

Preview Test: INFS3208 Semester Two Final Examination 2020

Test Information

Description Undertaking this online examination deems your commitment to UQ's academic integrity pledge as summarised in the following declaration:
"I certify that I have completed this examination in an honest, fair and trustworthy manner, that my submitted answers are entirely my own work, and that I have neither given nor received any unauthorised assistance on this examination".

Instructions You need to answer all of the questions in the Blackboard Test.

Timed Test This test has a time limit of 2 hours and 30 minutes. This test will save and be submitted automatically when the time expires.

Warnings appear when **half the time, 5 minutes, 1 minute**, and **30 seconds** remain.
[The timer does not appear when previewing this test]

Multiple Attempts Not allowed. This test can only be taken once.

Force Completion This test can be saved and resumed at any point until the time has expired. The timer will continue to run if you leave the test.

Your answers are saved automatically.

QUESTION 1

1 points

Save Answer

What are the cloud delivery models for Virtual Machine and Google App Engine, respectively?

- SaaS and PaaS
- IaaS and PaaS
- IaaS and SaaS
- None of the above

QUESTION 2

1 points

Save Answer

Which pre-existing technology is NOT considered to be one of the primary influences on cloud computing?

- Clustering technology
- Encryption technology
- Grid Computing technology
- Virtualisation technology

QUESTION 3**1 points**

Save Answer

What computing resources do cloud users need to manage in Platform-as-a-service?

- Networking and storage
- Operation system
- Application and data
- None of the above

QUESTION 4**1 points**

Save Answer

Which of the following software that lets you run multiple virtual machines on one physical server machine?

- Host operation system
- Guest operating system
- Virtual machine management or hypervisor
- None of the above

QUESTION 5**1 points**

Save Answer

Which of the following is NOT correct about container?

- An image cannot be changed after it was created
- The container can share the kernel of the host operation system but can provide user isolation.
- From one image you can create multiple containers.
- When constructing an image, each layer in the image can be changed after it has been constructed

QUESTION 6**1 points**

Save Answer

Which of the following tools can help you manage multiple containers on one single machine?

- Dockerfile
- Docker-compose
- Docker machine
- Docker-swarm and Kubernetes

QUESTION 7**1 points**

Save Answer

Deploying MySQL, Redis, Nginx, and PHP services into ONE container makes it easier to scale horizontally and reuse container.

- True
- False

QUESTION 8**1 points**

Save Answer

In GFS (Google File System) files are divided in _____ chunks.

- Variable size
- Fixed size
- Both fixed size and variable size
- None of the above

QUESTION 9**1 points**

Save Answer

Which of the following is belonged to Cluster File System?

- Sun Network File System (NFS)
- Hadoop Distributed File System (HDFS)
- Common Internet File System (CIFS)
- Google's Bigtable

QUESTION 10**1 points**

Save Answer

Apache Spark has language API's in _____

- Scala
- Java
- Python
- All of the above

QUESTION 11**1 points**

Save Answer

Which Cluster Manager does Spark support?

- Standalone Cluster Manager
- MESOS
- YARN
- All of the above

QUESTION 12**1 points**

Save Answer

Which of the following operations is NOT a transformation?

- flatmap
- filter
- reduce
- reduceByKey

QUESTION 13**1 points**

Save Answer

Which of the following is true for Spark SQL?

- It is the kernel of Spark
- Provides an execution platform for all the Spark applications
- It enables users to run SQL / HQL queries on the top of Spark.
- Enables powerful interactive and data analytics application across live streaming data

QUESTION 14**1 points**

Save Answer

Which of the following is true for RDD?

- We can operate Spark RDDs in parallel with a low-level API
- RDDs are similar to the table in a relational database
- It allows the processing of a large amount of structured data
- It has built-in optimization engine

QUESTION 15**1 points**

Save Answer

Which of the following is NOT a NoSQL database?

- MySQL
- Redis
- MongoDB
- Cassandra

QUESTION 16**1 points**

Save Answer

Which of the following statements is WRONG?

- NoSQL databases require that schemas be defined before you can add data
- NoSQL databases are built to allow the insertion of data without a predefined schema
- Transaction properties (ACID) in the traditional relational databases are not suitable to be a set of properties to describe NoSQL databases
- All of the above

QUESTION 17**1 points**

Save Answer

_____ stores are used to store information about networks, such as social connections.

- Key-value
- Wide-column
- Document
- Graph

QUESTION 18**1 points**

Save Answer

NoSQL databases are used MAINLY for handling large volumes of _____ data.

