



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF COMPUTING AND INFORMATICS

DEPARTMENT OF COMPUTER SCIENCE

QUALIFICATION: BACHELOR OF COMPUTER SCIENCE	
QUALIFICATION CODE: 07BACS 07BCMS	LEVEL: 7
COURSE: SYSTEM VIRTUALISATION	COURSE CODE: SVT710S
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DURATION: 3 HOURS	MARKS: 80

SECOND OPPORTUNITY/SUPPLEMENTARY EXAMINATION QUESTION PAPER	
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THIS QUESTION PAPER CONSISTS OF 4 PAGES

(Excluding this front page)

INSTRUCTIONS

1. Answer ALL the questions on the answer scripts.
2. Write clearly and neatly.
3. Number the answers clearly.

PERMISSIBLE MATERIALS

1. Calculator.

Section A: (Multiple choice)

(20 Marks)

Read each question carefully, and then select THE ANSWER that best fits the question

1. _____ are instances of Docker images that can be run using the Docker run command.
 - a) Hub
 - b) Container
 - c) File
 - d) Cloud
2. Running of containers is managed with the Docker _____ command.
 - a) CREATE
 - b) RUN
 - c) INSERT
 - d) SUDO
3. Network level virtualization in a SAN fabric can be implemented by having virtualization engine running in _____?
 - a) HBA
 - b) FC switch
 - c) Raid array
 - d) Any of the mentioned
4. Which RAID type doesn't use parity for data protection?
 - a) RAID 1
 - b) RAID 4
 - c) RAID 6
 - d) RAID 5
5. Which one of these is characteristic of RAID 5?
 - a) Distributed parity
 - b) No Parity
 - c) All parity in a single disk
 - d) Double Parity
6. Which of the following is Cloud Platform by Amazon?
 - a) Azure
 - b) AWS
 - c) Cloudera
 - d) All of the mentioned
7. Which of the following is associated with considerable vendor lock-in?
 - a) PaaS
 - b) IaaS
 - c) CaaS
 - d) SaaS
8. The _____ cloud infrastructure is operated for the exclusive use of an organization.
 - a) Private
 - b) Public

9. Which of the following is essential concept related to Cloud?
 - a) Reliability
 - b) Productivity
 - c) Abstraction
 - d) All of the above
10. A Docker registry is a place to store and distribute Docker.....
 - a) Codes
 - b) Files
 - c) Images
 - d) All of the above
11. Cloud computing is an abstraction based on the notion of pooling physical resources and presenting them as a _____ resource.
 - a) Real
 - b) Virtual
 - c) Cloud
 - d) None of the mentioned
12. _____ refers to the location and management of the cloud's infrastructure.
 - a) Service
 - b) Deployment
 - c) Application
 - d) All of the mentioned
13. The "rmi" command in docker is used to?
 - a) Save docker images to a tar archive
 - b) Remove one or more docker images
 - c) None
 - d) Move image in remote to a different location
14. Which of the following is deployment model?
 - a) Hybrid
 - b) Private
 - c) Public
 - d) all of the mentioned
15. Which command is used for running the images as a container?
 - a) docker ps
 - b) Files
 - c) docker run container name
 - d) docker run -it alpine /bin/bash
16. Which of the following is a type of virtualization?
 - a) Storage
 - b) Desktop
 - c) CPU
 - d) All of the above
17. Which RAID type doesn't use parity for data protection?
 - a) RAID 1
 - b) RAID 4
 - c) RAID 6
 - d) RAID 5

18. Which of the following is the hardware requirement for a Hyper-V failover cluster?
- a) Shared Storage
 - b) SSD Drive
 - c) GPU
19. _____ computing refers to applications and services that run on a distributed network using
- a) Cloud
 - b) Docker
 - c) Distributed
 - d) Parallel
20. Which of the following is true?
- a) docker ps shows all running containers by default.
 - b) docker ps shows all containers by default
 - c) none of the mentioned

Section B: True or False

(10 Marks)

Read each statement below carefully and state whether false or true.

1. A virtual machine connects from the virtual NIC to a Virtual Switch
2. Virtualization is a framework or methodology of dividing the program files of a computer into multiple execution environments.
3. In a VMware environment, a .vmdk file represents a virtual machine's Network Card.
4. DNS is used to automatically provide IP addresses for both physical and virtual servers.
5. VMware Workstation is an example of a Type 1 hypervisor.
6. LUN is a storage technology that deals with how data is spread across multiple disks for both increased availability and improved performance.
7. The security issue has played the most important role in affecting Cloud computing acceptance.
8. The static binary translation takes the whole program code and target instruction set at once and translates it to the target architecture.
9. With Docker you can separate your applications from your infrastructure AND treat your infrastructure like a managed application.
10. Failover cluster is a set of several different Hyper-V servers (called nodes), which can be specifically configured to work together.

Section B**[50 marks]****Answer all the questions in this section.**

1. Name and explain three tools that are used for orchestrating distributed applications with Docker [6 marks]
2. What is storage virtualization? [2 Marks]
3. Explain two methods of expanding VMFS. [4 Marks]
4. Name two benefits of Raw Device mapping (RDM). [4 Marks]
5. What is the use of a playbook in Ansible? [2 Marks]
6. Name and explain 2 fundamental requirements of a VMM as defined by Popek & Goldberg? [4 Marks]
7. What is the main objective of network virtualization? [2 Marks]
8. When is Thin Pool Rebalancing performed in storage virtualisation? [2 Marks]
9. In virtualization, what can be cloned, upgraded, and even moved from place to place, without ever having to disrupt the user applications? [1 Mark]
10. List and explain two of the hardware you would require for your Failover Cluster to be functional? [4 Marks]
11. What is the difference between hot and cold cloning [2 Marks]
12. Analyse Diagram A and answer the questions which follows. Diagram A is a screen shot from a Docker daemon.

REPOSITORY	TAG	IMAGE ID	CREATED
centos-gcc	latest	09ac174d7ffb	5 days ago
docker.io/httpd	latest	d4a07e6ce470	12 days ago
docker.io/centos	latest	9f38484d220f	4 weeks ago
docker.io/ubuntu	latest	94e814e2efa8	4 weeks ago
docker.io/sequenceiq/hadoop-docker	latest	5c3cc170c6bc	3 years ago

```
[root@localhost ~]#
```

Diagram A

- a. Which command was typed to show the above screen shot? [2 Marks]
 - b. What command will you run if you want to remove an Ubuntu image? [2 Marks]
 - c. What is the Docker command to run a container in a background (detached) mode without allocating the TTY to it, not keeping STDIN open, using an Ubuntu image and get the bash shell in the container? [2 Marks]
13. What is the function of inventory the file in Ansible? [2 Marks]
 14. How many minimum disk drives are needed for RAID1? [1 Mark]
 15. Discuss two different types of network virtualisation. [4 Marks]
 16. List down the essential characteristics of cloud computing? [4 Marks]

Good luck!!