University	:	*Menoufia*		*Date*	: *07/06/2016*
Faculty	:	*Electronic Engineering*		*Time*	: *3 Hours*
Department	:	*Computer Science&Eng.*		*No. of pages*	: *2*
Academic level	:	*4th Year*		*Full Mark*	: *60 Marks*
Course Name	:	*Distributed Systems & Internet Technology*		*Exam*	: *Final Exam*
Course Code	:	*: CSE 468*		*Examiner*	: *Dr:Nirmeen A. Wahab*

Answer all the following questions :

***Question No 1 ::*(15 Marks)**

a)

1. In distributed system each processor has its own
   a) local memory
   b) clock
   c) both (a) and (b)
   d) none of the mentioned

2. If one site fails in distributed system
   a) the remaining sites can continue operating
   b) all the sites will stop working
   c) directly connected sites will stop working
   d) none of the mentioned

3. In distributed systems, link and site failure is detected by
   a) polling
   b) handshaking
   c) token passing
   d) none of the mentioned

4. The capability of a system to adapt the increased service load is called
   a) scalability
   b) tolerance
   c) capacity
   d) none of the mentioned

b) **Say TRUE or FALSE**

1. **Elasticity, meansthat is when an application load decreases and increases released when load (scale up and down).**
2. **Virtualization Support, Virtualized resources (CPUs, memory, etc.) can't be sized and resized with certain flexibility**
3. **Service-Level Agreement. That's meaning the reliability and availability of the system.**
4. **Cloud on Grid is preferred than Grid on Cloud technique in integration problem.**

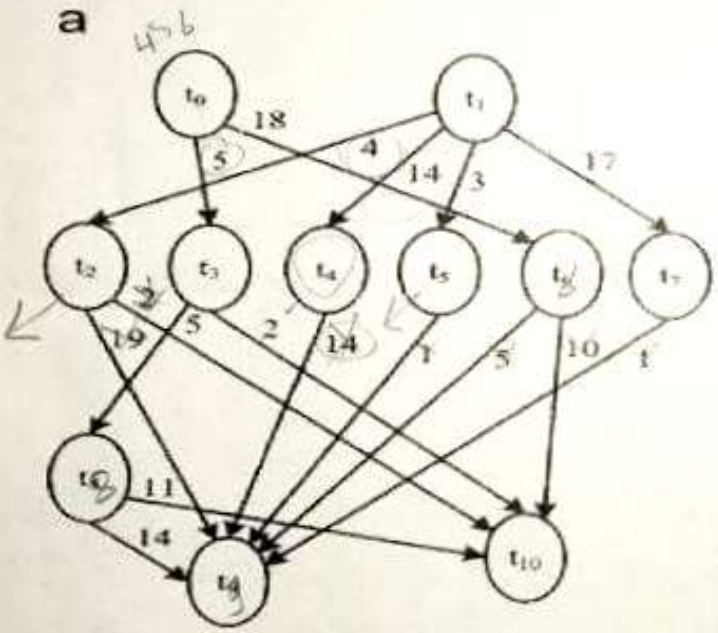
c) Let us consider two different virtual clusters with two and four nodes, respectively. Let us assume that the application is well optimized and that, at least for a small number of processors, it gets linear speed-up. The target application will be executed in two hours in the first cluster and in one hour in the second one. Which one is the fit configuration? And why?

*Referring instance cost=X

***Question No 2:*(15 Marks)**

a) What are the different type's deployment cloud models?
b) What is the difference between traditional datacenters and cloud?
c) Give the Gantt chart of a schedule for the sample task graph of Figure 1 on two heterogeneous processors by Breadth First technique. Calculate speedup and efficiency parameters.
NOTE: sequential execution is calculated on the highest speed processor

a



b

Task	p0	p1
t0	4	6
t1	15	22.5
t2	4	6
t3	13	19.5
t4	10	15
t5	7	10.5
t6	8	12
t7	4	6
t8	12	18
t9	6	9
t10	9	13.5

Fig. 1

***Question No 3 ::*(15 Marks)**

a) Why should one prefer public cloud over private cloud?
b) How does cloud architecture overcome the difficulties faced by traditional architecture?
c) Explain "customizable" cloud characteristic and design its challenge

***Question No 4 :*(15 Marks)**

a) **If we use a high performance computing cloud**

i. **Define the VE,**

ii. **Determine the differences between virtual cluster and real one,**

iii. **How do you solve the tradeoff between application time and system utilization.**

b) **According to next tables which system can user rent to execute his application (4 tasks - 2 hours each) , how much does it cost**

Table [1] Amazon EC2 instance types and price

Instance Type	VM_type1	VM_type2	VM_type3
CPU	4	7	20
Price($/hour)	0.34	0.5	.64

Table [2] Googl instance types and price

Machine type	VCPUs	Price($/HOUR)
n1-highmem-2	2	$0.126
n1-highmem-4	4	$0.252
n1-highmem-8	8	$0.504
n1-highmem-16	16	$1.008
n1-highmem-32	32	$2.016

cost =

Achieved ILOS :

Question No		Q1			Q2			Q3			Q4	
		a	b	c	a	b	c	a	b	c	a	b
Achieved ILOs	A- Knowledge & Understanding	a1	a5	a18	a3	a17	a18	a14	a7	a17	a1	a18
	B- Intellectual skills			b7		b4		b12				b17
	C- Professional and practical skills			c7		c6	c7					c7
	D- General and transferable skills		d2						d3, d6			d6