IV semester IT/CCE Operating Systems ICT_2258 - MISAC 1

Table 1

Processes	Arrival Time	Burst Time	Priority
P1	0	10	1
P2	1	5	4
P3	3	3	3
P4	2	4	2
P5	4	5	5

1A. The Table 1 shows a snapshot of processes in the system, with arrival time and execution time in milliseconds. Draw a Gantt chart showing the scheduling of the processes using FCFS scheduling algorithm. Find the average waiting time of all the processes in the system. [lower value depicts a higher priority]. [2 Marks]

1B. Draw a Gantt chart showing the scheduling of the processes using SJF scheduling algorithm. [1 Mark]

1C. Predict the burst time of P6 using exponential average. Assume initial predicted CPU burst (T_0 or $\mathcal{T}_0$) to be 10 milliseconds and alpha($\boldsymbol{\alpha}$) to be 0.5. [2 Marks]

Table 2

Processes	Arrival Time	Burst Time
P1	0	8
P2	4	5
P3	3	6
P4	2	4
P5	5	3

2A. The Table 2 shows a snapshot of processes in the system, with arrival time and execution time in milliseconds. Draw a Gantt chart showing the scheduling of the processes using FCFS scheduling algorithm. Find the average waiting time of all the processes in the system. [2 Marks]

2B. Draw a Gantt chart showing the scheduling of the processes using SJF scheduling algorithm. [1 Mark]

2C. Predict the burst time of P6 using exponential average. Assume initial predicted CPU burst (T_0 or $\mathcal{T}_0$) to be 10 milliseconds and alpha($\boldsymbol{\alpha}$) to be 0.5. [2 Marks]

3A. What would be the number of processes created in the following program? Also give the value/values of variable x. [2Marks]

```
int main(){
int x=110;

if(fork()==0)  { x++;return 0;}

if(fork()==0) {x--;return 0;}
x+=5;}
```

3B. The Table 3 shows a snapshot of processes in the system, with arrival time and execution time in milliseconds. Draw a Gantt chart showing the scheduling of the processes using SJF scheduling algorithm. Find the average turn arround time of all the processes in the system. [3 Marks]

Table 3

Processes	Arrival Time	Burst Time
P1	0	8
P2	4	5
P3	3	6
P4	2	4
P5	4	3

4A. Draw a Gantt chart showing the scheduling of the processes using SJF scheduling algorithm for the following processes. Tabulate the waiting time, turnaround time for each process and find the average waiting time and turn around time. [4M]

Process	Burst time
P1	6
P2	3
P3	2
P4	2
P5	1
P6	4
P7	5
P8	7

4B. What will be the output of following code snippet? Justify your answer. [1M]

```
#include<stdio.h>
#include<unistd.h>
int main()
{ printf("hello \n");
  fork();
  printf("bye \n");
 return 0;
}
```

5A. Draw a Gantt chart showing the scheduling of the processes using FCFS scheduling algorithm for the following processes asssuming Arrival time is 0 for all. Tabulate the waiting time, turnaround time for each process and find the average waiting time and turn around time. [4M]

Process	Burst time
P1	6
P2	3
P3	2
P4	5
P5	1
P6	4
P7	5
P8	7

5B. What will be the output of following code snippet? Justify your answer. [1M]

```
#include<stdio.h>
#include<unistd.h>
int main()
{ printf("hello \n");
  fork();
  printf("bye \n");
  fork();
 return 0;
}
```