Similarity and differences in the exam:

1) Grid vs cloud

Grid	Cloud
Allocation of multiple servers onto a single task or job	Virtualization of servers one server to compute several tasks concurrently
Used for job execution i.e., execution of a program for a limited time	Used to support long- running services
Expose high level of detail	Higher level abstractions
Both are distributed computing paradigm	

2) Cold vs warm

Cold	warm
Offline migration vm completely power off before migration to remote end.no need shard storage	Without shutting down.
Powered off vm Config files, logs files, disks are moved from source to dest. Vm registered in new host. Old vm deleted from source	State of vm saved on hard disk or ram for short time. Suspend vm on host one copy across ram and CPU registers. Continue host two

3) Scalability vs openness

Scalability	openness
Easy to expand and mange Number of resources and the number of users, distances between node, administrative domains	Degree to which added resources added and available for using by variety of client programs
Both are distributed system goal	

4) Virtualization vs emulation

Virtualization	emulation
System pretends to be two or more of the same system partition physical resources of underlying physical server into multiple vm with different workloads	System pretends to be another system

5) P2p vs cluster

Large number of distributed resources connect by a network Sharing of computer resources and services by direct exchange between systems. No master and slave all are masters	Group of multiple standalone computers in a cluster by a network are connected to each other through fast Lan
Both are distributed computing paradigm	

6) Transparent vs availability

Hide that processes and resources are physically distributed across multiple computers like access, relocation migration, failure	A degree by which system or resource are available when request
Both are distributed system goal	

7) Tightly coupled vs loosely coupled.

Components in the system are dependent on each other. Reduce openness	Do not depend on each other are encapsulated and hide their implementation working in isolation. More openness

8) Resource scheduling vs resource provisioning

Allocation and mapping	Discovery and selection
Identify adequation resources for a given workload based on qos requirements by customers	Mapping and execution consumer workloads on available vm based on selected resource through provisioning
Both are resource management	

9) Hybrid vs multi cloud

Amaglamtion of a private cloud with one or more public cloud	Amaglamtion of a private cloud with two or more public/hybrid cloud under centralized management
Combination of SaaS, paas, iaas and as -a -service	Ability to select different cloud services from different providers
Singular entity cloud components are integrated to form singul xcxcz,lnkl;xz xzcklar	Not cloud may not be integrated together

Hybrid cloud could be part of a multi cloud	Enable org to locate it resources closely to end users to achieve optimal performance and min latency
Multi cloud and hybrid are similar but different its infrastructure models	

10)   Full vs para vs os

Called bare metal	Hosted hypervisor	
No host os	Used host os to mange guest os using hypervisor	Take copy from host os

11)

	One computer Two full Three os Four para
Host services for .net applications and SQL db.	Automatic scaling and reliability at price 3 -tire web app
Both are paas	

12)   Cold vs hot

Offline migration vm completely power off before migration to remote end.no need shard storage	Live while being powered on Required shared memory between vms
Powered off vm. **Config files, logs files, disks are moved from source to dest.** **Vm registered in new host.** **Old vm deleted from source**	Vm is powered on. Copy state vm across ram while vm continue host one. Mark dirty pages and re-copy Suspend less than 1 sec Vm for final copy
Both are techniques of migration	

13)   Firebase vs MySQL vs SQLite

Firebase is a NoSQL cloud-based database service provided by Google.	MySQL is a relational database management system (RDBMS).	SQLite is a self-contained, serverless, and zero-configuration database engine.

Firebase is a cloud-based, serverless solution.	MySQL requires a dedicated server for deployment.	SQLite is a self-contained, file-based system often embedded within applications.
MySQL and SQLite both use a structured, table-based data model, making them suitable for relational database applications.		

