T3, each of which is composed of an infinite sequence of jobs (or instances) which arrive periodically at intervals of 3, 7 and 20 milliseconds, respectively. The priority of each task is the inverse of its period and the available tasks are scheduled in order of priority, with the highest priority task scheduled first. Each instance of T1, T2 and T3 requires an execution time of 1, 2 and 4 milliseconds, respectively. Given that all tasks initially arrive at time 0 and task preemptions are allowed, the first instance of T3 completes its execution at the end of _____ milliseconds.
[NAT]

52) Consider the following set of process information. The IO devices are available as requested. A Round Robin scheduling is used with a time quantum of 3 units. The average turn around time and the average waiting time are _____ and_____, respectively. [NAT]

Process:	A	B	C	D	E
Arrival time:	0	1	2	3	4
Service time:	3	4	2	1	5
Priority:	0	0	0	0	0

53) Consider the following set of process information. The IO devices are available as requested. A Round Robin scheduling is used with a time quantum of 3 units. The scheduling incurs a context switch delay of 1 unit (ignore the first and last context switch). The completion time of process P4 is _____. [NAT]

54) Consider the following set of process information. The IO devices are available as requested. A Round Robin scheduling is used with a time quantum of 1.5 units. The scheduling incurs a context switch delay of 0.5 unit (ignore the first and last context switch). The completion time of process P3 is _____. [NAT]

Process:	Arrival Time:	Burst Time:
P1	0	5
P2	1	2
P3	2	4
P4	3	1

55) The state transition diagram (finite automata transitions) for five processes A, B, C, D and E is given below:

Start	Stop	Q1
0	1	$\{B_{0/4}, A_{1/3}\}$
1	2	$\{A_{1/3}, C_{0/2}, B_{1/4}\}$
2	3	$\{C_{0/2}, B_{1/4}, D_{0/1}, A_{2/3}\}$
3	4	$\{B_{1/4}, D_{0/1}, A_{2/3}, E_{0/5}, C_{1/2}\}$
4	5	$\{D_{0/1}, A_{2/3}, E_{0/5}, C_{1/2}, B_{2/4}\}$
5	6	$\{A_{2/3}, E_{0/5}, C_{1/2}, B_{2/4}\}$
6	7	$\{E_{0/5}, C_{1/2}, B_{2/4}\}$
7	8	$\{C_{1/2}, B_{2/4}, E_{1/5}\}$
8	9	$\{B_{2/4}, E_{1/5}\}$
9	10	$\{E_{1/5}, B_{3/4}\}$
10	11	$\{B_{3/4}, E_{2/5}\}$
11	12	$\{E_{2/5}\}$
12	14	$\{E_{4/5}\}$

Start: is in time units
Stop: is in time units
Q1: Represents the Queue.
Ax/y : Process A completed x units out of its y units (burst). When x=0, the process has arrived at Queue Q1.

Find the scheduling algorithm used.

A) First Come First Serve
B) Round Robin with quantum = 1
C) Round Robin with quantum = 2
D) Insufficient data.

56) The state transition diagram (finite automata transitions) for five processes A, B, C, D and E is given below:

Start	Stop	Q1
0	1	$\{B_{0/4}, A_{1/3}\}$
1	2	$\{A_{1/3}, C_{0/2}, B_{1/4}\}$
2	3	$\{C_{0/2}, B_{1/4}, D_{0/1}, A_{2/3}\}$
3	4	$\{B_{1/4}, D_{0/1}, A_{2/3}, E_{0/5}, C_{1/2}\}$
4	5	$\{D_{0/1}, A_{2/3}, E_{0/5}, C_{1/2}, B_{2/4}\}$
5	6	$\{A_{2/3}, E_{0/5}, C_{1/2}, B_{2/4}\}$
6	7	$\{E_{0/5}, C_{1/2}, B_{2/4}\}$
7	8	$\{C_{1/2}, B_{2/4}, E_{1/5}\}$
8	9	$\{B_{2/4}, E_{1/5}\}$
9	10	$\{E_{1/5}, B_{3/4}\}$
10	11	$\{B_{3/4}, E_{2/5}\}$
11	12	$\{E_{2/5}\}$
12	14	$\{E_{4/5}\}$

Start: is in time units
Stop: is in time units
Q1: Represents the Queue.
Ax/y : Process A completed x units out of its y units (burst). When x=0, the process has arrived at Queue Q1.

