5. Write a program to compute the average waiting time and turnaround time based on Preemptive shortest remaining processing time first (SRPT) algorithm for the following set of processes, with the arrival times and the CPU-burst times given in milliseconds

Process Arrival Time Burst Time

P1 0 5

P2 1 3

P3 2 3

P4 4 1

#include<stdio.h>

int main()

{

int n,i,j,ct=0,tat=0,wt=0;

float avg\_tat,avg\_wt;

int at[4]={0,1,2,4}, bt[4]={5,3,3,1}, rt[4]={5,3,3,1};

n=4; // number of processes

printf("\nProcess\t Arrival Time Burst Time\tWaiting Time\tTurnaround Time");

// SRPT algorithm

for(i=0;i<n;i++)

{

int smallest=0;

for(j=1;j<n;j++)

{

if(rt[j]<rt[smallest] && at[j]<=ct && rt[j]>0)

{

smallest=j;

}

}

rt[smallest]--;

if(rt[smallest]==0)

{

ct++;

int comp\_time=ct;

wt += comp\_time - at[smallest] - bt[smallest];

tat += comp\_time - at[smallest];

printf("\nP%d\t\t%d\t\t%d\t\t%d\t\t%d",smallest+1,at[smallest],bt[smallest],comp\_time-at[smallest]-bt[smallest],comp\_time-at[smallest]);

}

else if(rt[smallest]>0)

{

ct++;

}

}

avg\_wt=(float)wt/n;

avg\_tat=(float)tat/n;

printf("\n\nAverage Waiting Time=%0.2f ms",avg\_wt);

printf("\nAverage Turnaround Time=%0.2f ms",avg\_tat);

return 0;

}

