NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA SURATHKAL
DEPARTMENT OF INFORMATION TECHNOLOGY

# IT 301 Parallel Computing LAB 2

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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. Program 1 [2 Marks]**

**Aim: To understand and analyze shared clause in parallel directive.**
**Execute the program and write your observation. Change number of threads and write your observation.**

```
/*shared.c*/
#include<omp.h>
int main()
{
int x=20;
#pragma omp parallel shared(x)
{
int tid=omp_get_thread_num();
x=x+1;
printf("Thread [%d]\n value of x is %d",tid,x);
}
}
```

**2. Program 2 [2 Marks]**

**Learn the concept of private(), firstprivate()**
**(a) First execute the program with declaring i as *private(i).* Along with results , write your observation**
**(b) Then execute the same program with *firstprivate(i).* Observe the results and write your observation.**

```
/*learn.c*/
#include<stdio.h>
#include<omp.h>
int main()
```

```
{
int i=20;
printf("Value of i before pragma i=%d\n",i);
#pragma omp parallel num_threads(4) private(i)
{
printf("Value after entering pragma i=%d tid=%d\n",i, omp_get_thread_num());
i=i+omp_get_thread_num(); //adds thread_id to i
printf("Value after changing value i=%d tid=%d\n",i, omp_get_thread_num());
}
printf("Value after having pragma i=%d tid=%d\n",i, omp_get_thread_num());
}
```

**3. Programming exercise [6 Marks]**

**Write a parallel program to perform c[i]=a[i]+b[i] where i=0,1,2……N. Execute the program by varying number of elements and number of threads. Check the computation done by each thread.**

Write code, execution results and your observation.