

6. Construct a C program to implement preemptive priority scheduling algorithm

A. Code:

```
#include<stdio.h>

#include<conio.h>

int main()

{

int i, NOP,sum=0,count=0, y, quant, wt=0, tat=0, at[10], bt[10], temp[10];float

avg_wt, avg_tat;

printf(" Total number of process in the system: ");

scanf("%d", &NOP);

y = NOP;

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

{

printf("\n Enter the Arrival and Burst time of the Process[%d]\n", i+1);

printf(" Arrivalttime is: \t");

scanf("%d", &at[i]);

printf(" \nBurst time is: \t");

scanf("%d", &bt[i]); temp[i] =

bt[i];

}

printf("Enter the Time Quantum for the process: \t");

scanf("%d", &quant);

printf("\n Process No \t\t Burst Time \t\t TAT \t\t Waiting Time ");

for(sum=0, i = 0;y!=0; )

{

if(temp[i] <= quant && temp[i] > 0)

{

sum = sum + temp[i];

temp[i] = 0;

count=1;

}
```

```

else if(temp[i] > 0)
{
temp[i] = temp[i] - quant;sum
= sum + quant;
}
if(temp[i]==0 && count==1)
{
y--;
printf("\nProcess No[%d] \t\t %d\t\t\t %d\t\t\t %d", i+1, bt[i], sum-at[i], sum-at[i]-bt[i]);
wt = wt+sum-at[i]-bt[i];
tat=tat+sum-at[i]; count =0;
}
if(i==NOP-1)
{
i=0;
}
else if(at[i+1]<=sum)
{
i++;
}
else
{
i=0;
}
}
avg_wt = wt * 1.0/NOP;
avg_tat = tat * 1.0/NOP;
printf("\n Average Turn Around Time: \t%f", avg_wt);
printf("\n Average Waiting Time: \t%f", avg_tat); getch();
}

```

Output:

```

Total number of process in the system: 4

Enter the Arrival and Burst time of the Process[1]
Arrivaltime is:      1
Burst time is:      5

Enter the Arrival and Burst time of the Process[2]
Arrivaltime is:      2
Burst time is:      6

Enter the Arrival and Burst time of the Process[3]
Arrivaltime is:      3
Burst time is:      7

Enter the Arrival and Burst time of the Process[4]
Arrivaltime is:      4
Burst time is:      8
Enter the Time Quantum for the process:      2

Process No      Burst Time      TAT      Waiting Time
Process No[1]      5      16      11
Process No[2]      6      17      11
Process No[3]      7      21      14
Process No[4]      8      22      14
Average Turn Around Time:      12.500000
Average Waiting Time: 19.000000

```