NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA SURATHKAL
DEPARTMENT OF INFORMATION TECHNOLOGY

IT 301 Parallel Computing LAB 3

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Execute following programs and put screen shots of the output. Write analysis of the result before uploading in IRIS as a single pdf file**. For programming exercises, write the code and also attach screenshot of the results.**

Total Marks : 10

1. Demonstration of reduction clause in parallel directive. Write your observation. [2 marks]

```
#include<stdio.h>
#include<omp.h>
void main()
{
int x=0;
#pragma omp parallel num_threads(6) reduction(+:x)
{
int id=omp_get_thread_num();
int threads=omp_get_num_threads();
x=x+1;
printf("Hi from %d\n value of x : %d\n",id,x);
}
printf("Final x:%d\n",x);
}
```

2. Demonstration of lastprivate(). Write your observation [2 marks]

```
#include<stdio.h>
#include<omp.h>
void main()
{ int x=0,i,n;
printf("Enter the value of n");
scanf("%d",&n);
#pragma omp parallel
{
int id=omp_get_thread_num();
#pragma omp for lastprivate(i)
for(i=0;i<n;i++)
{
```

```
printf("Thread %d: value of i : %d\n",id,i);
x=x+i;
printf("Thread %d: x is %d\n",id,x);
}
}
printf("x is %d\n",x);
printf("i IS %d\n",i);
}
```

3. Demonstration of reduction clause with 'for' [2 marks]

```
#include<stdio.h>
#include<omp.h>
void main(void)
{
int n=20,dsum=0,tid,a[20],sum=0;
for(i=0;i<n;i++)
{
a[i]=i;
dsum=dsum+i;
}
#pragma omp parallel  num_threads(6)
{
int tid=omp_get_thread_num();
#pragma omp for private(i) schedule(static,5) reduction(+,sum)
for(i=0;i<n;i++)
sum=sum+a[i];
}
printf("sum= %d\n",sum);
}
return 0;
}
```

3. Programming exercise [4Marks]

Write a parallel program to find the minimum number in a given array. Use 'for' directive for the same along with reduction clause. Write code, execution results and your observation.