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.