**Exam Code: 305-300**

**Exam Name: LPIC-3: Virtualization And Containerization - Exam 305, Version 3.0**

**Exam A**

**QUESTION 1**
Which file format is used by libvirt to store configuration data?

A. INI-style text files
B. SQLite databases
C. XML files
D. Java-like properties files
E. Text files containing key/value pairs

**Correct Answer: C**
**Section:**

**QUESTION 2**
Which of the following statements is true regarding the following output of xl list:

```
Name              ID    Mem VCPUs        State   Time(s)
Domain-0           0    1024     1       r-----    498.7
Debian             2    1024     1       --p---    783.5
Ubuntu             6    1024     1       -b----    313.6
CentOS             7    2048     2       r-----    455.1
```

A. Both Debian and Ubuntu require xl commands to start running.
B. The domain with ID 2 uses Para virtualization.
C. CentOS is the domain which has consumed the most CPU time.
D. Ubuntu is idle or waiting for I/O.
E. It is necessary to use the xl command to change Ubuntu's state to running.

**Correct Answer: D**
**Section:**

**QUESTION 3**
What is true about containerd?

A. It is a text file format defining the build process of containers.
B. It runs in each Docker container and provides DHCP client functionality
C. It uses rune to start containers on a container host.
D. It is the initial process run at the start of any Docker container.

E. It requires the Docker engine and Docker CLI to be installed.

**Correct Answer: C**
**Section:**

**QUESTION 4**
Which of the following resources can be limited by libvirt for a KVM domain? (Choose two.)

A. Amount of CPU lime
B. Size of available memory
C. File systems allowed in the domain
D. Number of running processes
E. Number of available files

**Correct Answer: A, B**
**Section:**

**QUESTION 5**
Virtualization of which hardware component is facilitated by CPUs supporting nested page table extensions, such as Intel Extended Page Table (EPT) or AMD Rapid Virtualization Indexing (RVI)?

A. Memory
B. Network Interfaces
C. Host Bus Adapters
D. Hard Disks
E. IO Cache

**Correct Answer: A**
**Section:**

**QUESTION 6**
If a Dockerfile contains the following lines:
WORKDIR /
RUN cd /tmp
RUN echo test > test
where is the file test located?

A. /ting/test within the container image.
B. /root/tesc within the container image.
C. /test within the container image.
D. /tmp/test on the system running docker build.
E. test in the directory holding the Dockerf ile.

**Correct Answer: C**
**Section:**

**QUESTION 7**
Which of the following commands boots a QEMU virtual machine using hardware virtualization extensions?

A. qvirt -create -drive file=debian.img -cdrom debian.iso -m 1024 -boot d -driver hvm

B. vm -kvm -drive file=debian.img -cdrom debian.iso -m 1024 -boot d

C. qemu-hw -create -drive file=debian.img -cdrom debian.iso -m 1024 -boot d

D. qemu -accel kvm -drive file-debian.img -cdrom debian.iso -m 1024 -boot d

E. qvm start -vmx -drive file=debian.img -cdrom debian.iso -m 1024 -boot d

**Correct Answer: D**
**Section:**

**QUESTION 8**
Which of the following tasks are part of a hypervisor's responsibility? (Choose two.)

A. Create filesystems during the installation of new virtual machine quest operating systems.

B. Provide host-wide unique PIDs to the processes running inside the virtual machines in order to ease inter-process communication between virtual machines.

C. Map the resources of virtual machines to the resources of the host system.

D. Manage authentication to network services running inside a virtual machine.

E. Isolate the virtual machines and prevent unauthorized access to resources of other virtual machines.

**Correct Answer: C, E**
**Section:**

**QUESTION 9**
Which of the following devices exist by default in an LXC container? (Choose three.)

A. /dev/log

B. /dev/console

C. /dev/urandom

D. /dev/kmem

E. /dev/root

**Correct Answer: A, B, C**
**Section:**

**QUESTION 10**
Which subcommand of virsh opens the XML configuration of a virtual network in an editor in order to make changes to that configuration? (Specify ONLY the subcommand without any parameters.)

A. netedit

**Correct Answer: A**
**Section:**

**QUESTION 11**
Which of the following statements is true regarding networking with libvirt?

A. Libvirt's network functionality is limited to connecting virtual machines to a physical network interface of the host system.

