



**THE INSTITUTE OF CHARTERED  
ACCOUNTANTS OF NIGERIA**

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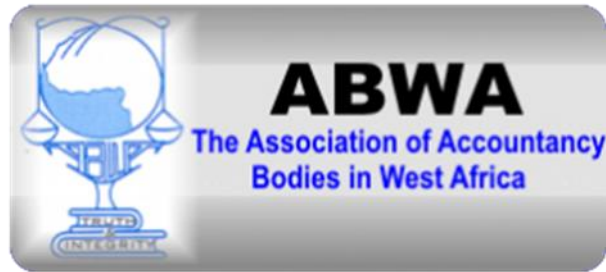
# **INSIGHT**

**MARCH 2024 ATSWA EXAMINATIONS  
PART II**

**Question Papers  
Suggested Solutions  
and  
Examiners' Comments**

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**THE ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA****ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA  
MARCH 2024 EXAMINATIONS (PART II)****FINANCIAL ACCOUNTING****PLEASE READ THESE INSTRUCTIONS BEFORE COMMENCEMENT OF THE PAPER****EXAMINATION INSTRUCTIONS**

1. All solutions should be in ink. Any solution in pencil will not be marked.
2. Read all instructions on each part of the paper carefully before answering the questions.
3. Ensure that you do not answer more than the number of questions required for **Section B (The Essay Section)**.
4. Check your pockets, purse and mathematical sets, etc to ensure that you do not have prohibited items such as telephone handset, electronic storage device, wrist watches, programmable devices or any form of written material on you in the examination hall. You will be stopped from continuing with the examination and liable to further disciplinary actions including cancellation of examination result if caught.
5. Do not enter the hall with anything written on your docket.
6. Insert your examination number in the space provided above.

**TUESDAY, MARCH 26, 2024****DO NOT TURN OVER UNTIL YOU ARE TOLD TO DO SO**

**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA  
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA  
PART II EXAMINATIONS – MARCH 2024**

**FINANCIAL ACCOUNTING**

**Time Allowed: 3 hours**

**SECTION A: PART I                      MULTIPLE-CHOICE QUESTIONS                      (30 Marks)**

**ATTEMPT ALL QUESTIONS IN THIS SECTION**

**Write ONLY the alphabet (A, B, C, D or E) that corresponds to the correct option in each of the following questions/statements.**

1. The accrual concept in accounts preparation means
  - A. Financial statements are always prepared on cash basis
  - B. Assets are only included in statement of financial position when they can generate income for the company
  - C. Income and related expenditure are reported in the same accounting period
  - D. Liabilities are only included in financial statements when they are paid for
  - E. Loans are disclosed as off statement of financial position items
  
2. The revenue of Olu Nigeria Limited is ₦500 million and its receivable balance is ₦25 million. What is the company's receivable collection period in days during a leap year?
  - A. 18.00
  - B. 18.25
  - C. 18.30
  - D. 18.35
  - E. 18.40
  
3. The conceptual framework on financial reporting deals with the following, **EXCEPT:**
  - A. The objectives of financial reporting
  - B. Roles of financial accountants in business
  - C. Qualitative characteristics of useful financial information
  - D. Concept of financial and capital maintenance
  - E. Definition, recognition and measurement of elements of financial statements



7. Which of the following is correctly coded?
- |    |                            |     |
|----|----------------------------|-----|
| A. | Injection of share capital | 521 |
| B. | Accrued expense            | 375 |
| C. | Staff loan granted         | 655 |
| D. | Taxation paid              | 170 |
| E. | Audit fee paid.            | 284 |
8. An item of property, plant and equipment cost ₦100,000 and has an expected residual value of ₦20,000. What is the annual depreciation on straight line basis, if the non-current asset has an estimated useful life of 5 years?
- A. ~~₦4,000~~  
 B. ~~₦16,000~~  
 C. ~~₦20,000~~  
 D. ~~₦24,000~~  
 E. ~~₦25,000~~
9. The rules of accounting for property, plant and equipment are contained in IAS 16. The following are directly attributable cost of item of property, plant and equipment recognised by the standard, **EXCEPT**
- A. Cost of site preparation  
 B. Carriage in ward cost  
 C. Repairs and maintenance cost  
 D. Testing cost  
 E. Installation and assembly cost
10. IAS 8 – Accounting Policies, Changes in Accounting Estimates and Errors, deals with the following different issues in financial reporting, **EXCEPT**
- A. Selecting and applying accounting policies  
 B. Corrections of errors in prior accounting period.  
 C. Working capital adjustments in cash flow for the period  
 D. Accounting for changes in estimates for the period  
 E. Voluntary changes in accounting policies
11. A business operates on the basis of a mark-up on cost of 40%. Calculate the revenue for the year using the following information
- |                   |           |
|-------------------|-----------|
| Opening inventory | Le 3,100  |
| Closing inventory | Le 4,000  |
| Purchases         | Le 42,100 |
- A. Le 16,480  
 B. Le 41,200  
 C. Le 45,260  
 D. Le 57,680  
 E. Le 113,200

12. The values of working capital items of Young Shall Grow Nigeria Limited for the year end December 31, 2021 are as follows:

	<b>Receivables</b>	<b>Inventory</b>	<b>Payables</b>
Opening bal.	₦32,000	₦49,000	₦17,000
Closing bal.	₦27,000	₦53,000	₦11,000

Calculate the amount by which operating cashflows will increase or decrease?

- A. ₦5,000 decrease  
 B. ₦5,000 increase  
 C. ₦10,000 decrease  
 D. ₦10,000 increase  
 E. ₦15,000 decrease
13. Kakaraka Limited made a loss on disposal of its Plants and Machinery of ₦8 million. The Plant and Machinery originally cost ₦50 million and at the date of the disposal, accumulated depreciation on the Plant and Machinery was ₦20 million. What amount should be disclosed as investing activities in the company's statement of cash flows?
- A. ₦8m inflow  
 B. ₦20m outflow  
 C. ₦22m inflow  
 D. ₦30m outflow  
 E. ₦50m inflow
14. X Y and Z are in partnership sharing profit or losses in the ratio 2:2:1. Y is allowed a salary of ₦100,000 per annum and Z is allowed salary of ₦150,000. The net profit for the year was ₦1,000,000

How should the profit be shared among the partners?

	X.	Y.	Z.
A.	₦300,000	₦300,000	₦150,000
B.	₦300,000	₦400,000	₦300,000
C.	₦400,000	₦400,000	₦200,000
D.	₦425,000	₦150,000	₦425,000
E.	₦450,000	₦450,000	₦100,000

15. Which of the following is **NOT** a threat that may affect professional accountants from complying with ethical behaviour?
- Self-interest
  - Familiarity
  - Advocacy
  - Abnormality
  - Intimidation
16. Which of the following is **NOT** an advantage of computerised accounting system?
- Timely generation of report and accounting information
  - Confidentiality of data is maintained
  - Ensures effective control over the system
  - Efficient record keeping
  - Hackers having access to information
17. The IASB conceptual framework recognises which of the following methods for measurement of elements of financial statements?
- Net asset value method
  - Present value method
  - Dividend yield method
  - Discounted future profit method
  - Super profit method
18. Using cost price method, the necessary accounting entries required to record goods returned from branch to Head office at cost are
- | <b>Dr</b>                           | <b>Cr</b>                    |
|-------------------------------------|------------------------------|
| A. Branch inventory account         | Goods sent to branch account |
| B. Branch inventory account         | Branch adjustment account    |
| C. Goods sent to branch account     | Branch inventory account     |
| D. Branch trade receivables account | Branch inventory account     |
| E. Branch adjustment account        | Goods sent to branch account |
19. Which of the following can be derived from statement of changes in equity of a company?
- Non-current assets
  - Current assets
  - Net assets
  - Non-current liabilities
  - Total equity and liabilities



20. A trial balance is made up of a list of debit balances and credit balances. Which of the following is correct?
- Assets are represented by debit balance
  - Liabilities are represented by debit balances
  - Every credit balance represents equity
  - Every debit balance represents an expense
  - Opening inventory is shown as a credit balance
21. Which of the following should be classified as current assets?
- Assets which are expected to be realised, sold or consumed in its normal operating cycle
  - Assets not held for trading purposes
  - Assets that is expected to be realised within 12 months
- I
  - II
  - I and II
  - II and III
  - I and III
22. What is the double entry required to record accruals in the account?
- |    | DR        | CR        |
|----|-----------|-----------|
| A. | Assets    | Expense   |
| B. | Expense   | Liability |
| C. | Liability | Capital   |
| D. | Expense   | Assets    |
| E. | Capital   | Liability |
23. IAS 16 Property, Plant and Equipment (PPE) requires the following disclosure in the notes to the financial statements for each major class of the PPE, **EXCEPT**:
- The measurement bases used
  - The depreciation method used
  - The class of the asset purchased on credit
  - The useful life of the class of assets
  - Opening and closing balance of gross carrying amounts and the accumulated depreciation
24. A business operates on a gross profit margin of  $33\frac{1}{3}\%$ , gross profit on sale was ₦800,000 and expenses were ₦680,000. What is the net profit margin?
- 3.00%
  - 5.00%
  - 11.25%
  - 22.67%
  - 32.50%

25. Which of the following will directly impact double entry of a company's accounting system?
- A. Goods dispatched note
  - B. Customers' statements
  - C. Sales order
  - D. Delivery note
  - E. Sales invoice
26. Which of the following items will appear in a Statement of cashflows prepared in accordance with IAS 7?
- A. Retained earnings
  - B. Capital reserve
  - C. Right issue of shares
  - D. Revenue reserve
  - E. Bonus issue of shares.
27. Which of the following is **NOT** an example of changes in accounting estimates in accordance with IAS 8?
- A. Provision for Bad debts
  - B. Determination of Inventory obsolescence
  - C. Fair valuation of financial assets
  - D. Capitalisation of certain types of expenditure
  - E. Determination of useful live of non-current assets
28. Statement of profit or loss and other comprehensive income can be prepared by analysing expenses by their nature or by functions.
- Which of the following is **NOT** a classification by nature?
- A. Finance costs
  - B. Consumables used
  - C. Staff costs
  - D. Depreciation
  - E. Raw materials used
29. Which of the following transaction is a revenue expenditure?
- A. Repaying bank overdraft
  - B. Purchasing non-current assets
  - C. Payment of interest on loan notes
  - D. Expenditure resulting in improvement to property
  - E. Buying shares as form of investment.

30. Company XYZ Limited had the following transactions:

1. Goods in inventory which had cost ₦100,000 were sold for ₦150,000
2. A credit customer whose ₦50,000 debt had been written off paid the amount in full
3. The company paid credit suppliers ₦100,000

What will be the combined effect of these transactions on company XYZ Limited total net assets?

- A. Net assets remain unchanged
- B. Increase of ₦50,000
- C. Increase of ₦100,000
- D. Increase of ₦200,000
- E. Increase of ₦300,000

**SECTION A: PART II                      SHORT-ANSWER QUESTION                      (20 MARKS)**

**ATTEMPT ALL QUESTIONS**

**Write the correct answer that best completes each of the following questions/statements**

1. The concepts, conventions, laws and regulations that are used to prepare and present financial statements are known as.....
2. **TWO** issues that statement of accounting standards provides guidance on in respect of financial statement preparation are ..... and .....
3. **TWO** elements of financial statements are..... and .....
4. Another name for receivable ledger control account is .....
5. An item of equipment cost ₦300,000 and has a residual value of ₦50,000. The annual depreciation is ₦62,500. The useful life of the asset is .....
6. The accounts clerk of Our turn Nigeria Limited carry out the following wrong postings in the account
  - i. telephone expenses were wrongly posted into electricity account
  - ii. cost of plant and equipment was wrongly recorded as repairs of plant and equipment

The types of errors committed in i and ii above are ..... and ..... respectively.

