ΠΑΜΙΒΙΑ UΠΙVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF COMPUTING AND INFORMATICS

DEPARTMENT OF COMPUTER SCIENCE

QUALIFICATION: BACHELOR OF COMPUTER SCIENCE	
QUALIFICATION CODE: 07BACS	LEVEL: 7
COURSE: SYSTEM VIRTUALISATION	COURSE CODE: SVT710S
DATE: JUNE 2019	PAPER: THEORY
DURATION: 3 HOURS	MARKS: 65

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	MR. SHOOPALA NAMBAHU
MODERATOR:	MR. MBAUNGURAIJE TJIKUZU

THIS QUESTION PAPER CONSISTS OF 6 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. _____ computing refers to applications and services that run on a distributed network using virtualized resources.
   a) Distributed
   b) Cloud
   c) Docker
   d) Parallel

2. Which of the following is essential concept related to Cloud?
   a) Reliability
   b) Productivity
   c) Abstraction
   d) All of the mentioned

3. 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

4. Which of the following cloud concept is related to pooling and sharing of resources?
   a) Polymorphism
   b) Abstraction
   c) Virtualization
   d) None of the mentioned

5. 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

6. Which of the following is Cloud Platform by Amazon?
   a) Azure
   b) AWS
   c) Cloudera
   d) All of the mentioned

7. _____ refers to the location and management of the cloud's infrastructure.
   a) Service
   b) Deployment
   c) Application
   d) None of the mentioned

8. 4. Which of the following is deployment model?
   a) public
   b) private
   c) hybrid
   d) all of the mentioned

9. Which of the following is best known service model?
   a) SaaS
   b) IaaS
   c) PaaS
   d) All of the mentioned

10. _____ 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

11. How many types of dimensions exists in Cloud Cube Model?
    a) 1
    b) 2
    c) 3
    d) 4

12. 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

13. 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

14. The _____ cloud infrastructure is operated for the exclusive use of an organization.
    a) Public
    b) Private
    c) Community
    d) All of the mentioned

15. _____ cloud is one where the cloud has been organized to serve a common function or purpose.
    a) Public
    b) Private
    c) Community
    d) All of the mentioned

16. Which of the following is most important area of concern in cloud computing?
    a) Security
    b) Storage
    c) Scalability
    d) All of the mentioned

17. You can't count on a cloud provider maintaining you're _____ in the face of government actions.
    a) scalability
    b) reliability
    c) privacy
    d) none of the mentioned

18. Which of the following is a virtual machine technology now owned by Oracle that can run various operating systems?
    a) Vmachines
    b) VirtualBox
    c) ThoughtPolice
    d) None of the mentioned

19. _____ as a Service is a cloud computing infrastructure that creates a development environment upon which applications may be build.
    a) Infrastructure
    b) Service
    c) Platform
    d) All of the mentioned

20. _____ is a cloud computing service model in which hardware is virtualized in the cloud.
    a) IaaS
    b) CaaS
    c) PaaS
    d) None of the mentioned

21. SaaS supports multiple users and provides a shared data model through _____ model.
    a) single-tenancy
    b) multi-tenancy
    c) multiple-instance
    d) all of the mentioned

22. Which of the following type of virtualization is also characteristic of cloud computing?
    a) Storage
    b) Application
    c) CPU
    d) All of the mentioned

23. Which of the following type of virtualization is found in hypervisor such as Microsoft's Hyper-V?
   a) paravirtualization
   b) full virtualization
   c) emulation
   d) none of the mentioned

24. Your colleague has accidentally allocated more vRAM than your company are licensed for. What will happen to your virtual machines?
   A. All VM's will be powered Off
   B. New VM's cannot be Powered On
   C. VMware will be notified
   D. Nothing will happen

25. What is the command used to convert a container into an image?
   a) docker push
   b) docker commit
   c) docker run
   d) docker dif

Section B: True or False   [5 Marks]

1. Snapshots are another alternative to backing up virtual machines
   True
   False

2. The main objective of network virtualization is to abstract network services into a virtual network.
   True
   False

3. In storage virtualization logical to physical storage mapping is performed by physical layer
   True
   False

4. In storage virtualization virtual volumes are created from a single storage device and assigned to the compute system.
   True
   False

5. Windows server growth drove datacentre growth
   True
   False

Section C   [35 marks]

1) In virtualization, what can be cloned, upgraded, and even moved from place to place, without ever having to disrupt the user applications?   [1 Mark]

2) Name and explain two features that are used to multiply Virtual Machines   [4 marks]

3) System virtualization can be achieved through three virtualization techniques, name them

[3 Marks]

4) Using a diagram, illustrate the scope of control for software as a service (SaaS)　[4 Marks]

5) What do you understand by the term Consolidation Ratio?　　　　[2 Marks]

6) what is the difference between hot and cold cloning　　　　[2 Marks]

7) Hypervisor uses two file systems to manage the VM files, name them　　　[2 marks]

8) 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]

    a.　　Using httpd image
    b.　　The location for index.html file is /webdata
    c.　　Port number 1321
    d.　　Container name is web

9) What do you understand by the term Thin Pool Rebalancing?　　　[2 Marks]

10) What do you understand by the term　Virtual Provisioning?　　　[2 Marks]

11) Analyse the following Diagram A and answer the questions which follows. This Diagram 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 docker.io/centos?　[2 Marka]
    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]

12) What is the function of the inventory file in Ansible?　　　[2 Marks]

13) How Many Minimum Disk Drives Are Needed For Raid 1?　　　[1 Mark]

Good luck!!