

Preview Test: INFS3208 Semester Two End-of-semester Examination 2021

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 10 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 business drivers for Cloud Computing?

- Capacity planning
- Cost reduction
- Organisational agility
- All of the above

QUESTION 2

1 points

Save Answer

Which of the following is NOT regarded as an IT resource in Cloud Computing?

- Virtual machines on physical servers
- Software program
- Storage services (e.g. Dropbox/OneDrive/iCloud)
- Portable USB Flash Drives

QUESTION 3**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 4**1 points**

Save Answer

What is a public cloud?

- A publicly accessible and metered cloud environment owned by a third-party cloud provider.
- A computing service that can only be accessed from a publicly shared computer.
- A publically accessible computing environment free of charge.
- The cloud infrastructure that is provisioned for exclusive use by a single organization comprising multiple consumers (e.g., business units)

QUESTION 5**1 points**

Save Answer

Which of the following software does allow you to 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 6**1 points**

Save Answer

Which of the following statements about Virtual Private Cloud (VPC) is NOT correct?

- A virtual private cloud (VPC) is a virtualized private cloud within a public cloud (GCP, AWS) for an organization.
- To access a VPC network, Virtual Private Network can be used to build an encrypted tunnel between on-premises IT resources and the VPC.
- VPC is a global resource in GCP, while VPC is a regional one in AWS.
- Every user can access an established VPC without authentication.

QUESTION 7**1 points**

Save Answer

Which of the following statements about the VPC's firewall is NOT correct?

- In GCP, VPC routes define paths for packets leaving instances to a destination.
- Firewall rules apply to both outgoing (egress) and incoming (ingress) traffic in the network.
- In GCP, every default VPC network has implied firewall rules and you could delete them.
- None of the above.

QUESTION 8**1 points**

Save Answer

A docker registry is a stateless, highly scalable server side application that stores and distributes _____

- docker images
- docker commands
- docker files
- All of the above

QUESTION 9**1 points**

Save Answer

Which of the following docker command is to delete an existing image?

- docker rmi
- docker kill
- docker rm
- docker pause

QUESTION 10**1 points**

Save Answer

Which of the following commands can be used to replace docker-compose up?

- docker-compose build and docker-compose run
- docker-compose build and docker-compose start
- docker-compose start and docker-compose run
- None of the above

QUESTION 11**1 points**

Save Answer

Decoupling MySQL, Redis, Nginx, and PHP services into multiple containers makes it easier to scale horizontally and reuse the containers.

- True
- False

QUESTION 12**1 points**

Save Answer

Which of the following commands can be used to scale down a service running with 6 containers to 3 containers?

- docker service scale down 3
- docker services scale=3
- docker service scale =3

QUESTION 13**1 points**

Save Answer

Which of the following must all the communications between components go through?

- Etcd
- The controller manager
- The API server
- The scheduler

QUESTION 14**1 points**

Save Answer

Which of the following is NOT a NoSQL database?

- MySQL
- Redis
- MongoDB
- Cassandra

QUESTION 15**1 points**

Save Answer

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

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

QUESTION 16**1 points**[Save Answer](#)

Which of the following belongs to Cluster File System?

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

QUESTION 17**1 points**[Save Answer](#)

Which of the following is NOT a feature of Spark?

- Supports in-memory computation
 - Fault-tolerance
 - It does not support interactive process.
 - Compatible with other file storage system
-

QUESTION 18**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 19**1 points**[Save Answer](#)

What are the advantages of 3x replication schema in Hadoop?

- Fault tolerance
 - High availability
 - Reliability
 - All of the above
-

QUESTION 20**1 points**

Save Answer

Which of the following statement about Asymmetric Encryption is correct?

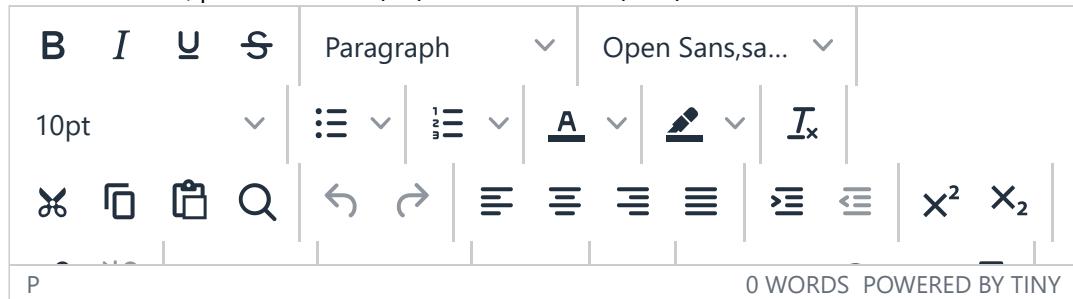
- Asymmetric encryption relies on the use of two same keys, namely secret keys.
- The sender only knows its private key.
- The receiver must know the sender's private key.
- None of the above.