The average turnaround time for the above schedule is _____ units [NAT]

57) Consider the following set of process information. The IO devices are available as requested. A Shortest Job First scheduling is used. The scheduling incurs a context switch delay of 1 unit (ignore the first and last context switch). The average average waiting time is_____ **[NAT]**

Solution: 4.75

58) Consider the following set of process information. The IO devices are available as requested.A Shortest Job First scheduling is used. The average turn around time and the average waiting time are _____ and_____, respectively. **[NAT]**

Process:	A	B	C	D	E
Arrival time:	0	1	2	3	4
Service time:	3	4	1	4	5

59) Consider the following scenario of processes:

Process	Arrival time	Execution time
P1	0	5
P2	2	4
P3	3	7
P4	5	6

The normalized turnaround time for process P3 using Shortest Job First (SJF) scheduling algorithm is_____. (Normalized turn around time of the process is the ratio of turn around time of the process over the burst length). **[NAT]**

60) Six jobs are waiting to be run, which have arrived at time 0. Their expected running times are 10, 8, 6, 3, 1, and X. Which one of the following orders of scheduling will NOT minimize average waiting time using Shortest Job First (SJF)?

A) 1, 3, 6, 8, X, 10 and 8 < X <= 10
B) 1, 3, X, 6, 8, 10 and 3 < X <= 6
C) 1, 3, 6, 8, 10, X and X > 10
D) X, 1, 3, 6, 8, 10 and X <= 2

61) Choose the correct statement(s) among the following **[MSQ]**

A) Shortest Job first has the advantage of having a minimum average response time among all scheduling algorithms.
B) Shortest Job first is a Greedy Algorithm.

C) Shortest Job first is starvation free.
D) Shortest job first can be implemented by approximation or prediction methods.

62) Consider the following set of process information. The IO devices are available as requested. A Shortest Remaining Time First scheduling is used. The scheduling incurs a context switch delay of 1 unit (ignore the first and last context switch). The average average waiting time is_____ **[NAT]**

Process:	Arrival Time:	Burst Time:
P1	0	5
P2	1	2
P3	2	4
P4	3	1

63) Consider the following set of process information. The IO devices are available as requested.A Shortest Remaining Time First scheduling is used. The average turn around time and the average waiting time are _____ and_____, respectively. **[NAT]**

Process:	A	B	C	D	E
Arrival time:	0	1	2	3	4
Service time:	3	4	1	4	5

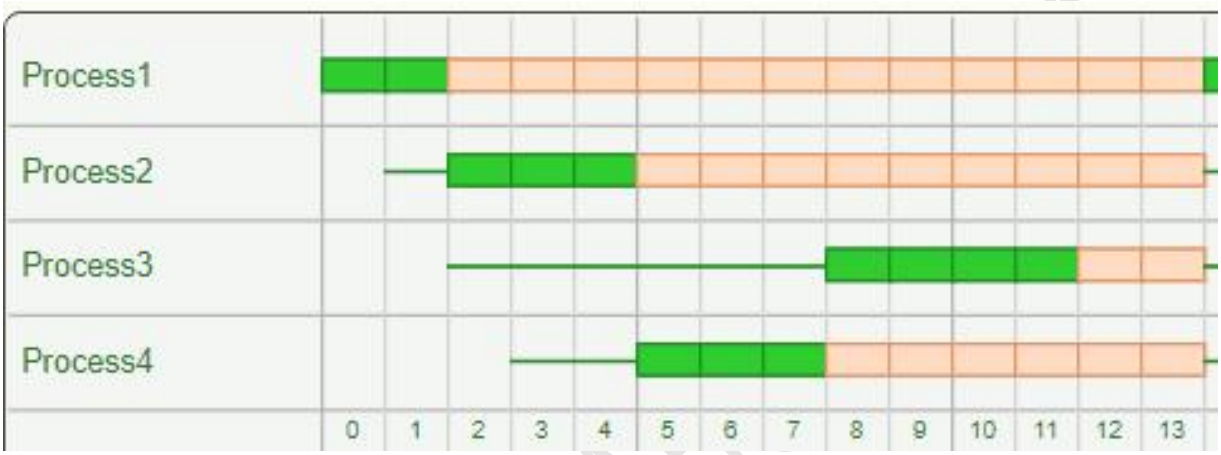
64) Consider the following set of process information. The IO devices are available as requested.A Shortest Remaining Time First scheduling is used.

Process name	Arrival	CPU burst	IO burst
Process1	0	2	12
Process2	1	3	9
Process3	2	4	2
Process4	3	3	6

Which of the following processes completes first (including IO respective IO). ?

A) Process 1 completes first.
B) Process 2 and Process3 complete at the same time.
C) Process 1 and Process4 complete at the same time.
D) All the processes complete at the same time.

