Parallel Computing
Minor-II

Max. Marks: 20

Date: November 4th, 2012
Duration 60 min

Note: 1. Attempt **all** questions.

Q.1 What are Condition Variables? Explain the use of Condition Variable with an example. [4]

Q.2 What will be the output of the C/OpenMP program (assuming no syntax error) on dual core computer if [4]

```c
#include <omp.h>
#include <stdio.h>
#include <stdlib.h>
#define N     3
#define CHUNKSIZE  5

int main (int argc, char *argv[])
{
int i, chunk, tid; float a[N], b[N], c[N]; char first_time;

for (i=0; i < N; i++)
    a[i] = b[i] = i * 1.0;
chunk = CHUNKSIZE; first_time = 'y';

#pragma omp parallel for shared(a,b,c,chunk)  private(i,tid) \
  schedule(static,chunk)  firstprivate(first_time)

for (i=0; i < N; i++)
  {   if (first_time == 'y')
    {
    tid = omp_get_thread_num();  first_time = 'n';
    }
    c[i] = a[i] + b[i];
    printf("tid= %d i= %d c[i]= %f\n", tid, i, c[i]);
  }
}
```

Q.3 What is work sharing construct how do you used them in OpenMP programming? [4]

Q.4 What is the basic difference between process and a thread? Explain the model OpenMP used for the parallel job execution. [4]

Q.5 Write a program (pthread or OpenMP) to calculate the value of pi using reduction clause. [4]