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UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
(ONLINE)
SEMESTER II
SESSION 2019/2020

COURSE NAME	:	OPEN COMPUTING
COURSE CODE	:	BIW 33303
PROGRAMME CODE	:	BIW
EXAMINATION DATE	:	JULY 2020
DURATION	:	2 HOURS
INSTRUCTION	:	1. ANSWER **ALL** QUESTIONS.
		2. PLEASE MAKE SURE TO CLICK "SAVE ANSWER" BUTTON FOR SUBJECTIVE QUESTIONS. OBJECTIVE QUESTIONS ARE SAVED AUTOMATICALLY.

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

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Q1   Answer **Q1(a)-Q1(c)** based on the given scenario:

As computing needs continued to grow, an online financial services known as Urusduit Sdn. Bhd. (Urusduit) faced a problem with its data centres. The company was running out of space to house physical system. New workloads and increasing numbers of client meant the addition of physical systems and valuable time was spent configuring those systems and balancing power distribution. Finally, the company turned to cloud based server virtualization technology to help solve its space problems and improve efficiency. Currently Urusduit in the process of developing an improvement version of its online financial services which is designed to simplify, plan and execute financial services needs of daily financial activities. The Service Oriented Architecture(SOA) approach is used to combine and integrate existing services such as different online banking application or any other financial services.

(a) Why the Urusduit Sdn. Bhd. finally agree to migrate from traditional server concept into virtual server?

(5 marks)

(b) Describe Service-Oriented Architecture (SOA) and its **TWO (2)** significant benefits to Urusduit in the process of upgrading its existing financial services?

(5 marks)

(c) Urusduit Sdn. Bhd plan to integrate Sales Management Application with Financial Tracking Application where both of the applications are written by different vendors using SOA of Simple Object Access Protocol (SOAP) and Representational State Transfer (REST).

    (i)   Describe how SOAP and REST works in complying with standard SOA.

(5 marks)

    (ii)   Assuming Sale Management Application is developed by Urusduit and Financial Tracking Application is an open Application Programming Interface (API) from local bank. What is the best choice of SOA (SOAP or REST) web services architecture need to be implemented? Describe **TWO (2)** reasons to justify your answer.

(5 marks)

(d) Identify the following characteristic whether it is Cloud Computing or Grid Computing:

    (i)   Collection of computer with distributed system for collaborative sharing of resources from multiple locations to process a single task.

    (ii)   Computing resources are managed centrally which are located over multiple servers in clusters in providers private data centres.

    (iii)   Offer clients virtualization services.

    (iv)   Focuses on reducing costs and increase returns for its client

    (v)   It operates over corporate network.

(5 marks)

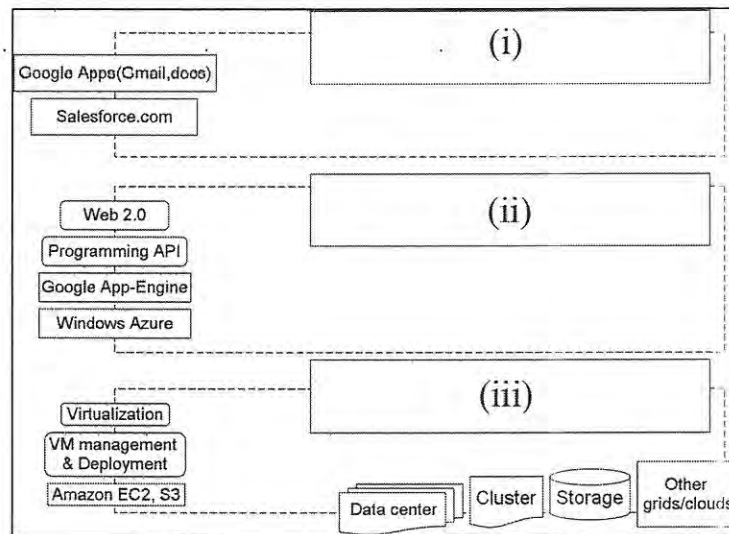**Q2**   (a) Complete **Figure Q2(a)** with a correct cloud services model:

Figure Q2(a)

    (i)   _____
    (ii)   _____
    (iii)   _____

(3 marks)

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(b) Describe **TWO (2)** advantages of cloud service model in **(i)** for question **Q2(a).**

(4 marks)

(c) Google App Engine is one of the cloud services available owned by Google.

