



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF COMPUTING AND INFORMATICS

DEPARTMENT OF COMPUTER SCIENCE

| QUALIFICATION: BACHELOR OF COMPUTER SCIENCE | |
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| SECOND OPPORTUNITY EXAMINATION QUESTION PAPER | |
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THIS QUESTION PAPER CONSISTS OF 5 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)

(25 Marks)

1. Which of the following is associated with considerable vendor lock-in?
 - a) PaaS
 - b) IaaS
 - c) SaaS
 - d) SaaS
2. _____ computing refers to applications and services that run on a distributed network using virtualized resources.
 - a) Distributed
 - b) Cloud
 - c) Docker
 - d) Parallel
3. Which of the following benefit is related to create resources that are pooled together in a system that supports multi-tenant usage?
 - a) On-demand self-service
 - b) Broad network access
 - c) Resource pooling:
 - d) All of the mentioned
4. Point out the wrong statement :
 - a) All applications benefit from deployment in the cloud
 - b) With cloud computing, you can start very small and become big very fast
 - c) Cloud computing is revolutionary, even if the technology it is built on is evolutionary
 - d) None of the mentioned
5. Which of the following is related to service provided by Cloud?
 - a) Sourcing
 - b) Ownership
 - c) Reliability
 - d) AaaS
6. Which of the following is true?
 - a) docker ps shows all running containers by default.
 - b) docker ps shows all containers by default
7. 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
8. _____ refers to the location and management of the cloud's infrastructure.
 - a) Service
 - b) Deployment
 - c) Application
 - d) None of the mentioned

9. Which of the following is deployment model?
 - a) public
 - b) private
 - c) hybrid
 - d) all of the mentioned
10. Which of the following is best known service model?
 - a) SaaS
 - b) IaaS
 - c) PaaS
 - d) All of the mentioned
11. _____ Model attempts to categorize a cloud network based on four dimensional factors.
 - a) Cloud Square
 - b) Cloud Service
 - c) Cloud Cube
 - d) All of the mentioned
12. Which of the following can be identified as cloud?
 - a) Web Applications
 - b) Intranet
 - c) Hadoop
 - d) All of the mentioned
13. How many types of dimensions exists in Cloud Cube Model?
 - a) 1
 - b) 2
 - c) 3
 - d) 4
14. Which of the following dimension is related to organization's boundaries?
 - a) Physical location of data
 - b) Ownership
 - c) Security boundary
 - d) All of the mentioned
15. Which of the following is provided by ownership dimension of Cloud Cube Model?
 - a) Proprietary
 - b) Owner
 - c) Security ownership
 - d) All of the mentioned
16. The _____ cloud infrastructure is operated for the exclusive use of an organization.
 - a) Public
 - b) Private
 - c) Community
 - d) All of the mentioned

17. _____ cloud is one where the cloud has been organized to serve a common function or purpose.
- Public
 - Private
 - Community
 - All of the mentioned
18. You can't count on a cloud provider maintaining you're _____ in the face of government actions.
- scalability
 - reliability
 - privacy
 - none of the mentioned
19. Which of the following is a virtual machine technology now owned by Oracle that can run various operating systems?
- Vmachines
 - VirtualBox
 - ThoughtPolice
 - None of the mentioned
20. _____ is a cloud computing service model in which hardware is virtualized in the cloud.
- IaaS
 - CaaS
 - PaaS
 - None of the mentioned
21. SaaS supports multiple users and provides a shared data model through _____ model.
- single-tenancy
 - multi-tenancy
 - multiple-instance
 - all of the mentioned
22. Following Docker command:
docker push user_name/repository_name
is used to:
- Activate default VM machine
 - Push changes done in a docker image into Docker Hub
 - Push changes into Docker container
 - Commit changes done in a docker image
23. What protocol is used by an ESXi host to communicate with NAS devices?
- NFS
 - iSCSI
 - CIFS
 - SMB
24. Why do you need to write a Dockerfile?
- Because you'd like your application to remain in a private space
 - You want to access and use Docker Hub
 - You want to publish your application to Docker Hub
 - You want to deploy application in HPC cluster

