

Parallel Computing Minor-II

Max. Marks: 20

Date: November 1st, 2013
Duration 60 min

- Note:** 1. Attempt all questions.
2. Draw neat diagrams, if needed.

Q.1 Explain the working behavior of the following program segment and write your comments. Assume that there is no syntax error in the program segment. [4]

```
int a[10], b[10], npes, myrank;  
MPI_status status;  
...  
MPI_Comm_size(MPI_COMM_WORLD, &npes);  
MPI_Comm_rank(MPI_COMM_WORLD, &myrank);  
MPI_Send(a, 10, MPI_INT, (myrank+1)%npes, 1, MPI_COMM_WORLD);  
MPI_Recv(b, 10, MPI_INT, (myrank-1+npes)%npes, 1, MPI_COMM_WORLD);  
...
```

Q.2 Explain how Foster's design methodology can be applied to find the numerical integral of a given function. [4]

Q.3 What is Single Program Multiple Data (SPMD) model? Explain the general structure of a C program that uses SPMD model. [4]

Q.4 Write a C/MPI program Scatter sets of 50 integers from the root to each process in the group. [4]

Q.5 Explain the method of Parallelizing Mandelbrot Set Computation using Dynamic Task Assignments. [4]

-----Best of Luck-----