QUESTION 21**3 points**

Save Answer

What are Docker Images, Docker Containers, and Docker Registries? Please give brief descriptions of these concepts. (3 marks)

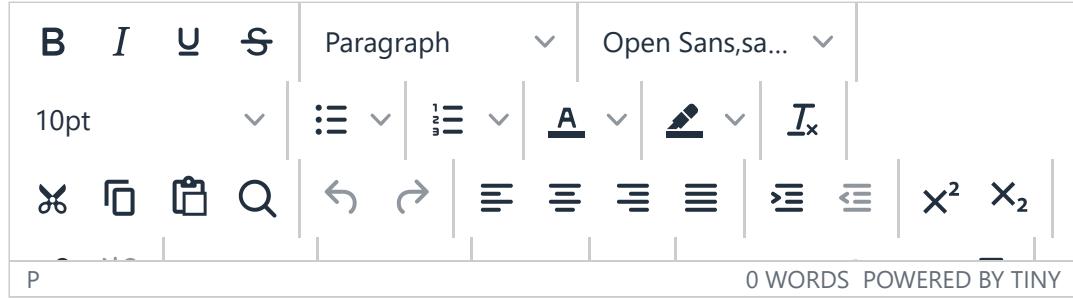
For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

**QUESTION 22****4 points**

Save Answer

Please briefly describe the workflow of Kubernetes. (4 marks)

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

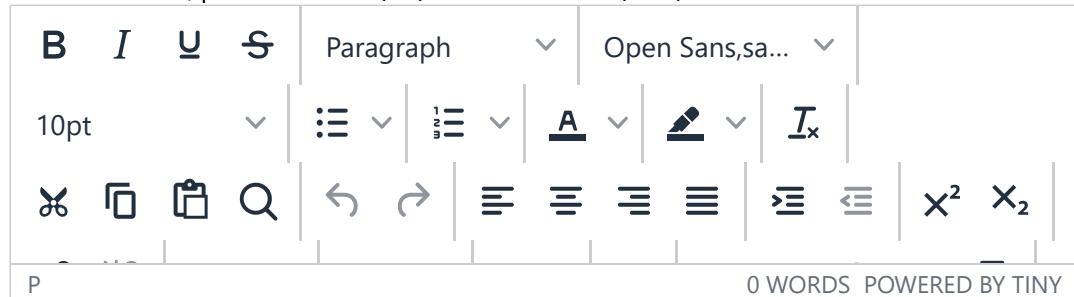


QUESTION 23**4 points**

Save Answer

Please briefly describe how Spark works? (4 marks)

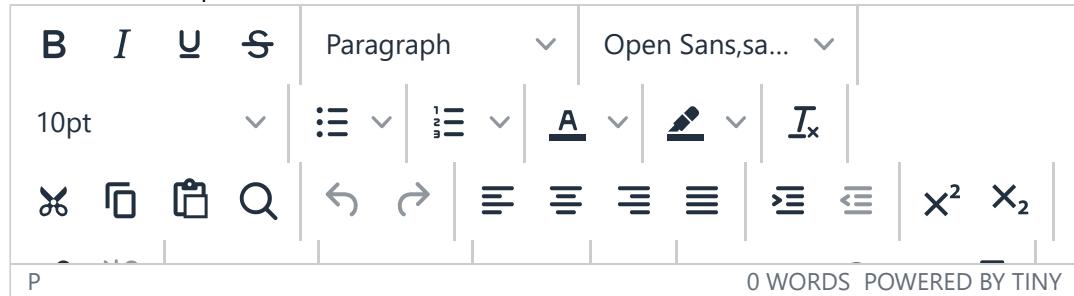
For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

**QUESTION 24****5 points**

Save Answer

Please briefly describe each step in the READ operation in Google File System (GFS). (5 marks)

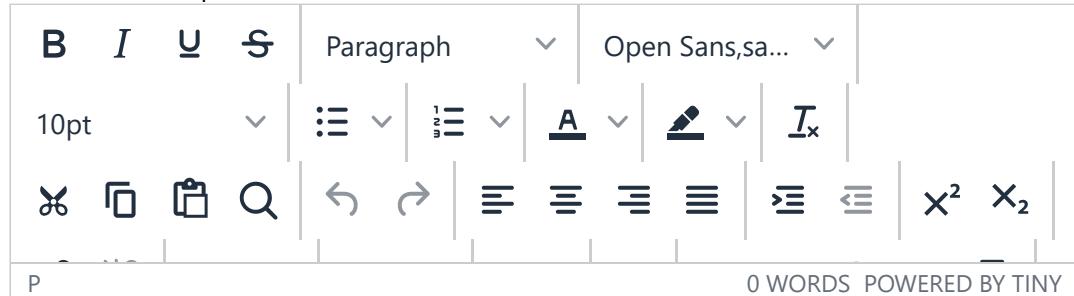
For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

**QUESTION 25****2 points**

Save Answer

What is the lazy evaluation mechanism in Apache Spark? (2 marks)

