



# PIONEER INTERNATIONAL UNIVERSITY

Powered by Intellect, Driven by Values.

## UNIVERSITY EXAMINATIONS

**ACADEMIC YEAR:** 2020/2021

**SEMESTER:** SEP - DEC 2021

**CODE:** BSIT 3250

**UNIT:** CLOUD COMPUTING

**DATE:** December 2021

**TIME:** 2 HOURS

**INSTRUCTIONS:** Answer question one and any other two

---

### QUESTION ONE

Gayvon Inc. is a local startup that has been asked by the city to monitor and record near misses and accidents between cars, bicyclists and pedestrians 24 hours per day, 7 days per week, 365 days per year. Gayvon Inc. (GI) is planning to deploy video cameras

and dedicated computing at each busy intersection in the city. GI plans to capture video at a sustained frame grab rate of 20 frames per second, 24 hours per day. They will provide privacy to drivers, cyclists and pedestrians by denaturing the video at the intersection, before it is stored. Since the bandwidth from the intersection to the cloud is limited, GI plans to process the streams of data at the intersection to identify near misses and accidents. They will then send the data for just the “interesting” cases to the cloud for storage and potential further analysis.

- a. Cloud computing offers various benefits and features to users. Discuss Five features of the cloud and indicate if it is applicable to Gayvon Inc. **10 Marks**
- b. GI has grown and gone international, soon to cover 75% of the world’s big cities! Should they build their own private cloud? Explain your answer. **4 Marks**
- c. At your internship job, an older programmer, Kaloki, comments that cloud computing was invented because of special shopping days like Black Friday by Jumia, Cyber Monday in the US, during which Amazon does over \$3B in online sales, or Single’s Day in China, during which Alibaba does over \$14B in online sales.
  - i. Outline Four reasons why this might be false. **2 Marks**
  - ii. Give one reason why this might be true, and explain? **1 Marks**



d. Kaloki's job is to convert an in-house web application into an elastic cloud application. Kaloki's design has a load balancer machine on the network path of each http request immediately before the web server machines, he plans to dynamically rent. Esther, a PIU student interviewing the day of Kaloki's design review, comments that this load balancer machine might not be needed.

i. Give at least one reason that Esther is correct and briefly explain how this machine might be eliminated (that is, how load balancing could be accomplished without the machine).

**4 Marks**

ii. Esther also mentions that if Kaloki wants to have a simple cloud application, then his web application might have problems implementing its backend database. Give at least one reason that the backend database might be a difficult part of Kaloki's elastic cloud application.

**3 Marks**

e. Using a diagram explain the NIST Cloud computing reference architecture. **6 Marks**

## **QUESTION TWO**

a. Using a diagram explain the separation of responsibilities on the cloud **10 Marks**

b. Cloud computing benefits can be categorized into Economic, Security, operational and Staffing. Discuss Five benefits under each category **10 Marks**

## **QUESTION THREE**

a. Define the following terms: **6 Marks**

- i. Virtualization
- ii. Grid Computing
- iii. Hypervisor

b. Define the two main types of hypervisors and give two examples for each. **4 Marks**

c. Explain Three types of Virtualizations **6 Marks**

d. Outline Eight benefits of Virtualization in cloud computing **4 Marks**

**Additional information**

1. Stock at 31/12/20x3 amount to Kshs 3,000,000
2. Motor vehicle expenses unpaid amount to Kshs 300,000.
3. A quarter of telephone bills relate to the year 20x4.
4. Un paid electricity and water amount to Ksh 100,000
5. Depreciation on motor vehicles and fixtures is at 20% and 10% respectively on cost.
6. Salary and rent prepaid were Kshs 200,000 and Kshs 100,000 respectively.
7. Interest on loan was outstanding as at 31<sup>st</sup> December 20x3.

**Required**

- i) Income Statement for the year ended 31/12/20x3.
- ii) Balance sheet as at 31/12/20x3. [18Marks]

**QUESTION FOUR (20 MARKS)**

- a) Explain the effects of the following errors in the books of accounts: [4 Marks]

- (i) Error of Commission
- (ii) Error of Original entry
- (iii) Error of a Principal
- (iv) Error of Omission

- d) The following information was available in the books of meru traders during the month of January 2016

January 1.	Sales ledger balance	357,400
	Total credit sales for the month	381,200
	Sales returns and allowances	5,600
	Discount allowed	2,900
	Cash received from debtors	356,500
	Bad debts written off	28,000
	Carriage paid and charged to debtors	25,000

**Required:**

- a) Prepare a sales ledger control a/c [4 Marks]
- b) List and explain five accounting concepts underlying the preparation of financial statement [8 Marks]
- c) Distinguish between capital expenditure and revenue expenditure [4 Marks]





#### **QUESTION FOUR**

Security and privacy of data at rest and data on transit is a major concern in the adoption of the cloud especially by financial institutions.

- a. Discuss any Five cloud computing attacks **10 Marks**
- b. Outline any Ten Cloud computing threats **10 Marks**