- Unstructured
- Structured
- Semi-structured
- All of the above

QUESTION 19**1 points**

Save Answer

Which of the following is FALSE about Hadoop MapReduce?

- It is a distributed framework
- The main algorithm used in it is MapReduce
- It runs with commodity hardware
- All are true

QUESTION 20

1 points

[Save Answer](#)

Which of the following is FALSE about load balancing?

- Load balancing improves the distribution of workloads across multiple computing resources.
- Load balancing aims to optimize resource use, maximize throughput, minimize response time, and avoid overload of any single resource.
- Using multiple components with load balancing instead of a single component may increase reliability and availability through redundancy.
- All are true.

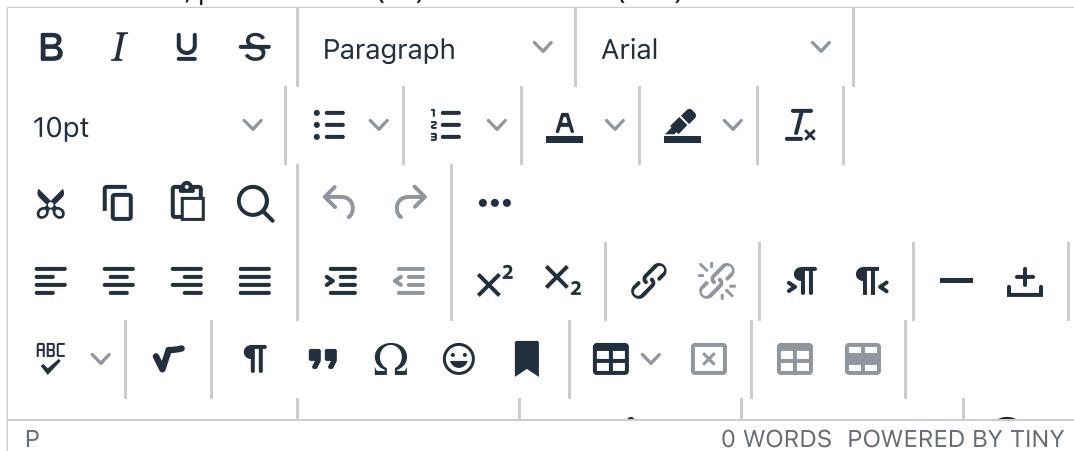
QUESTION 21

3 points

[Save Answer](#)

What are the characteristics of cloud computing? (3 marks)

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

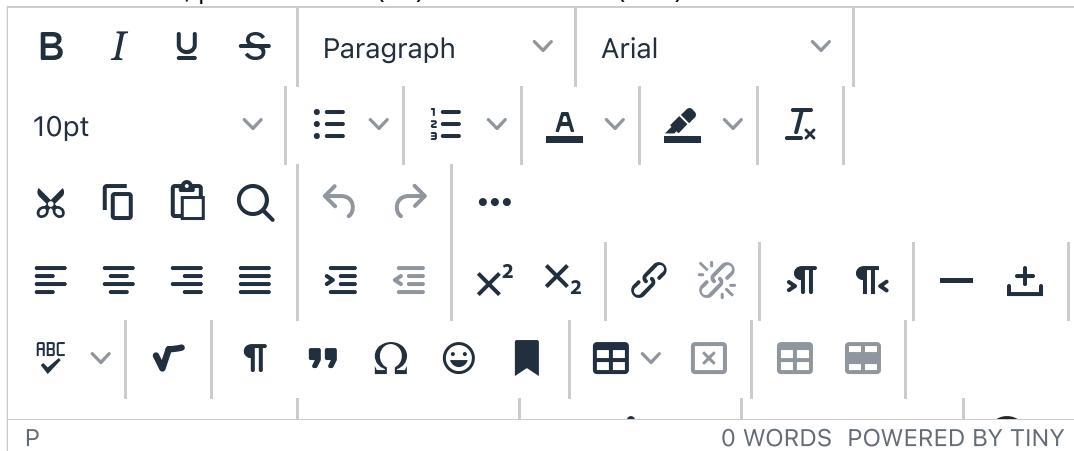
**QUESTION 22**

4 points

[Save Answer](#)

What are the four deployment models in cloud computing? (4 marks)

