

**VIT**

Vellore Institute of Technology

**Final Assessment Test – November 2019**

Course: CSE4011 - Virtualization

Class NBR(s): 2010/5841/5843

Time: Three Hours

Slot: G1+TG1

Max. Marks: 100

**KEEPING MOBILE PHONE/SMART WATCH, EVEN IN 'OFF' POSITION, IS EXAM MALPRACTICE****Answer ALL Questions****(10 X 10 = 100 Marks)**

2. Managing multiple servers and desktops using virtualization in an organization will enhance the resource utilization and provides better control to manage the infrastructure. Justify the above-mentioned statement using five-step process. [5]
3. a) Compare and contrast the process virtual machines and system virtual machines. [5]  
b) Discuss the role of hypervisor in virtualization and explain the components of generic hypervisor with a neat diagram. [5]
4. a) You have a virtualization host that has four processors and each processor has four cores. According to the vendor guidelines, the virtualization solution you've chosen will support up to 18 vCPUs per physical CPU. If you want to keep about twenty percent of your CPU capacity in reserve for growth and performance spikes, how many single vCPU virtual machines will you be able to deploy on this host? [5]  
At the last moment, your procurement group was able to contribute additional monies for the host and instead of a quad-core server, you are able to acquire a virtualization with four eight-core CPUs. The trade off is that you will need to support an additional application that consists of 17 virtual machines configured with four vCPUs each. Keeping that same twenty percent reserve, in addition to the 17 larger VMs, how many single vCPU virtual machines will you be able to deploy on this host?  
b) With the architectural diagram, Compare and contrast Bare-metal and Hosted Hypervisors. [5]
4. With neat diagrams, Illustrate the privileged and sensitive instructions execution for x86 based host hardware, running on guest operating systems created using full virtualization.
5. a) In a traditional physical computing environment, software such as an operating system has direct access to the underlying computer hardware. This posed major issues for software configuration and made it difficult to move or reinstall software on different hardware, such as restoring backups after a fault or disaster. List any 5 circumstances under which the hardware virtualization hypervisor is more helpful. [5]  
b) Virtualization can maximize the utilization of storage Infrastructures. Justify with your answer for the following questions: 1) What does storage virtualization do for the customer? 2) Where should storage virtualization live? 3) Should he choose an in-band or out of band solution? 4) What sort of changes he need to make in my environment to implement virtualization? 5) What are the performance, availability, capacity and scalability requirements? [5]



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