14)   P2p vs grid

Large number of distributed resources connect by a network Sharing of computer resources and services by direct exchange between systems. No master and slave all are masters	**Allocation of multiple servers onto a single task or job**
	Used for job execution i.e., execution of a program for a limited time
	Expose high level of detail

15)   Over-provisioning vs under-provisioning

Allocate more resources than required. Lost revenue	Allocate fewer resources than required lost users
Both need to be avoided, under elasticity	

16)   Process migration vs vm migration

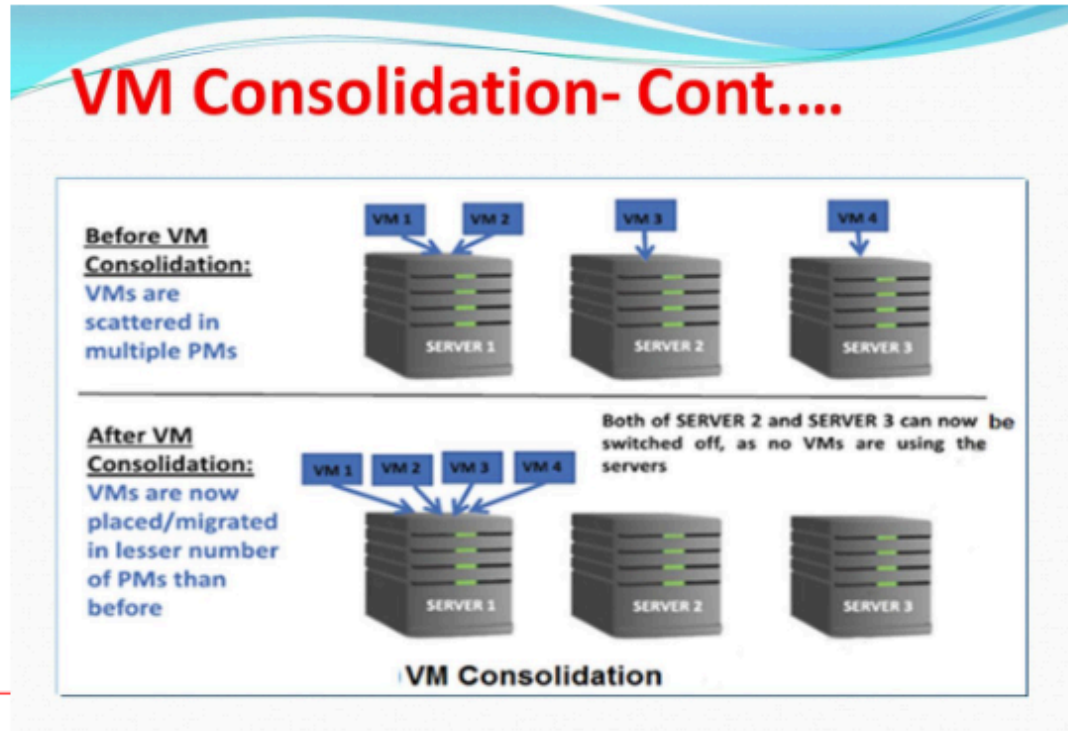|	
Process migration involves moving an active process from one physical machine to another while the process is still executing. The goal is to balance the load across the network, optimize resource utilization, or enhance fault tolerance.	VM (Virtual Machine) migration involves moving an entire virtual machine, including its operating system, applications, and data, from one physical host to another within a virtualized environment. The virtual machine is paused, and its entire state is transferred.
Both for load balancing and resource optimization	

17)   Utility vs cloud

Business model consumers pay providers for using it	**Virtualization of servers one server to compute several tasks concurrently**
	Used to support long- running services