B. Libvirt assiqns the same MAC address to all virtual machines and isolates their network interfaces at the link layer.

C. Libvirt networks appear, by default, as standard Linux bridges in the host system.

D. Libvirt requires a dedicated network interface that may not be used by the host system.

E. Libvirt supports exactly one virtual network and connects all virtual machines to it.

**Correct Answer: C**
**Section:**

**QUESTION 12**
Which of the following are true regarding the CPU of a QEMU virtual machine? (Choose two.)

A. The CPU architecture of a QEMU virtual machine is independent of the host system's architecture.

B. Each QEMU virtual machine can only have one CPU with one core.

C. For each QEMU virtual machine, one dedicated physical CPU core must be reserved.

D. QEMU uses the concept of virtual CPUs to map the virtual machines to physical CPUs.

E. QEMU virtual machines support multiple virtual CPUs in order to run SMP systems.

**Correct Answer: A, E**
**Section:**

**QUESTION 13**
Which of the following statements about the command lxc-checkpoint is correct?

A. It creates a clone of a container.

B. It doubles the memory consumption of the container.

C. It only works on stopped containers.

D. It writes the status of the container to a file.

E. It creates a container image based on an existing container.

**Correct Answer: D**
**Section:**

**QUESTION 14**
The command virsh vol-list vms returns the following error:
error: failed to get pool 'vms'
error: Storage pool not found: no storage pool with matching name 'vms '
Given that the directory /vms exists, which of the following commands resolves this issue?

A. dd if=/dev/zero of=/vms bs=1 count=0 flags=name:vms

B. libvirt-poolctl new ---name=/vms ---type=dir ---path=/vms

C. qemu-img pool vms:/vms

D. virsh pool-create-as vms dir --target /vms

E. touch /vms/.libvirtpool

**Correct Answer: D**
**Section:**

**QUESTION 15**

What is the purpose of the command vagrant init?

A. It executes a provisioning tool in a running box.
B. It starts a Vagrant box.
C. It creates a Vagrant configuration file.
D. It installs Vagrant on a Linux host.
E. It downloads a Vagrant box.

**Correct Answer: C**
**Section:**

**QUESTION 16**
What is the purpose of the kubelet service in Kubernetes?

A. Provide a command line interface to manage Kubernetes.
B. Build a container image as specified in a Dockerfile.
C. Manage permissions of users when interacting with the Kubernetes API.
D. Run containers on the worker nodes according to the Kubernetes configuration.
E. Store and replicate Kubernetes configuration data.

**Correct Answer: D**
**Section:**

**QUESTION 17**
If docker stack is to be used to run a Docker Compose file on a Docker Swarm, how are the images referenced in the Docker Compose configuration made available on the Swarm nodes?

A. docker stack builds the images locally and copies them to only those Swarm nodes which run the service.
B. docker stack passes the images to the Swarm master which distributes the images to all other Swarm nodes.
C. docker stack instructs the Swarm nodes to pull the images from a registry, although it does not upload the images to the registry.
D. docker stack transfers the image from its local Docker cache to each Swarm node.
E. docker stack triggers the build process for the images on all nodes of the Swarm.

**Correct Answer: C**
**Section:**

**QUESTION 18**
What LXC command starts a new process within a running LXC container? (Specify ONLY the command without any path or parameters.)

A. lxcattach

**Correct Answer: A**
**Section:**

**QUESTION 19**
Which of the following commands executes a command in a running LXC container?

A. lxc-accach

B. lxc-batch

C. lxc-run

D. lxc-enter

E. lxc-eval

**Correct Answer: A**
**Section:**

**QUESTION 20**
Which of the following statements in a Dockerfile leads to a container which outputs hello world? (Choose two.)

A. ENTRYPOINT 'echo Hello World'

B. ENTRYPOINT [ 'echo hello world' ]

C. ENTRYPOINT [ 'echo', 'hello', 'world' ]

D. ENTRYPOINT echo Hello World

E. ENTRYPOINT 'echo', 'Hello', 'World*

**Correct Answer: B, C**
**Section:**

**QUESTION 21**
Which of the following statements are true regarding a Pod in Kubernetes? (Choose two.)

A. All containers of a Pod run on the same node.

B. Pods are always created automatically and cannot be explicitly configured.

C. A Pod is the smallest unit of workload Kubernetes can run.

D. When a Pod fails, Kubernetes restarts the Pod on another node by default.

E. systemd is used to manage individual Pods on the Kubernetes nodes.

**Correct Answer: A, C**
**Section:**

**QUESTION 22**
What is the default path to the Docker daemon configuration file on Linux? (Specify the full name of the file, Including path.)