7. A debit entry will increase assets while .....entry will reduce equity
8. Working capital is .....
9. **TWO** methods of preparing cash flow statement in accordance with the provisions of IAS 7 are ..... and .....
10. If net movement in cash and cash equivalent for the year is ₦40,800 inflow and cash and cash equivalent for the year end is overdraft of ₦45,800. The balance of cash and cash equivalent at the beginning of the year is .....
11. The formula for quick ratio is .....
12. **TWO** items that should be accounted for in statement of changes in equity of a limited liability company is ..... and .....
13. Break up basis of accounting is used by company going into liquidation while ..... basis of accounting should be used in going concern companies.
14. Gain on property revaluation should be accounted for in the .....
15. The **TWO** historical cost methods of valuation of inventory recognised by IAS 2 – Inventory are ..... and .....
16. The type of threat that can occur when a professional accountant promotes the point of view of client is called .....
17. The specific set of rules set by the governing council of a professional accountancy body is referred to as .....

**Use the following information to answer questions 18 and 19**

The following figures were extracted from the statement of financial position of ATS Nigeria Limited

	₦m
Inventory	20
Receivables	30
Cash and cash equivalent	10
Payables	30
Loan notes (5years).	30
Share capital.	50

18. The current ratio is .....
19. The working capital is .....
20. Error of commission is one of the errors that will not affect the agreement of a trial balance. **TWO** other errors of this nature are ..... and .....

**SECTION B:****ATTEMPT ANY FOUR QUESTIONS****(50 MARKS)****QUESTION 1**

The directors of Kakanfo Nigeria Limited are in the process of preparing the company's financial statement for the year to October 31, 2021. The following list of balances were extracted from the company's ledgers as at the year end.

	<b>Debit</b> <b>₦` 000</b>	<b>Credit</b> <b>₦` 000</b>
Property	50,000	
Plant and equipment	462,000	
Plant and equip- accm, Nov 1, 2020		87,000
Trade payables		91,000
Trade receivables	132,500	
Development expenditure	80,000	
Proceed on share issue		15,000
Cash at bank	26,650	
Inventories Oct 31 2021	70,600	
Retained earnings Nov 1,2020		179000
Share capital (N1 each)		37,500
Taxation over provision		5,500
8% loan (2023)		125,000
Revenue		961,000
Cost of sales	535,000	
Distribution cost	46,750	
Admin expenses	62,500	
Interest paid	5,000	
Dividend paid	<u>30,000</u>	
Total	<u>1,501,000</u>	<u>1,501,000</u>

**Additional information:**

- (1) No depreciation charge has yet been calculated for the year. On November 1, 2020, Kakanfo Nigeria Limited acquired a new property at a cost of ₦50 million. This replaced a rented property that was occupied previously. For the purpose of calculating depreciation only, the asset has been separated into the following elements.

Separate assets	Cost N`000	Life span
Land	12,500	Freehold No limit
Cooling system	5,000	10years
Lift	7,500	15years
Building	25,000	50years

The depreciation elements of the property should be calculated on straight line basis, (assuming a zero residual value).

Plant and equipment is depreciated at 20% on reducing balance basis. All depreciation is to be charged to cost of sales.

- (2) The development expenditure relates to previous year balance, the directors are of the opinion that it should be written off as if the changes has occurred in previous period in the accounting policies of the company in accordance with provisions of IAS 8.
- (3) Provision for taxation for year to Oct. 31, 2021 of ₦37.5million is required.
- (4) The company issued 2.5 million new ₦1 shares on June 30 2021 at a premium of ₦5 per share.

**Required:**

Prepare Kakanfo Nigeria Limited Statement of profit or loss and statement of changes in equity for the year ended October 31, 2021. **(Total 12½ Marks)**

**QUESTION 2**

- a. Define accounting standards and state its advantages (2½ Marks)
- b. What are the duties of the IFRS foundation and the role of its advisory council? (2½ Marks)
- c. Write short notes on the following accounting concepts and their significance in financial reporting;
  - i. Materiality
  - ii. Consistency
  - iii. Substance over form
  - iv. Going Concern
  - v. Offsetting

(7½ Marks)  
**(Total 12½ Marks)**

### QUESTION 3

- a. The control account is part of the double entry system, whereas the ledger contains memorandum accounts which are not part of the double entry system. However, both are updated using the same sources and therefore they should agree.

#### Required:

State sources of these **TEN** items in the receivables ledger control accounts

S/N	Items	Sources
1	Credit sales	
2	Sales returns	
3	Cash received from customers	
4	Cheque received	
5	Discount allowed	
6	Bad debt written off	
7	Dishonoured cheque	
8	Refund to customers	
9	Set off to payables	
10	Interest charged on overdue amount	

(5 Marks)

- b. The following information relates to Sahr's receivable ledger control account, which are reconciled with the individual ledger balances at the end of June 2022. Information for the month of June is as follows:

- (i) Individual ledger account balances at June 30, have been listed out and totalled Le 138,362.
- (ii) The receivables ledger control account balance at June 30, is Le 152,824.

On further investigation, the following errors are discovered:

- The total of discount allowed for the month amounting to Le 12,005, has not been entered in the control account but has been entered in the individual ledger accounts.
- On listing out, an individual debit balance of Le 1,435 has been incorrectly treated as a credit.
- A cash received from a customer amounting to Le 441 has been correctly treated in the control account, but no entry has been made in the customer's individual ledger account.

- The sales day book total for June has been under cast by Le 14,000.
- Set off with the payables ledger, amounting to Le 14,028 have been correctly treated in the individual ledger accounts but no entry has been made in the control account.

**Required:**

- Prepare the receivables ledger control account reflecting the above information. (5 Marks)
- Prepare a statement reconciling the original total of the individual balances with the corrected balance in the control account. (2½ Marks)

**(Total 12½ Marks)**

**QUESTION 4**

- State the criteria to be satisfied for an item to be recognised as property, plant and equipment in accordance with IAS 16- Property, Plant and Equipment. (3 Marks)
- The following information relates to property, plant and equipment of Bonjour Limited.

Cost at January 1, 2021:	Le'000
Land and building ( Land Le 100 million)	280,000
Plant and machinery	80,000
Motor vehicles	30,000
Accumulated depreciation January 1, 2021:	
Building	80,000
Plant and machinery	10,000
Motor vehicles	8,000

**Additional information:**

- During the year ended December 31, 2021, Bonjour Limited bought a new motor vehicle costing Le 5,000,000. The vendor accepted a car in part exchange by the company at value of Le 700,000. The vehicle sold originally cost Le 4,000,000 while the accumulated depreciation at the date of disposal was Le 3,400,000.
- The depreciation rates are as follows:
  - Building 2% on cost
  - Plant and machinery 20% on cost
  - Motor vehicle 25% on the reducing balance



**Required:**

- i. Calculate the gain or loss on the disposal of the old car. (2½ Marks)
- ii. Prepare the notes to (schedule of movement in) the property, plant and equipment in accordance with IAS 16, for the year ended December 31, 2021. (7 Marks)

**(Total 12½ Marks)**

**QUESTION 5**

A, B and C were partners sharing profits or losses in ratio 3:2:1. The partners were to be credited with interest on capital and charge with interest on drawings. The balances extracted from the books as at December 31, 2021 after the balances on the nominal accounts had been transferred to the income statement were:

	<b>Dr.</b>	<b>Cr.</b>
	<b>₦</b>	<b>₦</b>
Capital Accounts		
A		396,000
B		420,000
C		324,000
Non Current Assets	1,500,000	
Profit for the year		600,000
Bank Balance	<u>240,000</u>	<u>          </u>
	<u>1,740,000</u>	<u>1,740,000</u>

**No entries had been made in the books in respect of the followings:**

- (i) Goods withdrawn for personal use by 'B' ₦20,000
- (ii) Business travelling expenses of ₦15,000 paid by 'C' from private purse.
- (iii) Interest on capital for the year: 'A' ₦15,000; 'B' ₦20,000 and 'C' ₦10,000
- (iv) Interest on drawings for the year: 'A' ₦4,000; 'B' ₦5,000 and 'C' ₦6,000
- (v) Cash Drawings: 'A' ₦25,000; 'B' ₦15,000 and 'C' ₦10,000
- (vi) 'B' is entitled to salary of ₦60,000 per annum with 5% commission on trading profit after charging salary and commission, but before charging interest on capital

**Required:**

- a. Determine the actual net profit or loss for the year ended December 31, 2021. (2 Marks)
- b. Prepare the appropriation account and partners' current accounts in columnar form. (10½ Marks)

**Show all workings.**

**(Total 12½ Marks)**

## QUESTION 6

- a. Write short notes on
- i. Data creation (1 Mark)
  - ii. Data manipulation (1½ Marks)
- b. Present procedural flow charts for the use of Tally to prepare; (i) Ledgers; (ii) Trial Balance and (iii) statement of financial position. (10 Marks)
- (Total 12½ Marks)**

## SOLUTION A: PART I

### MULTIPLE-CHOICE SOLUTIONS

1. C
2. C
3. B
4. E
5. D
6. B
7. A
8. B
9. C
10. C
11. D
12. A
13. C
14. B
15. D
16. E
17. B
18. C
19. C
20. A
21. E
22. B
23. C
24. B
25. E
26. C
27. D
28. A
29. C
30. C

## Workings

2.  $25/500 \times 366 = 18.30\text{days}$
5.  $2680 + 1000 + 160 - 880 = 2960$
8.  $\text{N}100,000 - 20,000 \div 5 = \text{N}16,000$
11.  $\text{Le } 3,100 + \text{Le } 42,100 - \text{Le } 4,000 = \text{Le } 41,200 \times 140\% = \text{Le } 57,680$
12.  $\text{N}5,000 - \text{N}4,000 - \text{N}6,000 = \text{N}5,000$
13.  $\text{N}50\text{m} - \text{N}20\text{m} = \text{N}30\text{m} - \text{N}8\text{m} = \text{N}22\text{m inflow}$
14.  $\text{N}1,000,000 - 250,000 = 750,000 \text{ share} \times 300,000$   
 $Y = 300,000 + 100,000, Z = 150,000 + 150,000$
24.  $800 - 680 = 120 / (800 / .3333) \times 100 = 5\%$

## **Examiner's comment**

Being compulsory questions, all the candidates attempted these questions and performance was good.

