

**Benha University**  
**Faculty of Engineering (at Shoubra )**  
**Electrical Engineering Department**  
**M.Sc. (Computer Systems Engineering)**

**Quiz 01****Subject:** Distributed and Parallel Systems - CES 601**Date:** Tue 18/04/2017**Duration:** 10 minutes**No of Questions:** 2 in 1 page(s)**Total Points:** 10 (10 Marks)

Attempt the following questions.

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**Question 1:****(05 pts)**

- a) Enumerate the limitations of *Implicit Parallelism*.

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- b) What is *Strided Memory Access* ? What is its impact on the performance of cache memory?

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- c) Compare *Crossbar Network* to *Completely Connected Network*?

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- d) Define *Mapping Expansion* and *Mapping Dilation*.

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- e) What is the distinction between *All-to-All Reduction* and *All-Reduce* communication operations?

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**Question 2:****(05 pts)**

- a) Formulate message passing costs in parallel computers *Cut-Through Routing* routing techniques

- b) State the **function** *G* of the *Binary Reflected Gray Code* (RGC).

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- c) Show how to embed a *k*-ary *d*-cube into a  $2^d$ -node hypercube.

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- d) Illustrate anomalous speedups resulting from *Exploratory Decomposition*.

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- e) Demonstrate how *Block-Cyclic Distribution* works on *Gaussian Elimination*.

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Good Luck  
 Dr. Islam ElShaarawy