Prénom/Nom : ………………………………….

# Infrastructure Cloud et Big Data
**Examen**
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Durée: 1h30, documents autorisés

## PARTIE CLOUD (10 points)

**Instructions: In the MCQ, several answers may be possible on some questions.**

**MCQ:**

**1) What is Amazon EC2 ?**
☐ IaaS service of Amazon
☐ Storage service of Amazon
☐ Identification service of Amazon
☐ VM management service of Amazon

**2) What is the main motivation to use virtualization in Cloud Computing ?**
☐ To allow on demand allocation
☐ To mutualize resources and isolate clients
☐ To ease the deploiement of applications in the Cloud

3**) Which type of virtualization has the highest overhead ?**
☐ Full virtualization
☐ Para-virtualization
☐ Hardware-virtualization
☐ OS-level virtualization

**4) What is Lambda of amazon?**
☐ IaaS Service of Amazon
☐ FaaS service of Amazon
☐ Code editor provided by Amazon

**5) What is application scalability?**
☐ Increasing the input load
☐ Load-balancing of input requests on two servers running our application
☐ Auto-scaling of Amazon
☐ The capacity to adapt to the input load by reducing or increasing the number of running instances of our application

**6) What is the difference between OpenWhisk and Kubernetes**
☐ Kubernetes is developed by Google and OpenWhisk by Amazon, therefore the latter cannot be used by Google and the earler by Amazon
☐ Kubernetes is a container ochestrator while OpenWhisk is a FaaS manager
☐ Kubernetes is implemented in C and OpenWhisk in C++

**7) Can we simultaneously use   Kubernetes and OpenWhisk in the same cluster ?**
- ☐ Yes
- ☐ No

**8) Can we do nested virtualization with HVM in para-virtualization ?**
- ☐ Yes
- ☐ No

**9) Can we do nested virtualization with containers (containers in containers) ?**
- ☐ Yes
- ☐ No

**10) What is a Unikernel ?**
- ☐ A ligth weigth  virtualization solution
- ☐ A container with 2 applications running
- ☐ A virtual machine with containers
- ☐ A virtual machine with few allocated resources

**11) What is a Hybrid Cloud ?**
- ☐ A Cloud available to everyone
- ☐ A private cloud to a company
- ☐ A Cloud installed by a public provider to a company
- ☐ A Cloud with some public services and some private services
- ☐ A cloud which consists of heterogeneous servers

**12)  Kubernetes and Docker Swarm are both provided as Docker tools ?**
- ☐ True
- ☐ False

**13) Which of these propositions is not  a  type of service in the cloud**
- ☐ LaaS
- ☐ IaaS
- ☐ PaaS

**14)  What type of virtualization is not provided by Xen?**
- ☐ Para-virtualisation
- ☐ HVM
- ☐ Full Virtualization

**15) Docker can be used to**
- ☐ Manage  containers in  VM
- ☐ Manage containers on physical hosts
- ☐ Manage VM in containers

**Open questions** :

**16 ) Let us consider you want to deploy a web application in the cloud, what type of cloud service do you recommend? Justify your answer.**

17**) What are the advantages of using FaaS, compare to IaaS or PaaS?**

**18) You live in Japan and you have deploy an application in a Cloud with datacenters in China, France and USA. Which data center do you use ? Justify your answer?**

**19) Do you think Cloud is secure? Justify your answer.**