Ques. 5. CPU schedules N processes which arrive at different time intervals and each process is allocated the CPU for a specific user input time unit, processes are scheduled using a preemptive round robin scheduling algorithm. Each process must be assigned a numerical priority, with a higher number indicating a higher relative priority. In addition to the processes one task has priority 0. The length of a time quantum is T units, where T is the custom time considered as time quantum for processing. If a process is preempted by a higher-priority process, the preempted process is placed at the end of the queue. Design a scheduler so that the task with priority 0 does not starve for resources and gets the CPU at some time unit to execute. Also compute waiting time, turn around.

#include<stdio.h>

#include<conio.h>

void main()

{

  char p[10][5],temp[5];

  int i,j,pt[10],wt[10],totwt=0,pr[10],temp1,n;

  float avgwt;

 printf("enter no of processes:");

 scanf("%d",&n);

  for(i=0;i<n;i++)

  {

  printf("enter process%d name:",i+1);

 scanf("%s",&p[i]);

  printf("enter process time:");

 scanf("%d",&pt[i]);

  printf("enter priority:");

  scanf("%d",&pr[i]);

  }

 for(i=0;i<n-1;i++)

 {

 for(j=i+1;j<n;j++)

 {

   if(pr[i]>pr[j])

 {

   temp1=pr[i];

 pr[i]=pr[j];

  pr[j]=temp1;

  temp1=pt[i];

  pt[i]=pt[j];

  pt[j]=temp1;

 strcpy(temp,p[i]);

 strcpy(p[i],p[j]);

  strcpy(p[j],temp);

  }

  }

  }

 wt[0]=0;

  for(i=1;i<n;i++)

  {

   wt[i]=wt[i-1]+et[i-1];

   totwt=totwt+wt[i];

   }

avgwt=(float)totwt/n;

printf("p\_name**\t** p\_time**\t** priority**\t** w\_time**\n**");

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

{

   printf(" %s**\t** %d**\t** %d**\t** %d**\n**" ,p[i],pt[i],pr[i],wt[i]);

   }

  printf("total waiting time=%d**\n** avg waiting time=%f",tot,avg);

  getch();

   }

OUTPUT:

enter no of processes: 5

enter process1 name: aaa

enter process time: 4

enter priority:5

enter process2 name: bbb

enter process time: 3

enter priority:4

enter process3 name: ccc

enter process time: 2

enter priority:3

enter process4 name: ddd

enter process time: 5

enter priority:2

enter process5 name: eee

enter process time: 1

enter priority:1

p\_name P\_time priority w\_time

eee 1 1 0

ddd 5 2 1

ccc 2 3 6

bbb 3 4 8

aaa 4 5 11

total waiting time=26

avg waiting time=5.20