## **SECTION A: PART II**

### **SHORT-ANSWER SOLUTIONS**

1. Generally Accepted Accounting Principles (GAAP)
2.
  - i. Recognition
  - ii. Measurement
  - iii. Presentation
  - iv. Disclosure
3.
  - i. Assets
  - ii. Liabilities
  - iii. Equity
  - iv. Income
  - v. Expenses
4. Sales ledger control account or Debtors ledger control account
5.  $4\text{years} = \text{N}300,000 - \text{N}50,000 / \text{N}62,500$
6.
  - i. errors of commission
  - ii. errors of principle
7. Debit
8. Current assets less current liabilities
9.
  - i. Direct method
  - ii. indirect method

10. ~~₦45800~~ + ~~₦40800~~ = ~~₦86600~~ Overdraft
11. current assets- inventory/ current liabilities
12.
  - i. Dividend paid
  - ii share capital issued
  - iii. share premium
  - iv. gain on revaluation of assets
13. Accrual or cash basis
14. Statement of other comprehensive income or Statement of changes in equity
15.
  - i. First in first out method -FIFO
  - ii. Weighted average cost method
16. Advocacy threats or Client-Centric Bias
17. Code of professional conduct / professional Standard
18. 2:1
19. ~~₦30m~~
20.
  - i. Errors of principles
  - ii. Compensating error
  - iii. Error of Omission
  - iv. Error of Original entry

### **Workings**

18.  $(20m + 30m + 10m) = 60 : 30 = 2 : 1$
19.  $(20m + 30m + 10m) - 30m = \text{~~₦30m~~}$

### **Examiner's comment**

Also being compulsory questions all the candidates attempted the questions and performance was average.

**SECTION B****SOLUTION 1****KAKANFO NIGERIA LIMITED****STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME FOR THE YEAR ENDED  
OCTOBER 31, 2021**

NOTE	NGN'000	NGN'000
Revenue		961,000
<b><u>Cost of Sales</u></b>		
Cost of sales given	535,000	
PPE Depreciation	<u>76,500</u>	
Cost of sales (W1)		<u>(611,500)</u>
Gross Profit		349,500
<b><u>Expenses</u></b>		
Distribution expense	46,750	
Administrative expenses	<u>62,500</u>	
Total operating expense		<u>(109,250)</u>
Operating Profit		240,250
Finance cost		<u>(10,000)</u>
Profit before tax		230,250
Income Tax (W2)		<u>(32,000)</u>
Profit for the year		<u><b>198,250</b></u>
<b>Workings:</b>		
<b>W1 Cost of sales</b>		<b>N` 000</b>
Bal per trial bal		535,000
Depreciation Property		1,500
Depreciation-plant (462000-87000) x 20%		<u>75000</u>
Total		<u>611,500</u>
<b>(W2) Income Tax</b>		<b>N` 000</b>
Current Tax		37,500
Prior year over provision		<u>(5,500)</u>
Profit or Loss		<u><b>32,000</b></u>

**Kakanfo Nigeria Limited**  
**Statement of changes in equity for the year ended October 31, 2021**

	Share capital	Share premium	Retained earnings	Total equity
	N`000	N`000	N`000	N`000
Bal at Nov 1 2020	37,500	-	179,000	216,500
Prior year adjustment	<u>-</u>	<u>-</u>	<u>(80,000)</u>	<u>(80,000)</u>
Adjusted balance	37,500	-	99,000	136,500
Profit for the year	-	-	198,250	198,250
Share issue	2,500	12,500	-	15,000
Dividends	<u>-</u>	<u>-</u>	<u>(30,000)</u>	<u>(30,000)</u>
Bal at Oct. 31 2021	<u>40,000</u>	<u>12,500</u>	<u>267,250</u>	<u>319,750</u>

**Examiner's comment**

The question tested candidates' ability to prepare statement of profit or loss and statement of changes in equity for a company. About 75% of the candidates attempted this question and the performance was only average. The major pitfall was preparation of statement of changes in equity as only about 40% of the candidates understood how to prepare it.

**SOLUTION 2**

a) Accounting Standards

These are common sets of principles and procedures that define the basis of financial accounting policies and practices. They apply to the whole spectrum of an entity's financial transaction and other events, including assets, liabilities, revenue, expenses and equity.

Advantages of accounting standards

- (i) Improve the reliability of financial statements because their reliability of the statement can be tested against the prescription of the relevant standards.
- (ii) Allow interpretation of financial statements by users.
- (iii) Allow for inter-firm and intra-firm comparisons
- (iv) Ensure uniformity in the presentation of financial statements of entities within the same industry
- (v) Ensure financial statements are prepared in a transparent manner based on rules and principles
- (vi) Ensure that the financial statements of entities are prepared in consistent manner every year

- (vii) Prevent frauds and Accounting malpractices
- (viii) Assists Auditors

**b) DUTIES OF IFRS FOUNDATION**

- (i) It is responsible to raise funds needed to finance standard setting
- (ii) It is responsible for the appointment of members to the IASB, IFRS interpretation committee, and the IFRS Advisory council.
- (iii) It oversees and supervises the standard setting work
- (iv) It oversees and supervises the IFRS structure and strategy
- (v) It is responsible for the review of the constitution
- (vi) It is in charge of governance of the standard setting and IFRS strategy.

**IFRS Advisory Council**

The council is the formal advisory body or unit to the IASB and trustees of the IFRS Foundation. It consists of a group of organizations and individuals with relevant knowledge in international financial reporting. Members are from different geographical locations and have wide variety of background and they include user groups, auditors, regulators, professional accounting bodies, investors etc.

The major role of the council is to advise the trustees of the IFRS foundation and IASB on financial reporting issues especially on prioritization of its work and on the implication on proposed standards for users and preparers of financial statement. The IASB also consult the council on board decisions.

**a) Short notes**

- i. **Materiality**; Information is material if its omission or mis-statement in the financial statements could influence the economic decision of users. Whether an item is material or not depends on the magnitude or its nature or both in the context of specific circumstances of the business. Items that are considered material need to be disclosed in the financial statements. Financial Statements could become misleading or confusing if material items are excluded.
- ii. **Consistency**; The concept of consistency holds that when an entity selects an accounting policy it should continue to use that policy in subsequent periods. The concept ensures that the accounting treatment of like items to be the same from one accounting period to another, to allow for comparison.
- iii. **Substance over form**; This requires that business transactions should be recognized in the financial statements in accordance with their

economic realities to the reporting entity rather than their legal form. If the economic reality is followed, then the financial statement will represent faithfully, the financial transactions that have occurred.

- iv. **Going concern;** The going concern is the fundamental assumption of financial reporting. An entity is considered a going concern if the business entity is capable of earning a reasonable net income and there is no intention or threat from any source to curtail significantly its line of business in the near future. When financial statements are not prepared on a going concern basis, it should disclose the fact together with the basis on which they were prepared and the reason why the entity is not regarded as a going concern.
- v. **Offsetting;** IAS 1 requires that assets and liabilities and income and expenses should not be offset against each other instead they should be reported separately. Not offsetting would help to compare the amount of assets to liabilities and the income to expenses. Offsetting is only possible when it is permitted by a standard or it reflects the economic substance of a transaction.

### Examiner's comment

The question was a theory and it examined understanding of accounting standard, its advantages and duties of IFRS and the major role of IFRS Advisory Council. The question also tested candidates' understanding of accounting conventions.

About 95% of the candidates attempted this question and they performed well. However, few of the candidates could not explain in clear terms some of the accounting conventions and the duties of IFRS Foundation.

### SOLUTION 3

- a) Sources of these ten (10) items in the receivables ledger control accounts

S/N	Items	Sources
1	Credit sales	Sales day book
2	Sales returns	Returns inward book
3	Cash received from customers	Cash book (debit side)
4	Cheque received	Cash book (debit side)
5	Discount allowed	Discount column cash book (debit side)
6	Bad debt written off	The journal
7	Dishonoured cheque	Cash book (debit side)
8	Refund to customers	Cash book (credit side)
9	Set off to payables	The journal
10	Interest charged on overdue amount	The journal



b)

i. Receivables Ledger control account

June 2022	Le	June 2022	Le
Balance b/d	152,824	Discount allowed	12,005
Sales	14,000	Payable ledger(Contra)	14,028
	<u>166,824</u>	Balance c/d	<u>140,791</u>
Balance b/d	<u>140,791</u>		<u>166,824</u>

ii. Reconciliation of individual balances with control account.

	Le
Balances as per extracted	138,362
Debit balance incorrectly treated as credit (1,435 x 2)	2,870
cash received from customer	<u>(441)</u>
Net total agreeing with control account	<u>140,791</u>

### Examiner's comment

This question assessed candidates' knowledge of control accounts and source documents of major transactions. About 70% of the candidates attempted this question and performance was good. However, some candidates could not determine books of original entry and this affected their performance.

### SOLUTION 4

4(a) Item of property, plant and equipment should be recognised as asset if it satisfies the following conditions:

- i. It is probable that the future economic benefit associated with the asset will flow to the entity;
- ii. The cost of the asset can be measured reliably; and
- iii. The entity have control over the asset.

b (i)

### Bonjour LTD

#### Calculation of gain or loss on disposal of motor vehicle

	Le'000	Le'000
Sales proceed		700
Original cost of vehicle sold	4,000	
Accumulated depreciation	<u>(3,400)</u>	
Carrying amount		<u>(600)</u>
Gain on disposal		<u>100</u>

b(ii)

## BONJOUR LTD

## Notes to property, plant and equipment for the year ended December 31, 2021

	Land & building	Plant & machinery	Motor vehicles	Total amount
	Le'000	Le'000	Le'000	Le;000
<b>Cost:</b>				
Balance January 1, 2021	280,000	80,000	30,000	390,000
Addition			5,000	5,000
Disposal			(4,000)	(4000)
Balance December 31, 2021	<u>280,000</u>	<u>80,000</u>	<u>31,000</u>	<u>391,000</u>
<b>Depreciation:</b>				
Balance January 1, 2021	(80,000)	(10,000)	(8,000)	(98,000)
Disposal			3,400	3,400
Charge for the year	<u>(3,600)</u>	<u>(16,000)</u>	<u>(6,600)</u>	<u>(26,200)</u>
Balance December 31, 2021 (W1)	<u>(83,600)</u>	<u>(26,000)</u>	<u>(11,200)</u>	<u>(120,800)</u>
Carrying amount December 31, 2021	<u>166,400</u>	<u>54,000</u>	<u>19,800</u>	<u>270,200</u>
Carrying amount January 1, 2021	<u>200,000</u>	<u>70,000</u>	<u>22,000</u>	<u>292,000</u>

**(W1) Workings:**

Calculation of depreciation:

Building Le180 million x 2% = Le3.6 million

Plant and machinery Le80 million x 20% = Le16 million

Motor vehicle Le[31 – (8-3 .4)] millionx25% = Le6.6 million

**Examiner's comment**

The question appraised candidates' understanding of IAS 16 particularly as it relates to the conditions to be met for recognition of items as part of property, plant and equipment. It also tested candidates' knowledge of calculating gains or loss on disposal of assets.

About 85% of the candidates attempted the question but performance was poor.