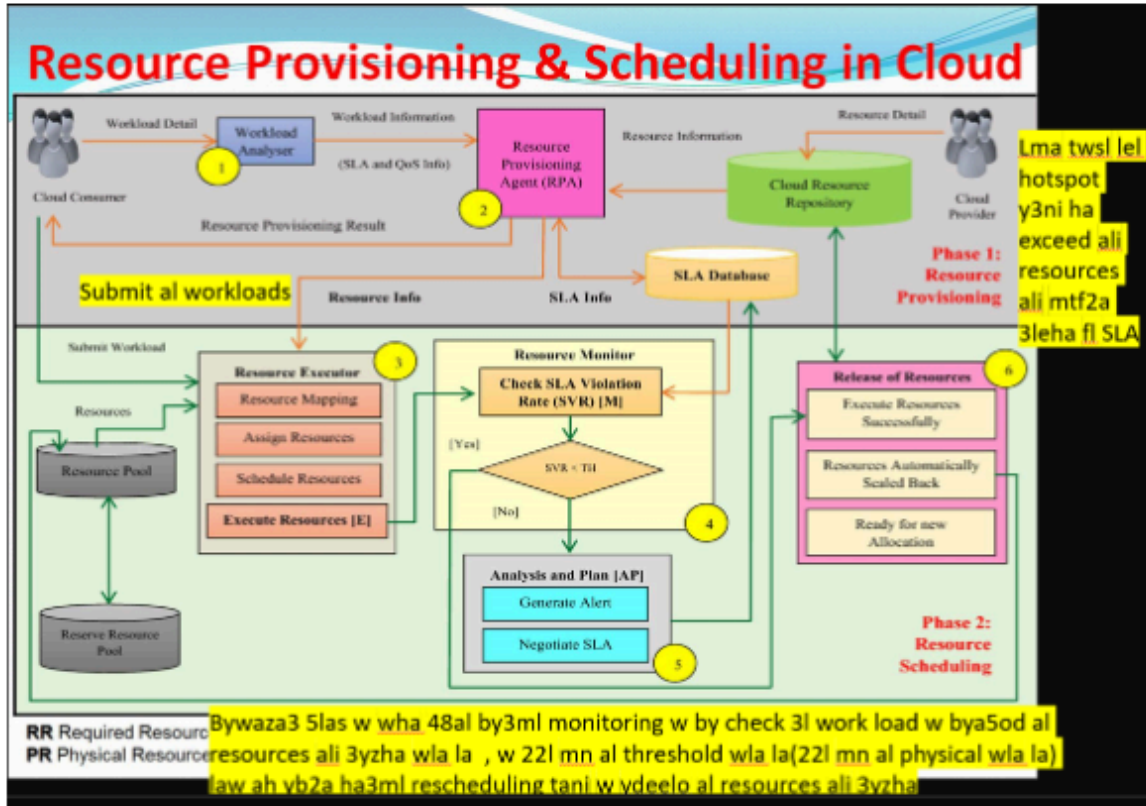|	Higher level abstractions
Cloud is classified as utility	

Degree by which system can adapt to workloads changes by provisioning and de-provision in automatic manner	Easy to expand and mange Number of resources and the number of users, distances between node, administrative domains

Ch.4: Migration: Consolidation :

VM Consolidation- Cont....

Before VM Consolidation: VMs are scattered in multiple PMs

VM 1 VM 2   VM 3   VM 4

SERVER 1   SERVER 2   SERVER 3

After VM Consolidation: VMs are now placed/migrated in lesser number of PMs than before

Both of SERVER 2 and SERVER 3 can now be switched off, as no VMs are using the servers

VM 1 VM 2 VM 3 VM 4

SERVER 1   SERVER 2   SERVER 3

VM Consolidation

Shudling and allocation:

Resource Provisioning & Scheduling in Cloud

Phase 1: Resource Provisioning

Lma twsl lel hotspot y3ni ha exceed ali resources ali mtf2a 3leha fl SLA

Phase 2: Resource Scheduling

RR Required Resource
PR Physical Resource

Bywaza3 5las w wha 48al by3ml monitoring w by check 3l work load w bya5od al resources ali 3yzha wla la , w 22l mn al threshold wla la(22l mn al physical wla la) law ah yb2a ha3ml rescheduling tani w ydeelo al resources ali 3yzha

Ch.5:Resource Management:

Resource Scheduling Vs. Resources Allocation

- **Allocation** is the assignation or reservation of resources at *the time of request*.
- **Scheduling** is a request for allocation of resources at *a specific time* or *time period*.
- The result of an *implementable schedule* request should result in the *allocation* of cloud resources (CPUs, tier storage, etc.).
  - So, *cloud resources* should ready and available at the scheduled time.

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Ch.6: adhoc

   Terminolgies fo adhoc.

Ch.7: edge computing

Compare between fog , cloudlet,mec

Define:

1)cloud: computational model for enabling everywhere ,convenient , on-demand network access to shared pool of configurable computing resources that can rapidly provisioned and released with minimal management effort or service provider interaction .

2)community: cloud infrastructure is provisioned for exclusive use by specific community of consumers from organizations that have shared concerns.

3)SLA: Contract between user and providers terms and conditions to ensure the rights of user as well as providers identifying user needs and creates relationships between users and providers.

4)Bursting: transfer private into public cloud

5) virtualization: technology run multiple same or different isolated os on single physical system simultaneously by abstracting and partitioning physical resource into multiple vm with different workloads to improve it throughput and cost.

6) Emulation: system pretends to another system.