CODE:-

```
import java.util.*;
public class SJF
{
public static void main (String args[])
{
Scanner sc=new Scanner(System.in);
System.out.println("*** Shortest Job First Scheduling (Preemptive) ***");
System.out.print("Enter no of process:");
int n= sc.nextInt();
String process[] = new String[n]; // it takes pid of process
int arrivaltime[] = new int[n]; // at means arrival time
int burstTime[] = new int[n]; // bt means burst time
int completionTime[] = new int[n]; // ct means complete time
int TAT[] = new int[n];// ta means turn around time
int waitingTime[] = new int[n];  // wt means waiting time
int flag[] = new int[n];  // f means it is flag it checks process is completed or not
int remburstTime[]= new int[n];   // it is also stores brust time
int st=0, tot=0;
float avgwt=0, avgta=0;
for (int i=0;i<n;i++)
{
  process[i]="P"+(i+1);
  System.out.print("Enter Arrival Time for processor " + (i+1) + ":");
  arrivaltime[i]= sc.nextInt();
  System.out.print("Enter Burst Time for processor " + (i+1) + ": ");
  burstTime[i]= sc.nextInt();
  remburstTime[i]= burstTime[i];
  flag[i]= 0;}
while(true){
  int min=99,c=n;
  if (tot==n){
    break;}
  for(int i=0;i<n;i++)
```

```
 {
  if ((arrivaltime[i]<=st) && (flag[i]==0) && (burstTime[i]<min))
   {
   min=burstTime[i];
   c=i;} }
 if (c==n){
  st++;
 }
 else{
  burstTime[c]--;
  st++;
  if (burstTime[c]==0)
  {
 completionTime[c]= st;
   flag[c]=1;
   tot++;} }}
 for(int i=0;i<n;i++)
 {
  TAT[i] = completionTime[i] - arrivaltime[i];
  waitingTime[i] = TAT[i] - remburstTime[i];
  avgwt+= waitingTime[i];
  avgta+= TAT[i];
 }
 System.out.println("*** Shortest Job First Scheduling (Preemptive) ***");
 System.out.println("Processor\tArrival time\tBrust time\tCompletion Time\t\tTurn around time\tWaiting
time");
 System.out.println("-----------------------------------------------------------------------------------------------");
 for(int i=0;i<n;i++)
 {
System.out.println(process[i]+"\t\t"+arrivaltime[i]+"ms\t\t"+remburstTime[i]+"ms\t\t"+completionTime[i]+"ms\
t\t\t"+TAT[i]+"ms\t\t\t"+waitingTime[i]+"ms");
 }
  System.out.println("\nAverage turn around time is "+ (float)(avgta/n));
  System.out.println("Average waiting time is "+ (float)(avgwt/n));
  sc.close();}}
```

OUTPUT: -

*** Shortest Job First Scheduling (Preemptive) ***

Enter no of process:5

Enter Arrival Time for processor 1:2

Enter Burst Time for processor 1: 6

Enter Arrival Time for processor 2:5

Enter Burst Time for processor 2: 2

Enter Arrival Time for processor 3:1

Enter Burst Time for processor 3: 8

Enter Arrival Time for processor 4:0

Enter Burst Time for processor 4: 3

Enter Arrival Time for processor 5:4

Enter Burst Time for processor 5: 4

*** Shortest Job First Scheduling (Preemptive) ***

Processor	Arrival time	Brust time	Completion Time	Turn around time	Waiting time
P4	0ms	3ms	3ms	3ms	0ms
P3	1ms	8ms	23ms	22ms	14ms
P1	2ms	6ms	15ms	13ms	7ms
P5	4ms	4ms	10ms	6ms	2ms
P2	5ms	2ms	7ms	2ms	0ms

Average turn around time is 9.2

Average waiting time is 4.6