**SOLUTION 5**

A, B, C			
Adjusted Income Statement			
	₦		₦
Current Account: C (ii)	15,000	Balance b/d	600,000
Net Profit	<u>605,000</u>	Current Account B (i)	<u>20,000</u>
	<u>620,000</u>		<u>620,000</u>

### Appropriation Account

	₦	₦		₦	₦
Current Accounts (iii)			Net Profit b/d		605,000
A	15,000		Current Accounts (iv)		
B	20,000		A	4,000	
C	<u>10,000</u>		B	5,000	
		45,000	C	<u>6,000</u>	
					15,000
Current Accounts (vi)					
B commission	25,950				
B salary	<u>60,000</u>				
		85,950			
Current Accounts: Share of profits					
A (3/6 x ₦489,050)	244,530				
B (2/6 x ₦489,050)	163,010				
C (1/6 x ₦489,050)	81,510				
		<u>489,050</u>			
		<u>620,000</u>			<u>620,000</u>

### Current Accounts

	A	B	C		A	B	C
	₦	₦	₦		₦	₦	₦
Appropriation:				Appropriation:			
Int. on Drawings	4,000	5,000	6,000	Share of Profit Appropriation:	244,530	163,010	81,510
P or L: Goods		20,000					
Bank	25,000	15,000	10,000	Int. on Capital	15,000	20,000	10,000
Balance c/d	230,530	228,960	90,510	P or L (ii)			15,000
				Appropriation:			
				Commission		25,950	
				Salary		60,000	
	<u>259,530</u>	<u>268,960</u>	<u>106,510</u>		<u>259,530</u>	<u>268,960</u>	<u>106,510</u>

## Notes

Commission to B:  $(N605,000 - N60,000) \times 5 \div (100 + 5) = \text{N}25,950$

### **Examiner's comment**

This question was on Partnership appropriation and partnership current account. About 85% of the candidates attempted the question. The performance was good but the major pitfall was the inability of the candidates to differentiate between what is to be posted to partner's current account and partner's capital account and what should be treated in the. This made them to lose some marks.

### **SOLUTION 6**

#### (a)i. Data Creation

Data creation encompasses the generation of new information or records through processes such as data entry, capture, or generation. It involves converting raw data into a usable digital format, whether through manual input, automated systems, or sensor technologies. Quality assurance is essential to ensure the accuracy and reliability of newly created data, supporting its usefulness for decision-making and analysis. Metadata creation provides additional context and information about the data, aiding in its organisation and interpretation.

#### ii. Data Manipulation

Data manipulation involves altering, organising, or transforming data to derive insights or fulfill objectives, often through operations like filtering, sorting, aggregating, and transforming. It is a crucial step in data analysis, enabling the extraction of meaningful information and facilitating informed decision-making.

#### (b) Procedural Flow Chart for the use of tally to prepare;

##### i. Ledger

###### Create Ledger

Gateway of Tally → A/c information → ledger → create → Enter detail → Press Yes

###### Alter Ledger

Gateway of Tally → A/c information → ledger → Alter → choose ledger → Alter ledger name → Press Yes

###### Delete Ledger

Gateway of Tally → A/c information → ledger → Alter → choose ledger → Alt + D → Press Yes

ii. **Trial Balance**

Gateway of Tally → A/c information → ledger → create → Enter detail → Press yes

Show Trial Balance

Gateway of Tally → Display → Trail Balance

iii. **Statement of financial position**

Gateway of Tally → Click statement of financial position → Change period (F2) → Click print option → Enter Yes

**Examiner's comment**

The question tested candidates' understanding of data creation, data manipulation and the procedural flow chart for the use of tally using accounting software.

About 10% of the candidates attempted this question and the performance was poor. The few candidates that attempted it could not properly define data creation and data manipulation in accounting context. Likewise, they could not prepare the flowchart.

**THE ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA****ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA  
MARCH 2024 EXAMINATIONS (PART II)****PUBLIC SECTOR ACCOUNTING**

**PLEASE READ THESE INSTRUCTIONS BEFORE COMMENCEMENT OF THE PAPER**

**EXAMINATION INSTRUCTIONS**

1. All solutions should be in ink. Any solution in pencil will not be marked.
2. Read all instructions on each part of the paper carefully before answering the questions.
3. Ensure that you do not answer more than the number of questions required for **Section B (The Essay Section)**.
4. Check your pockets, purse and mathematical sets, etc to ensure that you do not have prohibited items such as telephone handset, electronic storage device, wrist watches, programmable devices or any form of written material on you in the examination hall. You will be stopped from continuing with the examination and liable to further disciplinary actions including cancellation of examination result if caught.
5. Do not enter the hall with anything written on your docket.
6. Insert your examination number in the space provided above.

**WEDNESDAY, MARCH 27, 2024**

**DO NOT TURN OVER UNTIL YOU ARE TOLD TO DO SO**

**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA  
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA  
PART II EXAMINATIONS – MARCH 2024**

**PUBLIC SECTOR ACCOUNTING**

**Time Allowed: 3 hours**

**SECTION A: PART I          MULTIPLE-CHOICE QUESTIONS          (30 Marks)**

**ATTEMPT ALL QUESTIONS**

**Write ONLY the alphabet (A, B, C, D or E) that corresponds to the correct option in each of the following questions/statements.**

1. .... is responsible for the preparation of Medium – Term Expenditure Framework
  - A. The Accountant-General
  - B. The Minister of Finance
  - C. The Auditor-General
  - D. National Assembly
  - E. The Civil Society
  
2. The underlisted are the ‘key’ users of the ‘zero-based’ budgeting technique in government with the exception of
  - I. The Legislature
  - II. The Executive
  - III. The various Ministries, Extra-ministerial departments and parastatals
  - IV. The Judiciary
  - A. I and II
  - B. II
  - C. IV
  - D. II and III
  - E. III
  
3. Which of the following is **NOT** part of the objectives of budgetary control?
  - A. Bureaucrats often do not trust the approach and hence frustrate its effectiveness
  - B. To decentralise responsibility to each manager
  - C. To co-ordinate all the activities of a business or organisation.
  - D. To channel capital expenditure in the most profitable manner
  - E. To show management where action is needed to remedy a situation.

4. Which of the standard listed below requires a comparison between budgeted amount and the actual amount arising from execution of the budget to be included in the financial statements of entities, which are required to make the government accountable to the public?
- A. IPSAS 4
  - B. IPSAS 24
  - C. IPSAS 14
  - D. IPSAS 2
  - E. IPSAS 12
5. The original budget adjusted for all reserves, carry over amounts, transfer, allocations, supplementary appropriations, and other authorised legislative, or similar authority, changes applicable to the budget period, published forward estimates or projections for periods beyond the budget period is called
- A. Budget Control
  - B. Final Budget
  - C. Budgetary basis
  - D. Annual budget
  - E. Original budget
6. Which of the following is **NOT** a function of the Budget Office of the Federation?
- A. Developing reasoned economic assumptions and forecast
  - B. Issuing budget guidelines to ministries and extra-ministerial departments
  - C. Compiling total revenue and expenditure estimates
  - D. Determining the amount to be included in the estimates submitted and ratified by the National Assembly
  - E. Drafting the budget speech
7. Which of the following is **NOT** the purposes of revenue budget in Public Sector?
- A. To determine the level of aggregate income receivable to the government
  - B. To plan the cash flow of the government
  - C. To identify the major sources of income to the government
  - D. To determine the level of expenditure acceptable to the government
  - E. To determine the population of the people living in the country
8. Which of the financial management function in GIFMIS does **NOT** cover the entire financial management?
- A. General Ledger
  - B. Budget execution and treasury management
  - C. Payment and account receivable
  - D. Asset management
  - E. Payroll management



9. The Financial Reporting Council of Nigeria Act 2011 (as amended) stipulates that the Chairman and other members of the board shall hold office for a term of 4 years in the first instance and may be reappointed for a further term of ..... and no more
- A. 3 years
  - B. 4 years
  - C. 5 years
  - D. 7years
  - E. 10 years
10. The auditing of payment of gratuities and pension is to ensure that all the claims are bonafide and free from errors and manipulation. The audit is conducted by the pension office of
- A. Auditor General's office
  - B. Accountant General's office
  - C. Secretary General's office
  - D. Federal Ministry of Finance
  - E. Federal Ministry of Humanitarian affairs and disaster management
11. The process that embraces the review of previous year's work by carefully laying out how to go about the work of the current year, developing general strategy for the anticipated nature, extent and logistics is known as
- A. Audit trail
  - B. Audit planning
  - C. Audit working paper
  - D. Continuous audit
  - E. Adhoc audit
12. The use of deception to obtain unjust or illegal financial advantage whether or not accompanied by misstatement of accounting records is referred to as
- A. Error
  - B. Fraud
  - C. Tapping
  - D. Mistake
  - E. Suspicion
13. The Act that provides for the prudent management of the Nation's resources to ensure long term macro-economic stability of the national economy, ensure greater accountability and transparency in fiscal operation is known as
- A. Fiscal Responsibility Act
  - B. Public Procurement Act
  - C. Code of Conduct Bureau Act
  - D. ICPC Act
  - E. EFCC Act

14. Which of the following is **NOT** a true definition of public sector entity?
- A. Public sector consists of organisations where control lies in the hand of the public
  - B. The objectives of public sector involve the provision of services
  - C. Profit making is not a primary objective in the public sector
  - D. All organisations in the public sector are not privately owned and operated
  - E. Performance measurement in the public sector is enhanced by lack of profit motive
15. The global organisation for the accountancy profession is known as
- A. International Accounting Standards Board
  - B. International Public Sector Accounting Standard Board
  - C. International Association of Accountants
  - D. International Federation of Accountants
  - E. Association of Certified Chartered Accountants
16. One basic advantage and outcome of the adoption of IPSASs by public sector entities is that
- A. It permits easy identification of those who authorise payments and collect revenue
  - B. It allows for comparison between the amount provided in the budget and that actually spent
  - C. It makes allowance for the diminution in the value of assets employed to generate revenue
  - D. It permits the delegation of work in certain circumstances
  - E. Improvement in both the quality and comparability of financial information reported
17. Parastatals are companies established by
- A. Registering with Corporate Affairs Commission
  - B. Enabling Act or Law
  - C. Registering with Civil Societies Group
  - D. Registering with National Assembly Commission
  - E. Registering with Local Government Authority
18. Which of the following is **NOT** a check and balance of keeping Imprest Accounts?
- A. Imprest money must not be used for other purposes
  - B. Any balances on imprest must be retired at the end of the fiscal year
  - C. Any expenditure on imprest must be properly authorised and approved
  - D. Imprest money must be under the custody of the Chief Internal Auditor
  - E. Payment vouchers must be raised for all disbursements from the imprest money

19. The stores that have a life span of about two to five years and are used in the day-to-day activities of an organisation is
- Expendable Stores
  - Commercial Stores
  - Consumable Stores
  - Non-Expendable Stores
  - Raw Material Stores
20. Which of the following is **NOT** a power of National Pension Commission?
- Formulate, direct, and oversee the overall policy on pension matters in Nigeria
  - Fix the term and condition of service, including remunerations of the employees of the Commission
  - Charge and collect such fees, levies or penalties as may be specified by the commission
  - Establish standards and rules and regulation for the management of the pension funds
  - Power to share revenue accruing to the Federation Account
21. Differences between the balance in the cash book and that of the bank statement may arise due to
- Wrong posting in the cash book
  - Standing order giving to the bank for payment of insurance premium
  - Bank charges, and direct lodgements
- I
  - II
  - I and II
  - I , II and III
  - II and III
22. Which of the following is **NOT** the objective of Pension Reform Act 2014?
- Establish a uniform set of rules, regulations and standards for the administration and Payment of retirement benefit for the public service of the federation, the public service of the state government, the public service of Federal Capital Territory, the public service of Local government council and the private sector
  - Make provision for the smooth operation of the contributory pension scheme
  - Ensure that every person who work in either in the public service of the federation, the public Service of Federal Capital Territory, the public service of state government, the public service of local government council and private sector receives their benefits as at when due
  - Assist improvident individuals by ensuring that they save in order to cater for their live hood during old age
  - Provision of social amenities and ensuring good standard of living for Nigerians

