Experiment No: 01

Experiment Title: Short Job First (No Arrival Time)

Theory : Shortest Job First (SJF) is an algorithm in which the process having the smallest execution time is chosen for the next execution. This scheduling method can be preemptive or non-preemptive. It significantly reduces the average waiting time for other processes awaiting execution.

Code:

```
#include <stdio.h>
int main ()
{
   int bt[20],p[20],wt[20],tat[20],i,j,n,total=0,pos,temp;
   float avg_wt,avg_tat;
   printf("Enter number of process:");
   scanf("%d",&n);
   for(i=0;i<n;i++)
   {
      printf("Enter burst time of p%d :",i+1);
      scanf("%d",&bt[i]);
      p[i]=i+1;
   }

  //sorting
   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;
for(i=1;i<n;i++)
{
    wt[i]=0;
    for(j=0;j<i;j++)
        wt[i]+=bt[j];

    total+=wt[i];
}

avg_wt=(float)total/n;
total=0;

printf("\nProcess\tBurst Time\tWaiting Time\tTurnaround Time");
for(i=0;i<n;i++)
```

```
    {
        tat[i]=bt[i]+wt[i];
        total+=tat[i];
        printf("\np%d \t\t%d \t\t%d \t\t%d",p[i],bt[i],wt[i],tat[i]);
    }

    avg_tat=total/(float)n;
    printf("\n\nAverage Waiting Time= %lf",avg_wt);
    printf("\nAverage Turnaround Time= %lf",avg_tat);
}
```

Input and Output: -

```
Enter number of process:4
Enter burst time of p1 :10
Enter burst time of p2 :5
Enter burst time of p3 :2
Enter burst time of p4 :1

Process Burst Time      Waiting Time    Turnaround Time
p4              1               0               1
p3              2               1               3
p2              5               3               8
p1              10              8               18

Average Waiting Time= 3.000000
Average Turnaround Time= 7.500000
```