PRACTICAL NO 5: SHEDULING [SJF WITH PREEMPTION]

```
#include<stdio.h>
int main()
{
 int bt[20],p[20],wt[20],tat[20],i,j,n,total=0,totalT=0,pos,temp;
 float avg_wt,avg_tat;

 printf("Enter number of process:");
 scanf("%d",&n);

 printf("\nEnter Burst Time:\n");
 for(i=0;i<n;i++)
 {
 printf("p%d:",i+1);
 scanf("%d",&bt[i]);
 p[i]=i+1;
 }

 //sorting of burst times
 for(i=0;i<n;i++)
 {
 pos=i;
 for(j=i+1;j<n;j++)
 {
 if(bt[j]<bt[pos])
 pos=j;
 }

 temp=bt[i];
 bt[i]=bt[pos];
 bt[pos]=temp;

 temp=p[i];
 p[i]=p[pos];
 p[pos]=temp;
 }

 wt[0]=0;

 //finding the waiting time of all the processes
 for(i=1;i<n;i++)
 {
 wt[i]=0;
 for(j=0;j<i;j++)
 //individual WT by adding BT of all previous completed processes
 wt[i]+=bt[j];

 //total waiting time
 total+=wt[i];
 }

 //average waiting time
 avg_wt=(float)total/n;

 printf("\nProcess\t Burst Time \tWaiting Time\tTurnaround Time");
 for(i=0;i<n;i++)
 {
 //turnaround time of individual processes
 tat[i]=bt[i]+wt[i];

 //total turnaround time
 totalT+=tat[i];
 printf("\np%d\t\t %d\t\t %d\t\t\t%d",p[i],bt[i],wt[i],tat[i]);
```

```
 }

 //average turnaround time
 avg_tat=(float)totalT/n;
 printf("\n\nAverage Waiting Time=%f",avg_wt);
 printf("\nAverage Turnaround Time=%f",avg_tat);
}
```

OUTPUT:

```
Enter number of process:3

Enter Burst Time:
p1:20
p2:3
p3:4

Process  Burst Time     Waiting Time    Turnaround Time
p2               3               0                       3
p3               4               3                       7
p1               20              7                       27

Average Waiting Time=3.333333
Average Turnaround Time=12.333333
```