**GPU Architectures**
**and Programming**
**Assignment- Week 9**
**TYPE OF QUESTION: MCQ/MSQ**

**Number of questions**: 10 **Total mark: 10 X 1 = 10**

## MCQ/MSQ Question

**Question 1:**

State which of the following statements are true.

a)OpenCl context keeps track of the memory and programs objects that are created for each device.

b)For single device, OpenCl context is not required

c)Command-queue to co-ordinate execution of the kernels on the devices

d)Host can have access to local memory at run-time

e)OpenCL allows synchronization across different work-groups.

a) i, iii

b) ii, iii, iv

c) i, iv

d) i, iii, v

**Ans: a**

**Question 2:**

What is the corresponding term in OpenCL for scalar core in CUDA:

a) thread

b) work-item

c) compute unit

d) processing element

**Ans: d**

**Common data for QUESTION 3-4:**

The two input matrices for a matrix multiplication kernel (tiled version) implemented in OpenCL have size 128X256 and 256X4096. The TILE size used is (32,32). The target hardware can accommodate 1024 threads at max per block.

Consider the following OpenCL command for kernel launch.

*err = clEnqueueNDRangeKernel (commands, mat_mul, 2, NULL, &global_work_size, &local_work_size , 0, NULL, NULL );*

***Question 3:***

*What will be the suitable global_work_size:*

a) global_work_size = {32,128,1 }
b) global_work_size = {128, 4096,1 }
c) global_work_size = {256 , 4096 , 1}
*d) global_work_size = {1024 ,4096 , 1}*
***Ans: b***

***Question 4:***

*What will be the suitable local_work_size*

a) local_work_size = {32 ,32 , 1}
b) local_work_size = {1024,1 ,1 }
c) local_work_size = {1024 ,2048 ,1 }
*d) local_work_size = { 2048, 4096,1 }*
***Ans: a***

***Question 5:***

What is the corresponding term in CUDA for private memory in OpenCL:

a) global memory
b) local memory
c) shared memory
d) private memory
**Ans: b**

**Question 6:**

What is the corresponding term in OpenCL for thread in CUDA:

a) work-item
b)work-group
c)compute unit
d) compute core

**Ans: a**

**Question 7:**

Regardless of whether the command-queue resides on the host or a device, each Command in OpenCL passes through six states in the following order-

a) Queued, Submitted, Ready, Running, Ended, Complete
b) Submitted, Queued, Ready, Running, Ended, Complete
c) Submitted, Queued, Running, Pause, Ended, Complete
d) Queued, Submitted, Running, Pause, Restart ,Completens

**Ans: a**

**Question 8:**

For multiple devices, a single OpenCL context can be created. Is the statement true or false?

a. True
b. False

**Ans: a**

**Question 9:**

Consider a 1D Naive Reduction Kernel calculating the sum of 2^22 elements. The maximum size of a work group that can be launched is 512. The kernel is invoked multiple times. What is the content of the arrays *global_work_size and local_work_size* when the kernel is invoked in the third iteration.

*err = clEnqueueNDRangeKernel (commands, reduction, 1, NULL, &global_work_size, &local_work_size , 0, NULL, NULL );*

a) global_work_size = {8192,1,1 }, local_work_size = {512,1,1 }
b) global_work_size = {512, 1,1 ], local_work_size = {512,1 ,1 }
c) global_work_size = {1 , 1 , 1}, local_work_size = {16 ,1,1 }

*d) global_work_size = {16 ,1 , 1}, local_work_size = { 16, 1,1 }*

***Ans: d***

***Question 10:***

The objective(s) of creating command queue in OpenCL is(are)-

i) To co-ordinate execution of the kernels on the devices

ii) To queue a set of commands in some order

iii) To share common data between multiple commands

a) i,ii,iii

b) i,ii

c) i

d) None of them

**Ans: b**

***********END*************