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

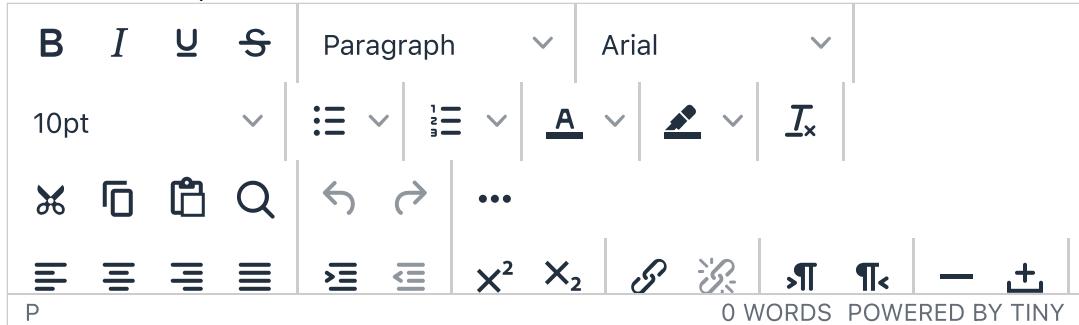


QUESTION 23**4 points**

Save Answer

What are Docker Image, Docker Container, and Docker Registries? Please give brief descriptions of these concepts. (4 marks)

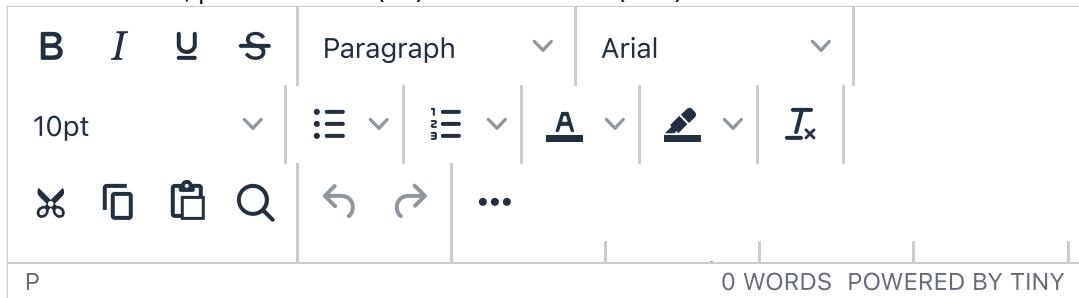
For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

**QUESTION 24****4 points**

Save Answer

Please briefly describe how Spark works? (4 marks)

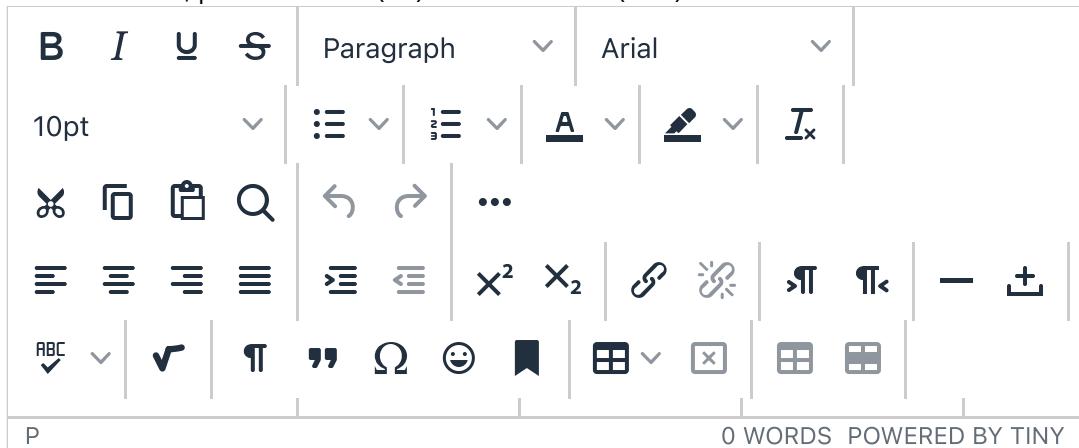
For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

**QUESTION 25****4 points**

Save Answer

Please briefly compare the differences between RDD and DataFrame? (4 marks)

