Assignment No. 3:

Implement the C program for CPU Scheduling Algorithms: Shortest Job First (Preemptive) and Round Robin with different arrival time.

1. Shortest Job First

```
#include<stdio.h>
void main()
{
int i,j,n,bu[10],wa[10],tat[10],t,ct[10],max;
float awt=0,att=0,temp=0;

printf("\nTo write a C program to implement Round Robin CPU scheduling
algorithm.s\n\n");
printf("Enter the no of processes -- ");
scanf("%d",&n);
for(i=0;i<n;i++)
{
printf("\nEnter Burst Time for process %d -- ", i+1);
scanf("%d",&bu[i]);
ct[i]=bu[i];
}
printf("\nEnter the size of time slice -- ");
scanf("%d",&t);
max=bu[0];
for(i=1;i<n;i++)
if(max<bu[i])
max=bu[i];
for(j=0;j<(max/t)+1;j++)
for(i=0;i<n;i++)
if(bu[i]!=0)
if(bu[i]<=t) {
tat[i]=temp+bu[i];
temp=temp+bu[i];
bu[i]=0;
}
else {
bu[i]=bu[i]-t;
temp=temp+t;
}
for(i=0;i<n;i++){
wa[i]=tat[i]-
ct[i]; att+=tat[i];
awt+=wa[i];}

printf("\n\tPROCESS\t BURST TIME \t WAITING TIME\tTURNAROUND
```

```
TIME\n");
for(i=0;i<n;i++)
printf("\t%d \t %d \t\t %d \t\t %d \n",i+1,ct[i],wa[i],tat[i]);
printf("\nThe Average Turnaround time is -- %f",att/n);
printf("\nThe Average Waiting time is -- %f ",awt/n);
}

/*
OUTPUT

To write a C program to implement Round Robin CPU scheduling algorithm.s

Enter the no of processes -- 4

Enter Burst Time for process 1 -- 3

Enter Burst Time for process 2 -- 6

Enter Burst Time for process 3 -- 4

Enter Burst Time for process 4 -- 2

Enter the size of time slice -- 2

      PROCESS  BURST TIME      WAITING TIME    TURNAROUND TIME
      1        3               6               9
      2        6               9               15
      3        4               9               13
      4        2               6               8

The Average Turnaround time is -- 11.250000
The Average Waiting time is -- 7.500000
- - - - - - - - - - - - - - - - - - - - -
Process exited after 19.63 seconds with return value 41
Press any key to continue . . .
*/
```

2. Round Robin

```
#include<stdio.h>
void main()
{
int i,j,n,bu[10],wa[10],tat[10],t,ct[10],max;
float awt=0,att=0,temp=0;

printf("\nTo write a C program to implement Round Robin CPU scheduling
algorithm.s\n\n");
```

```
printf("Enter the no of processes -- ");
scanf("%d",&n);
for(i=0;i<n;i++)
{
printf("\nEnter Burst Time for process %d -- ", i+1);
scanf("%d",&bu[i]);
ct[i]=bu[i];
}
printf("\nEnter the size of time slice -- ");
scanf("%d",&t);
max=bu[0];
for(i=1;i<n;i++)
if(max<bu[i])
max=bu[i];
for(j=0;j<(max/t)+1;j++)
for(i=0;i<n;i++)
if(bu[i]!=0)
if(bu[i]<=t) {
tat[i]=temp+bu[i];
temp=temp+bu[i];
bu[i]=0;
}
else {
bu[i]=bu[i]-t;
temp=temp+t;
}
for(i=0;i<n;i++){
wa[i]=tat[i]-
ct[i]; att+=tat[i];
awt+=wa[i];}

printf("\n\tPROCESS\t BURST TIME \t WAITING TIME\tTURNAROUND
TIME\n");
for(i=0;i<n;i++)
printf("\t%d \t %d \t\t %d \t\t %d \n",i+1,ct[i],wa[i],tat[i]);
printf("\nThe Average Turnaround time is -- %f",att/n);
printf("\nThe Average Waiting time is -- %f ",awt/n);
}

/*
OUTPUT

To write a C program to implement Round Robin CPU scheduling algorithm.s

Enter the no of processes -- 4

Enter Burst Time for process 1 -- 3
```

```
Enter Burst Time for
process 2 -- 6 Enter Burst
Time for process 3 -- 4
Enter Burst Time for
process 4 -- 2 Enter the
size of time slice -- 2

    PROCESS  BURST TIME      WAITING TIME    TURNAROUND TIME
    1        3               6               9
    2        6               9               15
    3        4               9               13
    4        2               6               8

The Average Turnaround time is --
11.250000 The Average Waiting
time is -- 7.500000
----------------------
Process exited after 19.63 seconds with return
value 41 Press any key to continue . . .
*/
```