Solution: (D)



65) Consider three processes, all arriving at time zero, with total execution time of 10, 20 and 30 units respectively. Each process spends the first 20% of execution time doing I/O, the next 70% of time doing computation, and the last 10% of time doing I/O again. The operating system uses a shortest remaining compute time first scheduling algorithm and schedules a new process either when the running process gets blocked on I/O or when the running process finishes its compute burst. Assume that all I/O operations can be overlapped as much as possible. For _____ percentage of the CPU remains idle.
[NAT]

66) The state transition diagram (finite automata transitions) for five processes A, B, C, D and E is given below:

Start	Stop	Q1
0	3	$\{C_{0/1}, B_{0/4}, D_{0/4}\}$
3	4	$\{B_{0/4}, D_{0/4}, E_{0/5}\}$
4	8	$\{D_{0/4}, E_{0/5}\}$
8	12	$\{E_{0/5}\}$
12	17	

Start: is in time units
Stop: is in time units
Q1: Represents the Queue.
Ax/y : Process A completed x units out of its y units (burst). When x=0, the process has arrived at Queue Q1.

The average turnaround time for the above schedule is _____ units **[NAT]**

67) Which of the following is not a function of dispatcher ?

A) Switching context
B) Switching to user mode
C) Jumping to the proper location in the newly loaded program.
D) It selects a process in the ready queue that should be scheduled for execution

68) Suppose a new process in a system arrives at an average of 6 processes per minute and each such process requires an average of 8 seconds of service time. The fraction of time the CPU is busy in a system with a single processor is_____.
A) 0.8
B) 0.6
C) 0.75
D) 0.5

69) Consider a scheduling algorithm (at the level of a short-term scheduler) favors those processes which have used little processor (CPU) time in the recent past. Which of the following statement(s) regarding the above algorithm is/are correct? [MSQ]

A) This algorithm favors I/O bound processes.
B) This algorithm starves CPU bound processes.
C) This algorithm favors CPU bound processes.
D) This algorithm does not starve CPU bound processes

70) Which of the following event(s) may lead to mode switch? [MSQ]

A) Exception
B) Segmentation fault
C) Software interrupt
D) System call

71) During a Context Switch event, which of the following actions may take place? [MSQ]

A) Mode switch from Kernel mode to user mode.
B) Call the specific event handler
C) Restore the process's states
D) Mode switch from User mode to Kernel mode.

72) Consider the set of process information.

Process	Arrival Time	Burst Time
P1	0	7
P2	0	4
P3	0	2
P4	0	5

The difference between the average waiting time and response time using FCFS scheduling is _____ [NAT]

73) Consider the set of process information.

Process	Arrival Time	Burst Time
P1	0	7
P2	2	4
P3	4	2
P4	7	1

The difference between the average waiting time and response time using SRTF scheduling is _____ [NAT]

74) Consider the set of process information.

Process	Arrival Time	Burst Time
P1	0	7
P2	2	4
P3	3	2
P4	9	1

The difference between the average waiting time and response time using RR scheduling with time slice of 2 units is _____ [NAT]

75) Consider the set of process information.

Process	Arrival Time	Burst Time
P1	0	7
P2	2	4
P3	3	2
P4	9	1

The total number of context switches (ignore the switch at beginning and completion) are _____, if RR scheduling with a time slice of 1 unit is used. [NAT]

76) Which of the following is not a goal of a Scheduler?

A) Minimize waiting time.
B) Maximize CPU utilization.
C) Fairness.
D) None of these.

77) Which of the following scheduling algorithms will tend to schedule I/O bound jobs before CPU bound jobs?

A. Shortest-Remaining-time-first
B. Multilevel Feedback Queues
C. Round Robin
D. First Come First Serve

78) Which of the following statement is correct?

A. The scheduler runs on every context switch.
B. A context switch can occur in the middle of an instruction.
C. SRTF is the fairest scheduling algorithm.
D. Multiprogramming is unnecessary on single-user systems.

79) Which of the following is NOT TRUE regarding the parameters that define Multilevel Feedback-Queue Scheduling?

A) The number of queues.
B) The scheduling algorithm for each queue.
C) The method used to determine which queue a process enters initially.
D) None of these.

80) Consider the following information about five processes, P0,P1,P2,P3 and P4. Using FCFS Scheduling algorithm, the average normalized turnaround time is _____.

normalized tat =tat/burst length of process

PID	Arrival Time	Burst Time
0	0	2
1	1	6
2	2	4
3	3	9
4	4	12

81) Consider the following information about five processes, P0,P1,P2,P3 and P4. Using HRRN Scheduling algorithm, the difference between the average turnaround time and average waiting time is _____ [NAT]

PID	Arrival Time	Burst Time
0	0	3
1	2	5
2	4	4
3	6	1
4	8	2

82. Consider the process information for a set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using a first come first serve scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	2	3
P3	6	2
P4	7	3

83. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using first come first serve scheduling algorithm.