25. Following Docker command:

`docker exec -it container_id bash`

is used to:

- a) Activate default VM machine
- b) Access a running container
- c) Build an image
- d) Commit changes done in an Docker image

Section B: True or False

(5 Marks)

- 1. Security issues in cloud computing has played a major role in slowing down its acceptance.
True
False
- 2. In Virtualisation containment means running multiple workloads on a single host
True
False
- 3. In Virtualisation Consolidation ratio is calculated by counting number of servers on a host
True
False
- 4. Service License Agreement (SLA) is one of the major challenges that prevent Cloud Computing from being adopted
True
False
- 5. Failure of a single disk in a RAID 1 array will not result in permanent data loss.
True
False

Section C

[35 marks]

- 1) You are trying to access a web page that is being hosted under a Docker container using a web browser and you are getting an error in diagram A

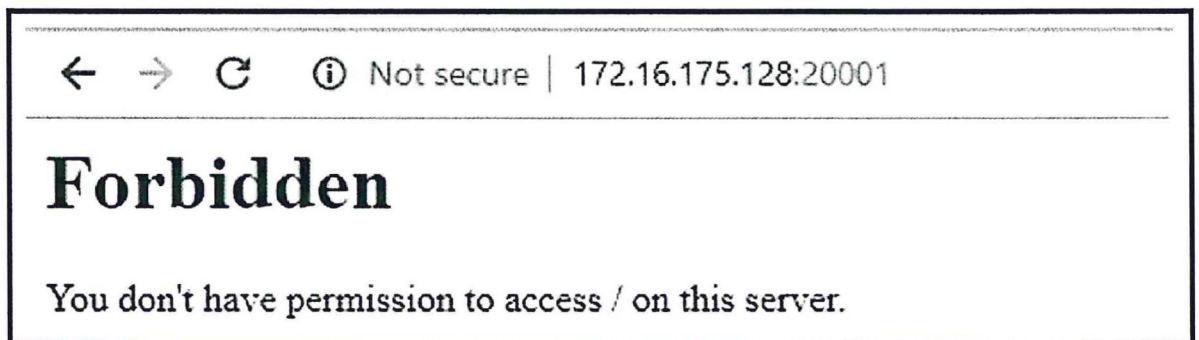


Diagram A

Name two possible ways to solve this problem permanently?

[4 Marks]

- 2) You are a DEVOPS engineer for company XYZ, what command will you run if you want to run a website in docker container in the back ground with the following conditions. [4 Marks]
- Using httpd image
 - The location for index.html file is /opt/web
 - Port number 14021
 - Container name is webpage

- 3) Analyse the following Diagram B and answer the questions which follows. This Diagram is a screen shot from a Docker daemon.

| CONTAINER ID | IMAGE | COMMAND | CREATED | STATUS |
|--------------|--------|--------------------|--------------------|---------------------------|
| 52d0ed889ebf | ubuntu | "bash" | About a minute ago | Exited (0) 14 seconds ago |
| 21df7062fde9 | httpd | "httpd-foreground" | 5 days ago | Exited (255) 4 days ago |

[root@localhost ~]#

Diagram B

- Which command was typed to show the above screen shot? [2 Marks]
 - What command will you run if you want to remove the Ubuntu container? [2 Marks]
 - What is the Docker command to connect to a container running in the background with the ID *21df7062fde9* with the TTY assign to it, keeping STDIN open and get the bash shell in the container? [2 Marks]
- Discuss the three dimensions of the cloud cube model [6 marks]
 - What is the difference between **docker ps** and **docker ps -a** commands? [4 marks]
 - System virtualization can be achieved through three virtualization techniques, discuss them [6 Marks]
 - Discuss two different types of network virtualisation [4 Marks]
 - What is the term that means that VMs should be available, regardless of the availability of the physical host it is running at? [1 Mark]

Good luck!!