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

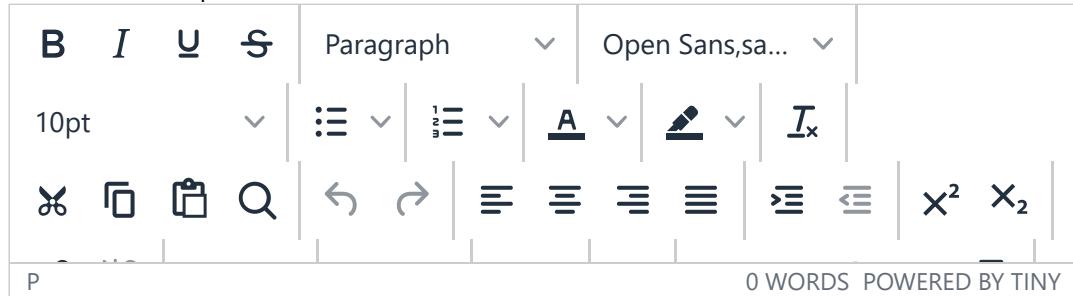


QUESTION 26**4 points**

Save Answer

What are the CAP theorem and BASE properties? (4 marks)

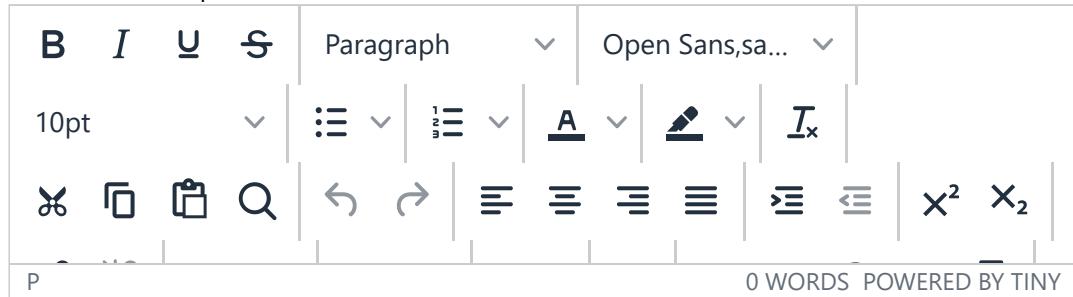
For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).

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

Save Answer

Please briefly describe how a digital signature works when sending a message from a sender to a receiver. (3 marks)

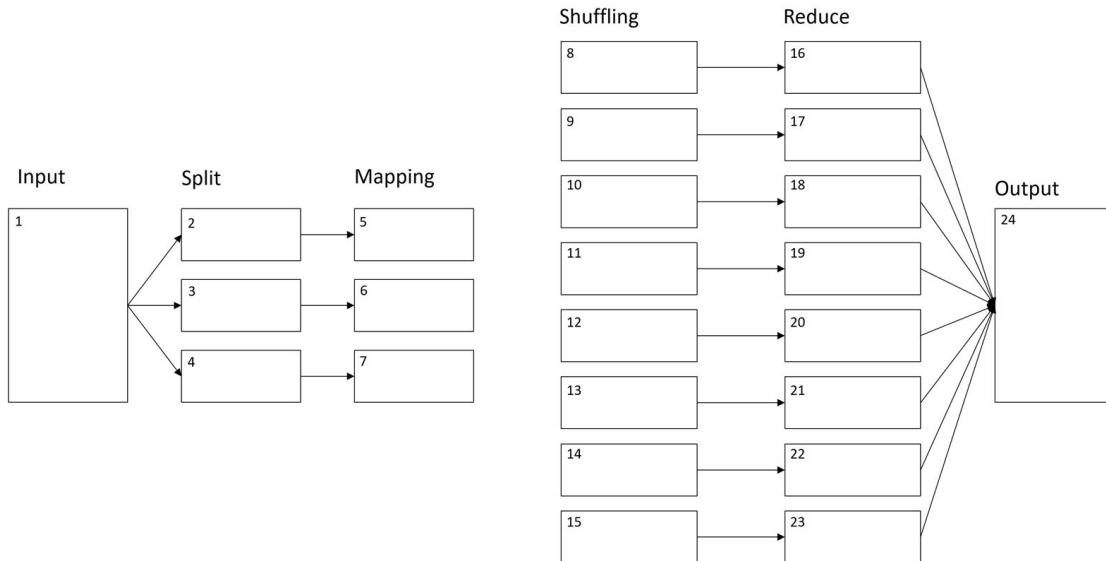
For the toolbar, press ALT+F10 (PC) or ALT+FN+F10 (Mac).



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. (5 marks)

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).

The image shows a screenshot of the TINY app's rich text editor toolbar. The toolbar is organized into several sections: 1) A top row with bold (B), italic (I), underline (U), and font style (S) buttons, followed by a dropdown for 'Paragraph' and a dropdown for 'Open Sans, sans-serif'. 2) A second row with a font size dropdown (10pt), alignment dropdowns (left, center, right, justify), a font color button (A), a pen icon, and a strikethrough (Tx) button. 3) A third row containing icons for link, image, search, back, forward, and various list styles (bullet, numbered, etc.). 4) A fourth row containing icons for link, image, search, back, forward, and various list styles (bullet, numbered, etc.). 5) A fifth row containing icons for link, image, search, back, forward, and various list styles (bullet, numbered, etc.). 6) A bottom row with icons for grid view, delete, and other document-related functions.