Process	Arrival time	Burst time
P1	1	5
P2	2	3
P3	3	8
P4	7	3

84. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using first come first serve scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	7	3
P3	8	8
P4	9	3

85. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using first come first serve scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	7	3
P3	8	8

86. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using first come first serve scheduling algorithm.

Process	Arrival time	Burst time

P1	0	5
P2	7	8
P3	8	8

87. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time and average waiting time using Shortest Job first scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	2	3
P3	6	2
P4	7	3

88. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time and average waiting time using using Shortest Job first scheduling algorithm.

Process	Arrival time	Burst time
P1	1	5
P2	2	3
P3	3	8
P4	7	3

89. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time and average waiting time using using Shortest Job first scheduling algorithm.

Process	Arrival time	Burst time

P1	0	5
P2	7	3
P3	8	8
P4	9	3

90. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time and average waiting time using using Shortest Job first scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	7	3
P3	8	8

91. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using Non preemptive Priority scheduling algorithm. (Higher number implies higher priority)

Process	Arrival time	Burst time	Priority
P1	0	5	1
P2	2	3	2
P3	6	2	3
P4	7	3	4

92. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using Non preemptive Priority scheduling algorithm.(Higher number implies higher priority)

Process	Arrival time	Burst time	Priority
P1	1	5	1
P2	2	3	3
P3	3	8	5
P4	7	3	2

93. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using Non preemptive Priority scheduling algorithm.(Higher number implies higher priority)

Process	Arrival time	Burst time	Priority
P1	0	5	2
P2	7	3	1
P3	8	8	4
P4	9	3	0

94. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using Non preemptive Priority scheduling algorithm.(Higher number implies higher priority)

Process	Arrival time	Burst time	Priority
P1	0	5	1
P2	7	3	2
P3	8	8	0

95. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time

and throughput, using Non preemptive Priority scheduling algorithm. (Higher number implies higher priority)

Process	Arrival time	Burst time	Priority
P1	0	5	3
P2	7	6	1
P3	7	8	0

96. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using preemptive Priority scheduling algorithm. (Higher number implies higher priority)

Process	Arrival time	Burst time	Priority
P1	0	5	1
P2	2	3	2
P3	6	2	3
P4	7	3	4

97. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using preemptive Priority scheduling algorithm.(Higher number implies higher priority)

Process	Arrival time	Burst time	Priority
P1	1	5	1
P2	2	3	3
P3	3	8	5
P4	7	3	2

98. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using preemptive Priority scheduling algorithm.(Higher number implies higher priority)

Process	Arrival time	Burst time	Priority
P1	0	5	2
P2	7	3	1
P3	8	8	4
P4	9	3	0

99. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using preemptive Priority scheduling algorithm.(Higher number implies higher priority)

Process	Arrival time	Burst time	Priority
P1	0	5	1
P2	7	3	2
P3	8	8	0

100. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using preemptive Priority scheduling algorithm. (Higher number implies higher priority)

Process	Arrival time	Burst time	Priority
P1	0	5	3
P2	7	6	1

P3	7	8	0

101. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using SRTF scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	2	3
P3	6	2
P4	7	3

102. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using SRTF scheduling algorithm.

Process	Arrival time	Burst time
P1	1	5
P2	2	3
P3	3	8
P4	7	3

103. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using SRTF scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	7	3

P3	8	8
P4	9	3

104. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using SRTF scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	7	3
P3	8	8

105. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using SRTF scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	7	8
P3	8	8

106. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using RR scheduling algorithm, time quantum=2.

Process	Arrival time	Burst time
P1	0	5
P2	2	3
P3	6	2

P4	7	3

107. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using RR scheduling algorithm, time quantum=3.

Process	Arrival time	Burst time
P1	1	5
P2	2	3
P3	3	8
P4	7	3

108. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using RR scheduling algorithm, time quantum=2.

Process	Arrival time	Burst time
P1	0	5
P2	7	3
P3	8	8
P4	9	3

109. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using RR scheduling algorithm, time quantum=2.

Process	Arrival time	Burst time
P1	0	5
P2	7	3
P3	8	8

110. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, average turn around, average response time and throughput, using RR scheduling algorithm, time quantum=1.

Process	Arrival time	Burst time
P1	0	5
P2	7	8
P3	8	8

111. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, and average turn around, using HRRN scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	2	3
P3	6	2
P4	7	3

112. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, and average turn around, using HRRN scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	7	3
P3	8	8
P4	9	3

113. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, and average turn around, using HRRN scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	7	3
P3	8	8

114. Consider the process information for set of processes, assuming the context switch delay to be 0, calculate the average waiting time, and average turn around, using HRRN scheduling algorithm.

Process	Arrival time	Burst time
P1	0	5
P2	7	8
P3	8	8