23. Which of the following is **NOT** a tool of interpretation of accounts in government parastatals?
- A. Profitability ratios
  - B. Solvency ratios
  - C. Ownership Equity ratios
  - D. Prudence Principle
  - E. Current ratios
24. The document containing instructions which shall be observed and complied with by all Local Governments for corporate governance and management of resources is known as
- A. Fiscal Responsibility Act 2007
  - B. Public Procurement Act 2007
  - C. The Financial Memoranda
  - D. Staff Rules and Regulations
  - E. Estimates
25. The document used to support the posting of unserviceable and obsolete stores in a ledger is
- A. Receipt Book Issue Note
  - B. Store Requisition Note
  - C. Store Receipt Voucher
  - D. Store Issue Voucher
  - E. Consignment Note
26. The general supervision of store is the responsibility of
- A. Head of Accounts
  - B. Head of Internal Audit
  - C. The External Auditors
  - D. The Accounting Officer
  - E. Head of Board of Survey
27. In line with the Nigeria Constitution, 1999 (as amended), which of the following is **NOT** exclusive legislative item?
- A. Currency
  - B. Prison
  - C. Passport
  - D. Culture
  - E. Foreign Mission
28. The accounting standards applicable to Government Business Enterprises (GBEs) is
- A. IPSAS
  - B. IAS
  - C. FIRS
  - D. SIRS
  - E. IFRS

29. A default by a customer who owes ₦2,000 to an entity having Net Assets worth ₦20 million is ..... to the financial statements
- Material
  - Reliable
  - Immaterial
  - Relevant
  - Cardinal
30. Which of the following is **NOT** a source of revenue for the Federation Account?
- Petroleum Profit Tax
  - Company Income Tax
  - Royalty on Oil
  - Rent on Government Property
  - Excise Duties

**SECTION A: PART II                      SHORT-ANSWER QUESTIONS                      (20 MARKS)**

**ATTEMPT ALL QUESTIONS**

**Write the correct answer that best completes each of the following questions/statements**

- When cash basis is used for recording revenue and accrual basis is used for recording expenditure, the basis of accounting used is.....
- An Officer other than a Sub-Accounting Officer who is entrusted with the disbursement of public money for which vouchers cannot be presented immediately to Sub-Accounting Officer and who is required to keep a Cash Book is called.....
- The document that is used to transfer items of stores from one store to another where there is shortage of items in one store is called .....
- The percentage of contribution by Military Staff into Pension Scheme (Pension Reform Act) 2014: (a) is.....while that of the government: (b) is.....
- The method used in inventory control system to arrive at a balance between holding too much or too little inventory is called .....
- The invitation for bids must be advertised on the notice board of the procuring entity, on the official websites of the procuring entity and in at least..... national newspaper.
- Payment made on hire purchase transaction is made up of two parts, They are called ..... and.....
- Two inventory valuation methods that should not be used in the preparation of financial statements recommended in IPSAS 12 – Inventories are ..... and .....

**Use the following information to Answer Questions 9-11.**

Prof Emmanuel Agbesanya Fagbohun (Director Legal) in the Federal Ministry of Justice provides you the following information on his IPPIS payslip:

	₦/Month
Basic emolument	265,850.00
PAYE	18,900.00
Union dues	23,500.00
Allowances	165,740.00

9. **TWO** benefits in cash are..... and .....
10. **TWO** deferred payments benefits are..... and .....
11. Deductions from his emolument is.....
12. Notwithstanding anything to the contrary in any other enactment apart from the Money Laundering Prohibition Act 2011, a financial Institution shall disclose and report to the Agency in writing any single transaction lodgement or transfer of funds in excess of ₦5,000,000 and ₦10m for individual and body Corporate within ..... days
13. An independent appraisal activity within an organisation of the review of accounting, financial and other operations as a basis for services to management is known as.....
14. A unified structure that gives consolidated view of government cash resources with a view to strengthening effective budget implementation is known as .....
15. The Act which imposes obligations on all Public Sector establishments to comply with stipulations of the law in acquiring goods and services within the thresholds of naira outlay by appropriate organs of Government is called.....
16. The draft estimates that is sent to the National Assembly or the State Legislature, is in the form of.....
17. The budgeting technique that involves the use of decision-package approach, based on the identification of activities, and also provides for systematic consideration of all activities and programmes is known as.....
18. The standard that requires disclosure and explanation on the reasons for material differences between the budgeted and actual amount in the presentation of budget information in financial statements is .....
19. The budgeting technique that focus on results or output achieved, rather than how much has been expended is .....
20. A budget in which government intends to incur more expenditure or more spending than revenue to be generated from taxes and other sources is called .....

**SECTION B:****ATTEMPT ANY FOUR QUESTIONS****(50 MARKS)****QUESTION 1**

Bell Ayo is one of the States in the Federal Republic of PIPE and is currently preparing its year 2022 budget by all the Ministries and Extra Ministerial Departments for submission to the State budget department.

The following information relating to the personnel cost of the Ministry of Commerce & Industries was made available to you by the Permanent Secretary:

	<b>No. In post</b>	<b>Grade level</b>	<b>Salary ₦</b>
Job titles			
Director of commerce	Nil	16	22,000 x 2,500
Deputy Director of Commerce	1	15	18,000 x 1,500
Assistant Director of Commerce	2	14	17,000 x 1,500
Assistant Chief Accountant	2	13	14,000 x 1,450
Principal Accountant	4	12	12,000 x 1,400
Senior Commercial Officer	8	10	10,000 x 1,000
Commercial Officer I	6	09	8,500 x 900
Commercial Officer II	8	08	7,500 x 500
Principal Trade Officer	12	10	10,000 x 1,000
Senior Trade Officer	10	09	8,500 x 900
Higher Trade Officer	12	08	7,500 x 500
Trade Officer (Headquarters)	15	07	5,000 x 350
Field Trade Officer II	21	06	4,500 x 350
Senior Clerical Officer	18	05	4,000 x 250
Clerical Officer	25	04	3,500 x 250
Assistant Clerical Officer	20	03	2,500 x 200
Office Assistants	5	03	2,500 x 200
Driver	10	03	2,500 x 200
Cleaners	15	03	2,500 x 200

**The following relevant information is also available:**

- (i) All the salary levels shown above are step one of each grade and it is management policy to forward personnel cost budget based on step (3) three of the grade level.
- (ii) The Deputy Director of Commerce and one of his Assistant Directors are due for promotion during the budget year.
- (iii) During the year 2022, four Senior Commercial Officers will be employed to strengthen the Commercial department.
- (iv) Staff allowances constitute 30% of staff salary.

**Required:**

Prepare in summary form Personnel Cost Budget for the Ministry for the year 2022 based on the above information. **(Total 12½ Mark)**

## QUESTION 2

- a. i. Define Public Sector Audit (1½ Marks)  
ii. Write short notes on the **THREE** main types of audit in the public sector (6 Marks)
- b. State **FIVE** factors that contribute to an effective audit (5 Marks)
- (Total 12½ Marks)**

## QUESTION 3

- a. You are among the Senior Accountant in your office who had attended the training workshops on International Public Sector Accounting Standards (IPSAS), organised by office of the Accountant-General in your State.

**You are required to:**

Design a suitable template for the “Monthly IPSAS Accrual Basis Compliant Trial Balance” for the Finance and Accounts Department for your Ministry or Extra-Ministerial Department or Agency. (3½ Marks)

- b. The following balances were extracted from the books of account in the Ministry of Waterside, for the month of July 2020.

<b>Codes</b>	<b>Descriptions</b>	<b>₦</b>
0x94	Bonds and sureties	2,507,000
0x85	Payable	56,500
0x76	Short term loans	25,900
0x67	Public funds	150,000
0x58	Long term borrowing	120,000
0x49	Provision for depreciation-dams	4,000
0x81	Statutory allocation	5,247,550
0x72	Grant-in-Aid	10,750
0x63	Debt forgiveness	8,900
0x45	Tax revenue	25,450
0x45	Non-Tax Revenues	40,750
0x36	Royalty on Gemstone	5,750
0x27	Profit on disposal of assets	3,550
0x18	Investment Incomes	7,500
0x73	Non-Current assets	2,950,000
0x64	Amory Stores (Ammunition & others)	150,000
0x55	Printed materials	75,000
0x46	Receivable-Personal advances	120,000
0x37	Internal accounts transfer	950,000
0x82	Overhead cost	550,000
0x73	Personnel cost	2,350,000
0x64	Social benefits	280,000
0x55	Bad debt charge	48,750
0x46	Subsidy	724,300
0x37	Depreciation charge	10,550
0x28	Utility general	5,000



**Required:**

Prepare and present a suitable monthly return in accordance with the “IPSAS Accrual Basis Compliant Trial Balance” for July 2020. (9 Marks)

**NOTE:** Ignore the Colum for “Analysis of Economic Items Accounting to Sources”. (Total 12½ Marks)

**QUESTION 4**

At the State level, the Personal Income Tax Act 1993 established the State Board of Internal Revenue Services (SBIRS)

**Required:**

- a. State **FOUR** of the responsibilities of the State Board of Internal Revenue Services. (8 Marks)
- b. List **THREE** revenues Federal Inland Revenue Services collect on behalf of the Federal Government. (4½ Marks)

**(Total 12½ Marks)**

**QUESTION 5**

Nigeria Customs Service (NCS) statutory functions can be broadly classified into two main categories: “Core functions” and “Other functions”

**Required:**

- a. List **TWO** of the “Core Functions” (2½ Marks)
- b. List **FIVE** of the “Other Functions” (10 Marks)

**(Total 12½ Marks)**

**QUESTION 6**

- a. Discuss in details, **THREE** main objectives of public sector accounting. (7½ Marks)
- b. To bridge the gap between public and private sectors, many international pronouncements have been made about public sector accounting.

Highlight **FIVE** of such pronouncements. (5 Marks)

**(Total 12½ Marks)**

## **SECTION A: PART I**

### **MULTIPLE-CHOICE SOLUTIONS**

1. B
2. C
3. A
4. B
5. B
6. D
7. E
8. E
9. B
10. A
11. B
12. B
13. A
14. E
15. D
16. E
17. B
18. D
19. A
20. E
21. D
22. E
23. D
24. C
25. E
26. D
27. D
28. E
29. C
30. D

#### **Examiner's comment**

This consists of 30 marks compulsory Multiple-Choice Questions which covers the entire syllabus. It requires the candidates to write only alphabet (A, B, C, D or E) that corresponds to the correct option for the questions/statements.

About 100% of the candidates attempted the question and over 80% of them scored above 50% of total marks obtainable. The commonest pitfalls was the lack of preparation for the exams by the candidates. Candidates are enjoined to prepare well in subsequent examinations and make use of the Study Text of the Institute.