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

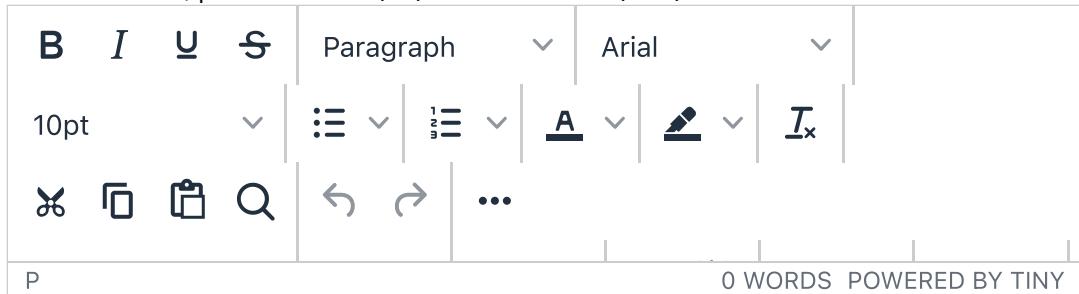


QUESTION 26**3 points**

Save Answer

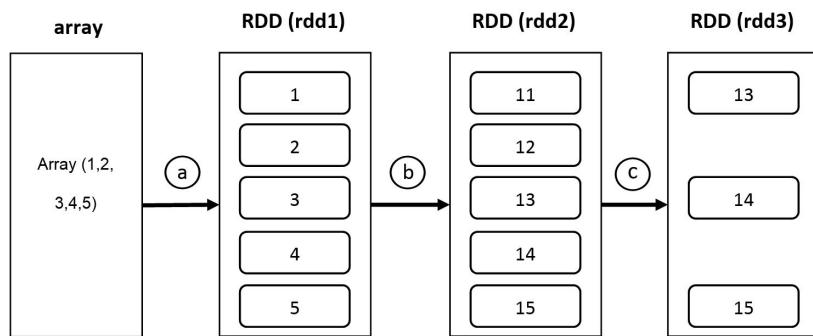
What are the differences between SQL and NoSQL? (3 marks)?

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

**QUESTION 27****3 points**

Save Answer

Please use Scala to fill in the appropriate RDD transformation operations in the steps a, b, and c. (3 marks)



a:

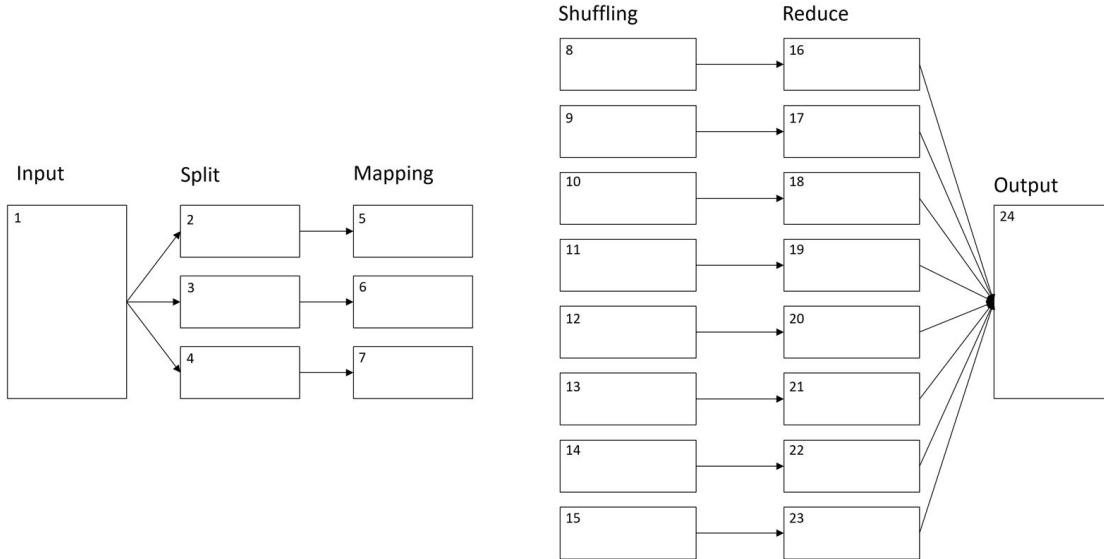
b:

c:

QUESTION 28**5 points**

Save Answer

Given the following text input, please use the below Map-Reduce framework to perform word count (case insensitive). Note that a combiner should be in use if necessary. Please write down the answers according to the box numbers below.

Text Input:*Saturn is a planet.**Planet Earth is a planet.**Pluto is not a planet anymore.***Answer sample:**

1: (Input).

Saturn is a planet

Planet earth is a planet

Pluto is not a planet anymore

Please write the answers in the below blanks:

Split		Mapping	
2:		5:	
3:		6:	
4:		7:	

Shuffling		Reduce	
8:		16:	
9:		17:	
10:		18:	
11:		19:	
12:		20:	
13:		21:	
14:		22:	
15:		23:	

Output

24:

QUESTION 29

0 points

[Save Answer](#)

Please use this space to specify any assumptions you have made in completing the exam and which questions those assumptions relate to. You may also include queries you may have made with respect to a particular question, should you have been able to 'raise your hand' in an examination room.

For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

