Program :-

```
#include<stdio.h>
struct prio
{
	int pid,at,bt,pr,rbt,ct,tt,wt;
};

void sort(struct prio p[],int n)
{
	int i,j;
	struct prio temp;
	for(i=0;i<n;i++)
	{
		for(j=0;j<n-1-i;j++)
		{
			if(p[j].at<p[j+1].at)
				continue;
			else if(p[j].at>p[j+1].at || p[j].pr>p[j+1].pr)
			{
				temp=p[j];
				p[j]=p[j+1];
				p[j+1]=temp;
			}
		}
	}

}

void priority(struct prio p[],int n)
{
	int i,sumt,remain,j,key;
	remain=n;
	sumt=p[0].at;
	for(i=0;remain!=0;)
	{
		key=i;
		for(j=0;j<n;j++)
		{
			if(p[j].at<=sumt && p[j].pr<p[key].pr && p[j].rbt>0)
				key=j;
			if(p[j].at>sumt)
				break;
		}
		if(p[key].rbt>0)
		{
			p[key].rbt--;
			sumt++;
			if(p[key].rbt==0)
			{
				remain--;
				p[key].ct=sumt;
			}
		}
		else
		{
```

```
                if(i==n-1)
                        i=0;
                else
                {
                        i++;
                        if(p[i].at>sumt)
                                sumt=p[i].at;
                }
        }
    }
}

void tt(struct prio p[],int n)
{
    int i;
    for(i=0;i<n;i++)
        p[i].tt=p[i].ct-p[i].at;
}

void wt(struct prio p[],int n)
{
    int i;
    for(i=0;i<n;i++)
        p[i].wt=p[i].tt-p[i].bt;
}

void display(struct prio p[],int n)
{
    int i,j;
    struct prio temp;
    for(i=0;i<n;i++)
    {
        for(j=0;j<n-1-i;j++)
        {
            if(p[j].pid>p[j+1].pid)
            {
                temp=p[j];
                    p[j]=p[j+1];
                    p[j+1]=temp;
            }
        }
    }
    printf("\npid\tat\tbt\tpr\tct\ttt\twt\n");
    for(i=0;i<n;i++)
        printf("%d\t%d\t%d\t%d\t%d\t%d\t%d\n",p[i].pid,p[i].at,p[i].bt,p[i].pr,p[i].ct,p[i].tt,p[i].wt);
}

void att(struct prio p[],int n)
{
    int i,sum=0;
    float att;
    for(i=0;i<n;i++)
        sum+=p[i].tt;
    att=(float)sum/(float)n;
    printf("\naverage turn around time = %.2f\n",att);
}
```

```
void awt(struct prio p[],int n)
{
        int i,sum=0;
    float awt;
        for(i=0;i<n;i++)
                sum+=p[i].wt;
    awt=(float)sum/(float)n;
        printf("\naverage waiting time = %.2f\n\n",awt);
}

void main()
{
    int i,n;
    struct prio p[50];
    printf("Enter how many processes : ");
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        printf("\nenter pid of #%d : ",i+1);
        scanf("%d",&p[i].pid);
        printf("enter at    of #%d : ",i+1);
        scanf("%d",&p[i].at);
        printf("enter bt    of #%d : ",i+1);
        scanf("%d",&p[i].bt);
        p[i].rbt=p[i].bt;
        printf("enter the priority : ");
        scanf("%d",&p[i].pr);
    }
    sort(p,n);
    priority(p,n);
    tt(p,n);
    wt(p,n);
    display(p,n);
    att(p,n);
    awt(p,n);
}
```

Output :-

```
Enter how many processes : 5

enter pid of #1 : 1
enter at    of #1 : 0
enter bt    of #1 : 11
enter the priority : 2

enter pid of #2 : 2
enter at    of #2 : 5
enter bt    of #2 : 28
enter the priority : 0

enter pid of #3 : 3
enter at    of #3 : 12
enter bt    of #3 : 2
enter the priority : 3

enter pid of #4 : 4
enter at    of #4 : 2
enter bt    of #4 : 10
enter the priority : 1

enter pid of #5 : 5
enter at    of #5 : 9
enter bt    of #5 : 16
enter the priority : 4

pid  at   bt   pr   ct   tt   wt

1    0    11   2    49   49   38

2    5    28   0    33   28   0

3    12   2    3    51   39   37

4    2    10   1    40   38   28

5    9    16   4    67   58   42


average turn around time = 42.40

average waiting time = 29.00
```