    (i)   Identify what is the cloud service model used for Google App Engine.

(1 mark)

    (ii)   What is the prime functionality of cloud service model in **Q2(c)(i)** for application development process.

(4 marks)

    (iii)   List **THREE (3)** infrastructures available for cloud service model in **Q2(c)(i).**

(3 marks)

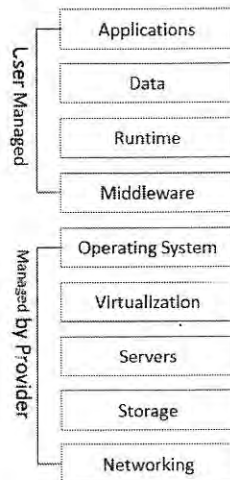(d) Answer **Q2(d)(i)** and **Q2(d)(ii)** based on **Figure Q2(d)**:

Figure Q2(d)

    (i)   What is the cloud service model based on the diagram in **Figure Q2(d)** and describe its **TWO (2)** characteristics.

(4 marks)

    (ii)   Explain **THREE (3)** advantages and disadvantages of the cloud service model in **Q2(d)(i).**

(6 marks)

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Q3 (a) **Figure Q3(a)** shows the percentage of the enterprise priority towards cloud computing based on company that has more than one thousand employees. Analyse the outcomes from the survey in the relation to cloud deployment architecture.
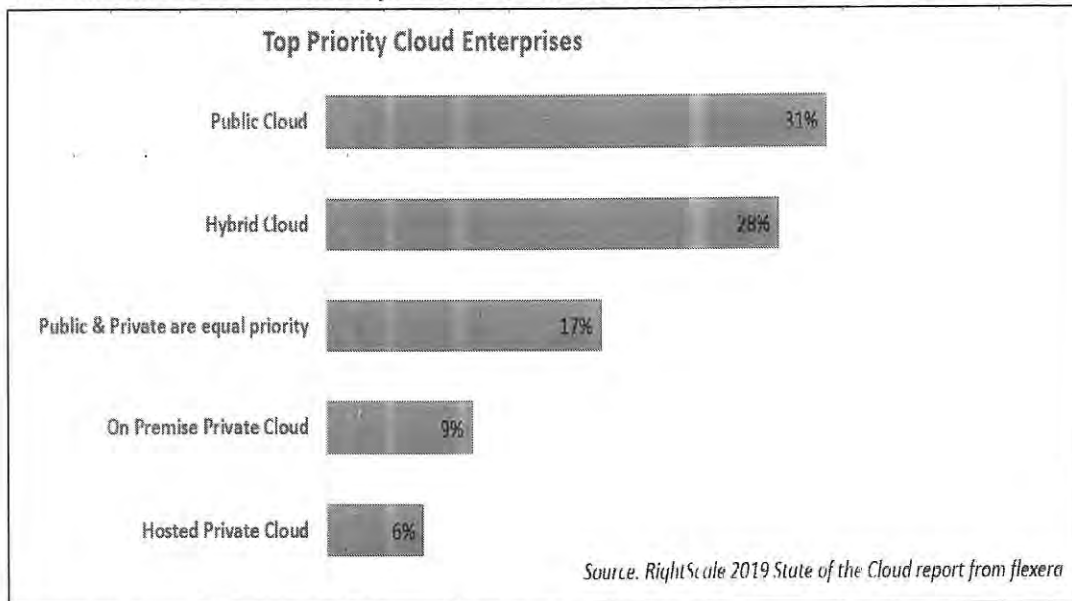

Top Priority Cloud Enterprises

Public Cloud — 31%
Hybrid Cloud — 28%
Public & Private are equal priority — 17%
On Premise Private Cloud — 9%
Hosted Private Cloud — 6%

Source. RightScale 2019 State of the Cloud report from flexera

Figure Q3(a)

(5 marks)

(b) As a network engineer, you are suggesting the migration of the company servers that manage the international sales website to the cloud. This is due to the reason of the peak sales demands during weekends that cannot be handled by the local resources. During the initial meeting, one of the director expressed concern about the business data and related application services, as the cloud service provider's infrastructure and applications are not covered by the organization's own contingency plan.

Provide **TWO (2)** measures for **Q3(b)(i)** and **Q3(b)(ii)** respectively to address the concerns by the director on:

(i) Data Availability.

(ii) Data Auditability.

(5 marks)

END OF QUESTIONS

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