## **SECTION A: PART II**

### **SHORT-ANSWER SOLUTIONS**

1. Modified accrual basis
2. Imprest Holder
3. Store Transfer Requisition book
4. 8% and 12.5%
5. Economic Order Quantity (EOQ)
6. 2
7. Principal or cash price and purchase Interest
8. i. Lower of cost  
ii. Net Realisable value
9. Benefit in cash are: Acting Allowance and Overtime Allowance
10. Deferred Payment Benefit are: PAYE and Union Dues
11. Total Deduction = ~~N~~42,400
12. 7 Days
13. Internal Audit
14. TSA
15. Public Procurement Act
16. Appropriation Bill
17. Zero-Based Budgeting Technique (ZBB)
18. IPSAS 24
19. Performance Based Budget
20. Deficit Budget

### **Examiner's comment**

This consists of 20 marks Compulsory Short-Answer questions which covers the entire syllabus. It requires the candidates to write the correct answer that best completes each of the questions/statement. About 100% of the candidates attempted the question and above 35% of them scored 50% of total marks obtainable.

The commonest pitfalls was the lack of adequate preparation by many of the candidates for the examination.

Candidates are enjoined to make good use of the Study Text of the Institute and also familiarise with the Past questions of previous diets' examinations.

## SECTION B

### SOLUTION 1

#### BELLO AYO STATE OF THE FEDERAL REPUBLIC OF PIPE MINISTRY OF COMMERCE & INDUSTRIES PREPARATION OF PERSONNEL COST BUDGET FOR THE YEAR 2002

JOB TITLE	No IN POST	GRADE LEVEL	SALARY			BUDGETED COST (₦)
Director of commerce	1	16	22,000	x	2,500	27,000
Deputy Director of Commerce	1	15	18,000	x	1,500	21,000
Assistant Director of Commerce	1	14	17,000	x	1,500	20,000
Assistant Chief Accountant	2	13	14,000	x	1,450	33,800
Principal Accountant	4	12	12,000	x	1,400	59,200
Senior Commercial Officer	12	10	10,000	x	1,000	144,000
Commercial Officer I	6	9	8,500	x	900	61,800
Commercial Officer II	8	8	7,500	x	500	68,000
Principal Trade Officer	12	10	10,000	x	1,000	144,000
Senior Trade Officer	10	9	8,500	x	900	103,000
Higher Trade Officer	12	8	7,500	x	500	102,000
Trade Officer (Headquarters)	15	7	5,000	x	350	85,500
Field Trade Officer II	21	6	4,500	x	350	109,200
Senior Clerical Officer	18	5	4,000	x	250	81,000
Clerical Officer	25	4	3,500	x	250	100,000
Assistant Clerical Officer	20	3	2,500	x	200	58,000
Office Assistants	5	3	2,500	x	200	14,500
Driver	10	3	2,500	x	200	29,000
Cleaners	15	3	2,500	x	200	43,500
Personnel Cost						<b>1,304,500</b>
Staff allowance @ 30%						<b>391,350</b>
Total Personnel Cost Budget						<b>1,695,850</b>

#### Examiner's comment

The question tests the candidates' knowledge and understanding of the preparation of Personnel Cost Budget from the available information provided.

Many Candidates avoided this area of the syllabus as about 45% of them attempted the question. The performance was poor as about 20% of the candidates scored 50% of the total marks obtainable.

The commonest pitfalls was the inability of some of the candidates to interpret the additional requirements of the questions.

Candidates are enjoined to endeavour to cover all areas of the syllabus. They are also advised to make use of the Study Text of the Institute as well as the past-questions of previous diets' examination questions.

## **SOLUTION 2**

- ai. Public Sector audit can be described as a systematic process of objectively obtaining and evaluating evidence to determine whether information or actual condition conform to established criteria
- aii.
  - i. Financial audit
  - ii. Compliance audit
  - iii. Performance audit

### **FINANCIAL AUDIT**

It is an audit to determine whether an entity's financial information is presented in accordance with an applicable financial reporting and regulatory framework. While doing financial audit, auditors look out for misstatements and errors that can have material impact on the information presented in the financial statement.

### **COMPLIANCE AUDIT**

It is an independent assessment of whether a particular subject matter is in compliance with what applicable authorities identified as criteria. Auditor performing compliance audit look for deviations / departures from criteria which is based on laws, regulations, and principles of financial management. Compliance audit promotes transparency by providing reliable reports as to whether funds have been administered and citizens' rights to due process are honoured as required by appropriate authorities. Hence Compliance auditing promotes good governance in the Public Sector by considering the risk of fraud in relation to compliance.

### **PERFORMANCE AUDIT**

This is also known as value for money audit. It is an independent objective and reliable examination of whether the Government undertaking, systems, operations, programs, activities or organisations are operating in accordance with principles of economy, efficiency and effectiveness and whether there is room for improvements.

#### **2b. FACTORS THAT CONTRIBUTE TO EFFECTIVE AUDIT**

- i. Independence of the auditor - he should be given free hand to do a good job. He should not be under the influence / control of management.
- ii. The adequacy and scope of the auditor's power – The authority of the auditor should be guaranteed. He must be given adequate authority to discharge his responsibilities.
- iii. The auditor should be adequately trained, versatile and skilful at his job.
- iv. There should be enough funds at the disposal of the auditor to carry out his assignment
- v. Freedom of reporting and the qualitative nature of reports –Reports should be timely and effective decisions in order to comply with professional audit standards.

- vi. Unrestricted access – Audits should be conducted with complete and unrestricted access to employees property and records.
- vii. Stakeholders’ support – The legitimacy of the audit activity and its mission should be understood and supported by a broad range of elected and appointed government officials as well as media and involved citizens.

**Examiner’s comment**

The question tests the candidates’ knowledge and understanding of Public Sector Audit. It requires the candidates to: (i) Define Public Sector Audit, (ii) Types of audit in the Public Sector and (iii) Factors that contributes to an effective audit. About 70% of the candidates attempted the question and about 35% of them scored 50% of total marks obtainable.

The commonest pit-falls was as a result of the apparty which many candidates developed in this area of the syllabus.

Candidates are advised to endeavour to cover all areas of the syllabus. And should prepare well in subsequent examinations. They should endeavour to make use of the Institute’s Study Text as well as the previous diets’ examination questions.

**SOLUTION 3**

**a. TEMPLATE FOR MONTHLY IPSAS ACCRUAL BASIS COMPLIANT TRIAL BALANCE**

Economic codes	Description	Debit	Credit	
01	Revenue		xx	
02	Expenditures	Xx		
03	Assets	Xx		
04	Liabilities		xx	
	Total	<u>Xx</u>	<u>xx</u>	
		<b>Names</b>	<b>Position</b>	<b>Signature</b>
	1 Prepared by:			
	2 Checked by:			
	3 Approved by:			

b.

**MINISTRY OF WATERSIDE****TRIAL BALANCE FOR THE MONTH ENDED JULY 2020**

<b>Codes</b>	<b>Descriptions</b>	<b>DEBIT</b>	<b>CREDIT</b>
<b>01</b>	<b>Revenues</b>		
0X81	Statutory Allocation		5,247,550
0X72	Grant-in-Aid		10,750
0X63	Debt forgiveness		8,900
0X45	Tax Revenue		25,450
0X45	Non-Tax Revenues		40,750
0X36	Royalty on Gemstone		5,750
0X27	Profit on disposal of assets		3,550
0X18	Investment Incomes		7,500
<b>02</b>	<b>Expenditure</b>		
0x82	Overhead cost	550,000	
0x73	Personel cost	2,350,000	
0x64	Social benefits	280,000	
0x55	Bad debt charge	48,750	
0x46	Subsidy	724,300	
0x37	Depreciation charge	10,550	
0x28	Utility General	5,000	
<b>03</b>	<b>Assets</b>		
0X73	Non-current assets	2,950,000	
0X64	Amory Stores (Ammunition & others)	150,000	
0X55	Printed materials	75,000	
0X46	Receivables-Personal advances	120,000	
0X37	Internal accounts transfer	950,000	
<b>04</b>	<b>Liabilities</b>		
0X94	Bonds and sureties		2,507,000
0X85	Payable		56,500
0X76	Short Term Loans		25,900
0X67	Public funds		150,000
0X58	Long Term borrowing		120,000
0X49	Provision for depreciation -dams		4,000
		<b>8,213,600</b>	<b>8,213,600</b>

**Examiner's comment**

The question tests the candidates' knowledge and understanding of the preparation of the Monthly IPSAS Accrual Basis Compliant Trial Balance for the Finance and Accounts Department of a Ministry/Extra-Ministerial Department or Agency.

About 25% of the Candidates attempted the question and about 50% of them scored 50% of total marks obtainable.

The commonest pitfalls was the lack of understanding of the requirements of the examiner in the question.

Candidates are thus advised to endeavour to cover all areas of the syllabus in future diet examinations. They should also avail themselves with Study Text of the Institute as well as the previous diets' examination questions.

#### **SOLUTION 4**

**(a) RESPONSIBILITIES OF THE STATE BOARD OF INTERNAL REVENUE SERVICES (SBIRS)**

- i. Assessing, collecting and accounting for all taxes and levies in the State.
- ii. Supervising the collection of all revenue due to the state government with other Ministries, Extra Ministerial Departments, Parastatals and Government Companies.
- iii. Revising all obsolete rates collectible by the Board and initiate review and advice the government on it.
- iv. Administering the provision of the Personal Income Tax Act 1993 as amended and the relevant tax laws in the state.
- v. General control of the management of the service on matters of policy subject to the provision of the edicts, and imposing discipline on employees of the State Internal Revenue Service.
- vi. Liaising on tax and revenue matters with the federal government directly through the Joint Tax Board and make recommendations where appropriate to the Joint Tax Board on tax policy, tax reform, tax registration, tax treaties and exemptions as may be required from time to time.

**(b) REVENUES COLLECTED BY FEDERAL INLAND SERVICES ON BEHALF OF FEDERAL GOVERNMENT**

- i. Company Income Tax of Corporate Bodies.
- ii. Petroleum Profit Tax.
- iii. Value Added Tax
- iv. Capital Gain Tax of Corporate Bodies.
- v. Stamp Duties of Corporate bodies and residents of Federal Capital-Abuja.
- vi. Hydrocarbon Tax.
- vii. Personal Income Tax of Nigeria Police Force, members of Armed Forces as well as staff of Ministry of Foreign Affairs and Non-Residents.

#### **Examiner's comment**

The question tests the candidates' knowledge and understanding of the State Board of Internal Revenue Services and the Federal Inland Revenue Services. It specifically required candidates to state the responsibilities of the State Board of Internal services and revenues that the Federal Inland Revenue Services collect on behalf of the



Federal Government. About 75% of the candidates attempted the question and about 55% of them scored 50% of total marks obtainable.

The commonest pitfalls was the failure of some candidates to differentiate between responsibilities of the State Board of Internal services and Federal Inland Revenue Services. Candidates are enjoined to cover whole areas of the syllabus. They are also advised to make adequate use of the Study Text of the Institute as well as other relevant reference materials. Candidates should familiarise themselves with the previous diets' examination questions.

## **SOLUTION 5**

### **(a) CORE FUNCTIONS**

- i. Collection of revenue i.e. Import and Excise duties and accounting for revenue collected.
- ii. Prevention and Suppression of smuggling

### **(b) OTHER FUNCTIONS**

- i. Implementation of fiscal measures
- ii. Generation of statistical data for planning purpose
- iii. Trade facilitation
- iv. Collection of levies and charges
- v. Collaborative functions with government agencies including CBN, FIRS, POLICE, etc
- vi. Implementation of bilateral and multilateral agreements enter into by government.