A. etcdockerdaemonjson

**Correct Answer: A**
**Section:**

**QUESTION 23**
What command is used to run a process in a new Linux namespace? (Specify ONLY the command without any path or parameters.)

A. unshare

**Correct Answer: A**
**Section:**

**QUESTION 24**
Which of the following values would be valid in the FROM statement in a Dockerfile?

A. ubuntu:focal
B. docker://ubuntu: focal
C. registry:ubuntu:focal
D. file:/tmp/ubuntu/Dockerfile
E. http://docker.example.com/images/ubuntu-focal.iso

**Correct Answer: A**
**Section:**

**QUESTION 25**
Which of the following values are valid in the firmware attribute of a <os> element in a libvirt domain definition? (Choose two.)

A. scsi
B. virtio
C. efi
D. bios
E. pcie

**Correct Answer: C, D**
**Section:**

**QUESTION 26**
Which statement is true regarding the Linux kernel module that must be loaded in order to use QEMU with hardware virtualization extensions?

A. It must be loaded into the kernel of the host system only if the console of a virtual machine will be connected to a physical console of the host system
B. It must be loaded into the kernel of each virtual machine that will access files and directories from the host system's file system.
C. It must be loaded into the Kernel of the host system in order to use the visualization extensions of the host system's CPU
D. It must be loaded into the kernel of the first virtual machine as it interacts with the QEMU bare metal hypervisor and is required to trigger the start of additional virtual machines
E. It must be loaded into the kernel of each virtual machine to provide Para virtualization which is required by QEMU.

**Correct Answer: C**
**Section:**

**QUESTION 27**
Which of the following mechanisms are used by LXC and Docker to create containers? (Choose three.)

A. Linux Capabilities
B. Kernel Namespaces
C. Control Groups
D. POSIXACLs
E. File System Permissions

**Correct Answer: A, B, C**

**Section:**

**QUESTION 28**
How can data be shared between several virtual machines running on the same Linux-based host system?

A. By writing data to the file system since all virtual machines on the same host system use the same file system.
B. By mounting other virtual machines' file systems from /dev/virt-disks/remote/.
C. By setting up a ramdisk in one virtual machine and mounting it using its UUID in the other VMs.
D. By using a network file system or file transfer protocol.
E. By attaching the same virtual hard disk to all virtual machines and activating EXT4 sharing extensions on it.

**Correct Answer: D**
**Section:**

**QUESTION 29**
Which of the following values are valid in the type attribute of a <domain> element in a libvirt domain definition? (Choose two.)

A. proc
B. namespace
C. kvm
D. cgroup
E. lxc

**Correct Answer: C, E**
**Section:**

**QUESTION 30**
Which of the following statements are true regarding resource management for full virtualization? (Choose two.)

A. The hygervisor may provide fine-grained limits to internal elements of the guest operating system such as the number of processes.
B. The hypervisor provides each virtual machine with hardware of a defined capacity that limits the resources of the virtual machine.
C. Full virtualization cannot pose any limits to virtual machines and always assigns the host system's resources in a first-come-first-serve manner.
D. All processes created within the virtual machines are transparently and equally scheduled in the host system for CPU and I/O usage.
E. It is up to the virtual machine to use its assigned hardware resources and create, for example, an arbitrary amount of network sockets.

**Correct Answer: B, E**
**Section:**

**QUESTION 31**
What does IaaS stand for?

A. Information as a Service
B. Intelligence as a Service
C. Integration as a Service
D. Instances as a Service
E. Infrastructure as a Service

**Correct Answer: E**
**Section:**

**QUESTION 32**
Which of the following kinds of data can cloud-init process directly from user-data? (Choose three.)

A. Shell scripts to execute
B. Lists of URLs to import
C. ISO images to boot from
D. cloud-config declarations in YAML
E. Base64-encoded binary files to execute

**Correct Answer: A, B, D**
**Section:**