LAB ASSESMENT – 4
MPI PROGRAMMING

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Question 1: MPI Hello World

Code:-

```
#include <stdio.h>

#include <mpi.h>

void main(int argc, char **argv)
{
  int node;

  MPI_Init(&argc,&argv);

  MPI_Comm_rank(MPI_COMM_WORLD, &node);

  printf("Hello World from Node %d\n",node);

  MPI_Finalize();

}
```

OUTPUT:-

```
knt@knt-Inspiron-15-3567:~/Desktop$ mpicc hello.c -o hello
knt@knt-Inspiron-15-3567:~/Desktop$ mpirun -np 4 ./hello
Hello World from Node 0
Hello World from Node 1
Hello World from Node 2
Hello World from Node 3
knt@knt-Inspiron-15-3567:~/Desktop$
```

Question 2: MPI Basic

Code:-

```
#include <stdio.h>

#include <mpi.h>

int main(int argc, char ** argv) {
    int rank, size;

    char name[80];

    int length;

    MPI_Init(&argc, &argv); // note that argc and argv are passed
                            // by address

    MPI_Comm_rank(MPI_COMM_WORLD,&rank);

    MPI_Comm_size(MPI_COMM_WORLD,&size);

    MPI_Get_processor_name(name,&length);

    printf("Hello MPI: processor %d of %d on %s\n",
rank,size,name);

    MPI_Finalize();

}
```

OUTPUT:-

```
knt@knt-Inspiron-15-3567:~/Desktop$ mpicc hello.c -o hello
knt@knt-Inspiron-15-3567:~/Desktop$ mpirun -np 4 ./hello
Hello MPI: processor 1 of 4 on knt-Inspiron-15-3567
Hello MPI: processor 0 of 4 on knt-Inspiron-15-3567
Hello MPI: processor 2 of 4 on knt-Inspiron-15-3567
Hello MPI: processor 3 of 4 on knt-Inspiron-15-3567
knt@knt-Inspiron-15-3567:~/Desktop$
```