### **Examiner's comment**

The question tests the Candidates' knowledge and understanding of the Nigeria Customs Service Statutory functions.

About 80% of the candidates attempted the question and about 40% of them scored 50% of total marks obtainable.

The commonest pitfalls was the poor performance by some candidates for this diets' examination.

Candidates are advised to prepare early and prepare better for future diets examinations. They are also enjoined to make good utilization of the Study Text of the Institute. And also, they should make good use of the previous diets' examination questions.

## **SOLUTION 6**

(a) **The main objectives of public sector accounting are as follows:**

- i. **Determining the legitimacy of transactions and their compliance with the statutes and accepted norms:** Public sector disbursements should accord with the provisions of the Appropriation Act and Financial Regulations. There should be due authorisation for all payments so as to avoid misappropriation.
- ii. **Providing evidence of stewardship:** The act of rendering stewardship is being able to account transparently and diligently for resources entrusted. Government and public sector officers are obliged to display due diligence and sense of probity in the collection and disposal of public funds.
- iii. **Assisting planning and control:** The future is full of risks and uncertainties. Therefore, mapping out strategic plans prevents an organisation from drowning in the tides. Plans of actions provide the focus of activities, which are being pursued. The unforeseen circumstance is built into plans so as to prevent or at least reduce corporate failure. Public sector establishments should act in accordance with the 'mandate theory' of governance. Control measures are adjuncts to skillful planning. They assist in avoiding unnecessary deviations from the pursuit of the original objectives set.
- iv. **Ensuring objective and timely reporting:** Users of public sector accounting information are anxious to bridge their knowledge gaps on government activities. They therefore treasure prompt and accurate statistics to evaluate government performance.
- v. **Evaluating the costs incurred and the benefits derivable:** In public sector organisations, it is difficult to measure costs and benefits in financial terms. The analysis of cost-benefit assesses the economic and social advantages (benefits) and disadvantages or inconveniences (costs) of alternative courses of actions, to ensure that the welfare of the citizens are well provided for.

(b) **International pronouncements made about public sector accounting include the following:**

- i. A United Nations survey was conducted and recommendations made for improvements in the government accounting systems of 'third world' countries, especially in budgeting practices, training, data classifications, methods and accounting procedures.
- ii. In the United States of America, the National Committee on Government Accounting issued a manual titled "Government Accounting, Auditing and Financial Reporting (GAAFR)." The manual is generally referred to as "The Blue Book." The Blue Book and other pronouncements of the committee set forth the basic accounting and reporting principles covering the following areas, viz:

- Basis of accounting;
  - Legality;
  - Funds and fund accounting;
  - Budgetary, planning and control;
  - Tangible assets and depreciation;
  - Terminologies and accounting/classifications; and
  - Financial reporting.
- iii. In the United States, the National Committee on Government Accounting recommended the accrual basis of accounting for public enterprises, capital projects and trust funds; the modified accrual basis for special revenue and debt service funds and that depreciation is not chargeable on tangible assets.
- iv. Other pronouncements:
- The International Federation of Accountants (IFAC) issued International Public sector accounting Standards, effective from year 2003.
  - The Nigerian Public Sector Auditing Standards, effective from December 1997 were issued by the Auditor General for the Federation and Auditors-General for the States.
  - The American Institute of Certified Public Accountants (AICPA) recommended that the financial statements of each governmental Unit should be prepared in accordance with the generally accepted accounting principles while supplementary schedules should accord with legal compliance.

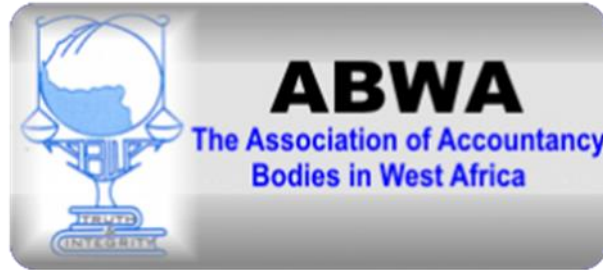
### **Examiner's comment**

The question tests the candidates' knowledge and understanding of the main objectives of Public Sector Accounting as well as the International Pronouncement that have been made about Public Sector Accounting.

About 80% of the Candidates attempted the question and 25% of them scored 50% of total marks obtainable.

The commonest pitfalls was the inability of some candidates to correctly interpret the requirements of the examiner.

Candidates are enjoined to make good use of the Study Text of the Institute. They should also familiarise themselves with previous diets' examination questions.

**THE ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA****ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA  
MARCH 2024 EXAMINATIONS (PART II)  
QUANTITATIVE ANALYSIS****PLEASE READ THESE INSTRUCTIONS BEFORE COMMENCEMENT OF THE PAPER****EXAMINATION INSTRUCTIONS**

1. All solutions should be in ink. Any solution in pencil will not be marked.
2. Read all instructions on each part of the paper carefully before answering the questions.
3. Ensure that you do not answer more than the number of questions required for **Section B (The Essay Section)**.
4. Check your pockets, purse and mathematical sets, etc to ensure that you do not have prohibited items such as telephone handset, electronic storage device, wrist watches, programmable devices or any form of written material on you in the examination hall. You will be stopped from continuing with the examination and liable to further disciplinary actions including cancellation of examination result if caught.
5. Do not enter the hall with anything written on your docket.
6. Insert your examination number in the space provided above.

**WEDNESDAY, MARCH 27, 2024****DO NOT TURN OVER UNTIL YOU ARE TOLD TO DO SO**

**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA  
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA  
PART II EXAMINATIONS – MARCH 2024**

**QUANTITATIVE ANALYSIS**

**Time Allowed: 3 hours**

**SECTION A: PART I      MULTIPLE-CHOICE QUESTIONS      (30 Marks)**

**ATTEMPT ALL QUESTIONS**

**Write ONLY the alphabet (A, B, C, D or E) that corresponds to the correct option in each of the following questions/statements:**

1. A table showing the number of times a value or group of values has occurred in a given set of data is known as
  - A. Frequency table
  - B. Times table
  - C. Probability table
  - D. Contingency table
  - E. Four-figure table
  
2. The first and the last points on a polygon have.....frequencies
  - A. Zero
  - B. Cumulative
  - C. High
  - D. Low
  - E. Undefined
  
3. The ogive can be used to estimate all of the following, **EXCEPT**
  - A. Median
  - B. Quartiles
  - C. Deciles
  - D. Percentiles
  - E. Mode

**Use the following table to answer questions 4, 5 and 6**

<b>X</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>Y</b>	<b>9</b>	<b>5</b>	<b>7</b>

In the regression line  $y = a + bx$

4. The value of  $b$  is
- A. -1
  - B. -2
  - C. -3
  - D. -4
  - E. -5
5. The value of  $a$  is
- A. 6
  - B. 7
  - C. 8
  - D. 9
  - E. 10
6.  $y$  is a/an.....variable while  $x$  is a/an..... variable.
- A. Constant, dependent
  - B. Constant, independent
  - C. Dependent, independent
  - D. Independent, dependent
  - E. Dependent, constant

**Use the following table to answer questions 7–10**

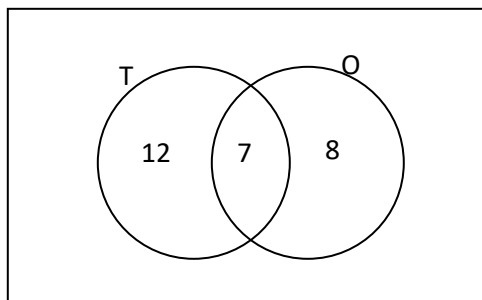
Time( $t$ )	Value of Series( $Y$ )	Moving Average order 3
1	15	
2	20	$p$
3	25	$q$
4	36	$r$
5	42	
6	48	$s$

7. The value of  $p$  is
- A. 20
  - B. 15
  - C. 10
  - D. 5
  - E. 0

8. The value of  $q$  is
- A. 43
  - B. 36
  - C. 27
  - D. 14
  - E. 12
9. The value of  $r$  is
- A. 18.54
  - B. 27.54
  - C. 30.25
  - D. 34.33
  - E. 28.02
10. The value of  $s$  is
- A. 47
  - B. 42
  - C. 37
  - D. 32
  - E. 27
11. If  $E_1$  and  $E_2$  are independent events, which of the following is incorrect?
- A.  $P(E_2/E_1) = P(E_2)$
  - B.  $P(E_1/E_2) = P(E_1)$
  - C.  $P(E_1 \cap E_2) = P(E_1).P(E_2/E_1)$
  - D.  $P(E_2).P(E_1/E_2) = P(E_1).P(E_2)$
  - E.  $P(E_2).P(E_2/E_1) = P(E_1).P(E_2)$
12. The probability that an employee does not come late to work on any given day is 0.21. The probability that an employee is a female in the company is 0.45. Obtain the probability that an employee, selected from the company, is a female late comer?
- A. 0.3050
  - B. 0.3555
  - C. 0.3558
  - D. 0.3562
  - E. 0.3655

13. A bookseller bought a book for ₦1,200, his marked price is ₦1,777.78. If he has allowed 10% discount, find the percentage profit.
- A. 30.00%  
 B. 32.22%  
 C. 33.33%  
 D. 41.33%  
 E. 43.33%
14. A company, owned by Mr. AY, produces items m, n, p and q. If it costs ₦350 to produce an item and the sale price of an item is ₦1,250, the profit made by the company is
- A. ₦ 900  
 B. ₦ 1,400  
 C. ₦ 3,400  
 D. ₦ 3,600  
 E. ₦ 5,000
15. The interest, that accrued on ₦30,000 at 17% per annum simple interest at the end of 9 months, is
- A. ₦3,285  
 B. ₦3,295  
 C. ₦3,528  
 D. ₦3,825  
 E. ₦3,925

**Use the Euler-Venn diagram shown to answer questions 16 and 17**



16.  $T^c \cup O^c$  is
- A. {7, 8, 12}  
 B. {12}  
 C. {8}  
 D. {7, 8}  
 E. {8, 12}



17.  $n(T^c \cup O^c)$  is
- 1
  - 2
  - 3
  - 4
  - 5
18. Evaluate the integral given by  $\int_{-\infty}^0 100e^{0.05x} dx$
- 4,000
  - 3,000
  - 2,000
  - 1,000
  - 0
19. In a network diagram, the critical activities have
- Free float only
  - Independent float and free float
  - Independent float only
  - Total float
  - No float

**Use the data given in the table below to answer questions 20 and 21**

The computer sets that are used in a company have resistors with a life span of 3 months. The failure rates (in percentages) of these resistors are given in the following table:

Months	1	2	3
Percentage of Failures	20	35	45

If 675 resistors are fixed for use at a time, then

20. The average life span of the resistor is
- 1.25 months
  - 2.25 months
  - 3.25 months
  - 4.25 months
  - 5.25 months

