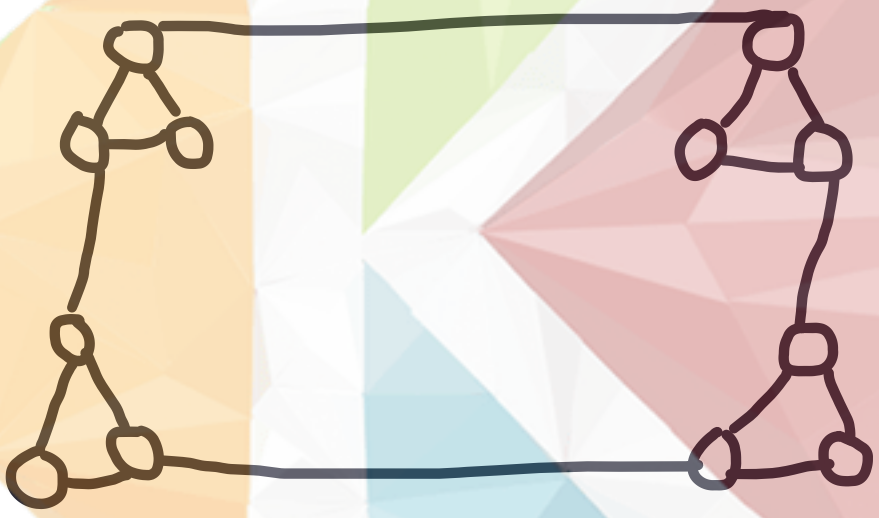
King Abdullah II School of Information Technology

Name: …… **ID:…….**

Q1) you have this interconnection network architecture, find the following:



Diameter	Arc-connectivity	Bisection width	Cost	Size

Q2) Draw 4 node completely connected graph and mention 2 advantages:

_____

_____

_____

_____

_____

_____

Q3) Draw pipelined possessor with 3 stages and one cache and 3 memory bank and mention 1 advantage of this system.

_____
_____
_____
_____
_____
_____

Q4) fill the suitable in each blank:

1) A 5-dimension graph need a __ processors.

2) A 2 dimension non wraparound mesh with 16 processors has a diameter of ____.

3) A Crossbar interconnected network has 4 processors, and 4 memory banks has a ___ switches elements.

4) An omega network of Multistage Interconnection architecture has 8 processors, then it has a ___ switches elements.

5)

Q5) if the below statements is correct put true in the blank and out false if not.

1) Location transparency: enables several processes to operate concurrently using shared resources without interference between them _____.

2) D- dimension has a direct link line for node in one dimension to other node in other dimension _____.

3) SIMD requires more hardware than MIMD _____.

4) Distributed systems is used to solve large computational problems. Each problem is decomposed into small subproblems and distributed to different nodes to solve the problem _____.

5) real time multimedia give a relationship among the communicating entities include video conferencing, peer to peer IP telephony (Skype) _____.

6) Replication transparency: enables multiple instances of resources to be used to increase reliability and performance without knowledge of the replicas by users or application programmers _____.

7) Crossbar interconnection networks are more scalable from cost and less scalable from performance _____.

8)

9)

10)

Solutions:

Q1)

Diameter	Arc-connectivity	Bisection width	Cost	Size
5	2	2	16	12

Q2)

Any two of them:

Advantages of Completely-Connected Network

1) In this network a processor can send a message to another processor in a single step, since a communication link exists between them.
2) The communication between any input / output pair does not block communication between any other pair.
3) The network supports communications over multiple channels originating at the same processor.

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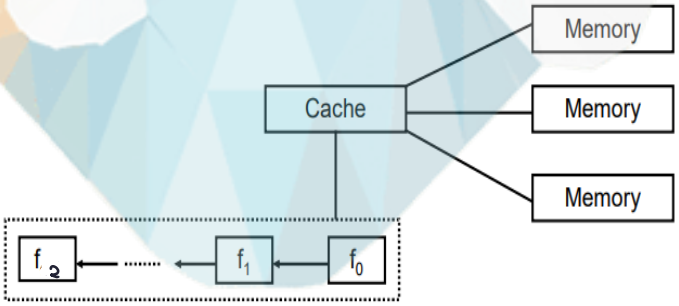
Q3)



Rate of execution of instruction can be increased by overlapping execution of an instruction with operation of fetching next instruction to be executed

Q4)

1) 32 2) 6 3) 16 4) 12

Q5)

1)False 2) True 3) False 4) True 5) True

6) True 7) False