21. The average number of monthly replacements is
- 300
  - 350
  - 400
  - 450
  - 500
22. Which of the following is a policy in the replacement of equipment or items that fail suddenly?
- Gradual replacement policy
  - Individual replacement policy
  - Group replacement policy
  - B and C
  - A and B
23. Which of the following is **NOT** a resulting effect of gradual failure or deterioration of items?
- The output of the equipment
  - Its production capacity
  - The maintenance and operating costs
  - The value of the sale price of the item
  - The efficiency of the equipment
24. Which of the following is correct about a balanced transportation problem?
- Dummy is always zero
  - The total quantity demanded by the destination = total quantity available at the destination
  - Dummy is always greater than zero
  - The total quantity demanded by the destination is greater than the total quantity available at the destination
  - The total quantity demanded by the destination is less than the total quantity available at the destination
25. In order to make an unbalanced transportation problem balanced, there is a need to create a dummy ..... or ..... for the difference between total supply and demand with zero cost
- Origin (row) or destination(column)
  - Origin (column) or destination(row)
  - Origin (demand) or destination(supply)
  - Origin (supply) or destination(demand)
  - Origin (supply) or destination (supply)

26. The following are advantages of simulation, **EXCEPT**
- A. Simulation is suitable for analysing large and complex real-life problems which may not be solved by the usual quantitative methods
  - B. Simulation can also be used for sensitivity analysis on complex systems
  - C. It makes the decision-maker to note and study the interactive system and effect changes where possible
  - D. Simulation is a trial-and-error approach, and as such it is very simple
  - E. Simulation experiments make use of model not the system itself
27. Which of the following subroutines is **NOT** required in the implementation of a simplex method on a computer?
- A. Determining the zeroes of polynomial function
  - B. Determining the adjoint of a matrix
  - C. Obtaining the solution of a linear equation
  - D. Solving for the eigenvalue of a matrix
  - E. Determining the matrix
28. There are four factories situated at F1, F2, F3 and F4 and four warehouses located at W1, W2, W3 and W4. The supplies from F1, F2, F3 and F4 are 30, 29, 38 and 23 units respectively while the demands required at W1, W2, W3 and W4 are 20, 40, 35 and 15 respectively. In solving this transportation problem,
- A. A dummy destination of capacity 10 units is needed
  - B. A dummy source of capacity 10 units is needed
  - C. No dummy is needed
  - D. A dummy of capacity of 10 units is needed
  - E. It is noticed that the problem is degenerate and therefore no solution exists
29. Which of the following is correct about simplex method for solving linear programming problems?
- A. It makes use of all the points within the feasible region
  - B. It uses only the corner points in the feasible region
  - C. It makes use of the intermediate points in the feasible region
  - D. It uses only the interior points within the feasible region
  - E. It can only be applied when the decision variables is exactly three
30. Economic Order Quantity is a tool for controlling
- A. Expenses
  - B. Labour
  - C. Inventory
  - D. Cost
  - E. Capital

**SECTION A: PART II****SHORT-ANSWER QUESTIONS****(20 MARKS)****ATTEMPT ALL QUESTIONS**

**Write the correct answer that best completes each of the following questions/statements.**

1. In an unbalanced Transportation Problem, the total quantity demanded is..... the total quantity supplied.
2. The weekly demand pattern of a production company for XYZ products and the associated probabilities are shown below:

Daily Demand Quantity	1	8	11
Probabilities	0.04	0.44	0.52

The random number interval corresponding to the daily demand quantity of 8 is.....

3. When using the Hungarian method for solving an assignment problem, it **MUST** be ensured that the given.....is balanced and it must be a .....
4. The failure rates of resistors in a computer having a lifespan of three months are given in the following table:

Months	1	2	3
Failures rates	0.3	0.45	0.25

If 100 resistors are fixed for use at a time, the replacement at the end of the second month is.....

5. The amount of time by which the duration of an activity can be extended without affecting the time available for succeeding activities or preceding activities is referred to as .....
6. A petty trader bought goods for ₦1,000, spent ₦1,100 on transportation from the market, paid ₦500 for the rent of the space where he sells his goods. His profit or loss percent if he sells the goods for ₦1,580 would be .....

7. If two variables  $x$  and  $y$  are not equal, then  $x$  is.....or .....than  $y$ .
8. The sum of the present values of all periodical payments is known as.....
9. The present value of an annuity of ₦50,000 for 10 years at 5% compounded annually is.....
10. Data derived from existing published or unpublished records of government agencies, trade associations, research bureaus, magazines, and individual research work are regarded as .....data.
11. The probability that an employee of a particular company comes regularly to work on any given day of the week is 0.35. The probability that an employee is a male in the company is 0.53. The probability that an employee selected from the company is a female and does not come to work regularly is.....
12. In order to have a fair index number, it is necessary to take into account the varied relative importance of items in the construction of index numbers. **True/False?**
13. In time series, a variation that repeatedly occurs during a corresponding month or period of successive years is called .....
14. Two or more events are said to be..... if they cannot occur at the same time.
15. If  $E_1$  and  $E_2$  are two events such that there is an intersection between  $E_1$  and  $E_2$ , and that  $P(E_1) > 0$ , then, the probability of  $E_2$  given that  $E_1$  has occurred or happened can be expressed as .....and it can be evaluated by.....
16. The scores of four candidates in QA examinations are as follows: 71, 73, 75 and 77. The quartile deviation for the scores is.....
17. Non-acceptance of the hypothesis which ought to be accepted and acceptance of hypothesis which ought to be rejected are respectively referred to as.....and.....
18. If A and B are two events defined on a sample space, then, using the multiplication rule,  $P(A \cap B)$  equals .....and if the additive rule is used,  $P(A \cap B)$  equals .....
19. A method that is used to predict one variable from the knowledge of another variable is called .....

20. With the information given in the table below, the value of  $b$  using regression  $y = a + bx$  line is .....

X	2	3
Y	54	46

**SECTION B: ATTEMPT ANY FOUR QUESTIONS IN THIS SECTION (50 MARKS)**

**QUESTION 1**

The scores of 60 candidates in a QA examination are shown below.

Scores	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Number of candidates	2	4	7	3	12	15	8	2	7

**You are required to calculate the**

- i. Mean using the Mid-point value method (3½ Marks)
- ii. Median (3 Marks)
- iii. Standard deviation (3 Marks)
- iv. Coefficient of variation (3 Marks)

**(Total 12½ Marks)**

**QUESTION 2**

- a. The unit prices (₦'000), spent by a family on commodities Q, R, X, Y and Z, during the period 2019-2021, are given in the following table:

Commodities	Price per unit (Naira × 1000)		
	Year 2019	Year 2020	Year 2021
Q	18	10	13
R	14	13	15
X	8	10	12
Y	10	14	20
Z	17	11	21

**Use the year 2019 as the base year to determine**

- i. Simple Aggregate Price Index (SAPI) for each of the years 2020 and 2021  
(3½ Marks)
  - ii. Simple Average of Relative Price Index (SARPI) for each of the years 2020 and 2021.  
(4 Marks)
- b. The following table gives the quantities of four items: A, B, C, D, and their respective unit prices (in Naira) purchased by Mr. ASHD in a supermarket in the years 2019 and 2020:

Items	2019		2020	
	Price (₦'00)	Quantity	Price (₦'00)	Quantity
A	32	35	25	45
B	30	45	20	35
C	20	25	15	25
D	25	30	10	20

**You are required to calculate the Fisher Ideal price index taking 2019 as the base year.**

(5 Marks)

**(Total 12½ Marks)**

**QUESTION 3**

A production company wants to ship its products from the production points  $S_1$ ,  $S_2$ , and  $S_3$  to the consumers located at points  $D_1$ ,  $D_2$ , and  $D_3$ . The kilometers, from the supply points to the destinations, are shown in the following table:

		Destinations			Supply
		$D_1$	$D_2$	$D_3$	
Sources	$S_1$	5	1	7	10
	$S_2$	6	4	6	80
	$S_3$	3	2	5	50
Demand		75	20	50	

If the shipping cost is ₦10 per load per kilometer, use Vogel's Approximate Method to calculate the initial basic feasible total cost of transportation.

**(Total 12½ Marks)**

**QUESTION 4**

ADEK Nigeria Plc. requires 2,600 units of raw materials which costs ₦20 per unit for a project and the cost of placing an order is ₦500. If the carrying costs are 10% per year per unit of the average inventory.

**You are required to calculate the:**

- a. Economic Order Quantity (EOQ) (2½ Marks)
- b. Number of orders per annum (2½ Marks)
- c. Holding cost per annum (2 Marks)
- d. Ordering cost per annum (1½ Marks)
- e. Total cost per annum (2 Marks)
- f. Cycle time (2 Marks)

**(Total 12½ Marks)**

**QUESTION 5**

The activities and the preceding activities required to complete a project by the XYZ company are shown below:

<b>Activity</b>	<b>Preceding activity</b>	<b>Duration(Months)</b>
A	-	5
B	A	4
C	-	6
D	A, C	3
E	B	4
F	D,E	7
G	B	5
H	G	4
I	F,H	5
J	G	6
K	I, J	4
L	J	6
M	K, L	2
N	L	3



**You are required to:**

- a. Draw an Activity-On-Arrow project diagram (AOA) network for the project (5 Marks)
  - b. List all the paths and determine their durations (7 Marks)
  - c. Identify the critical path and determine its duration ( $\frac{1}{2}$  Marks)
- (Total 12½ Marks)**

**QUESTION 6**

105 candidates were interviewed on which subjects they registered for in a professional Accounting Certification in a certain diet. 25 registered for Economics (E), 60 registered for Quantitative Aptitude (Q), 39 registered for Financial Accounting (A). 22 registered for E and Q, 18 registered for E and A, 16 registered for A and Q while 15 registered for all the three subjects.

**You are required to:**

- i. Represent the information on a Venn-diagram ( $3\frac{1}{2}$  Marks)
  - ii. Calculate the number of students who registered for E and Q only and those who registered for E and A only (3 Marks)
  - iii. The number of students who registered for one subject only (3 Marks)
  - iv. The number of students who registered for none of the three subjects (3 Marks)
- (Total 12½ Marks)**

## FORMULAE

$$\text{Sample variance, } s^2 = \frac{\sum (x - \bar{x})^2}{n-1}$$

**Economic Order Quantity**

$$Q = \sqrt{\frac{2cd}{n}}$$

$$z_{\text{cal}} = \frac{\bar{x} - \mu}{\frac{\sigma}{\sqrt{n}}}$$

**Slope of a regression equation**

$$b = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2}$$

$$\text{Elasticity of demand, } e = \left(-\frac{p}{q}\right) \left(\frac{dq}{dp}\right)$$

**The 95% confidence interval for  $\mu$**

$$= \bar{x} \pm t_{\alpha, n-1} \frac{s}{\sqrt{n}}$$

**The trend equation,  $y = a + bt$ , where  $t = x_i - x_m$**

$$b = \frac{\sum ty}{\sum t^2}, \quad a = \bar{y} - bx_m, \quad x_m = \text{median of } x \text{ values}$$

$$\text{SARPI} = \frac{\sum \left( \frac{P_n}{P_o} \times 100 \right)}{N}$$

$$\text{SAPI} = \frac{\sum P_{ni}}{\sum P_{oi}} \times 100$$

$$t = \frac{p}{\sqrt{\frac{pq}{n}}}$$

**EOQ with stock-out**

$$Q = \sqrt{\frac{2cd}{h}} \times \sqrt{\frac{h + c_s}{c_s}}$$

$$\text{LPI} = \frac{\sum p_1 q_o}{\sum p_o q_o} \times 100$$

$$Z = \frac{p - \hat{p}}{\sqrt{\frac{\hat{p}(1 - \hat{p})}{n}}}$$

$$Q_i = L_{Q_i} + \left( \frac{\frac{iN}{4} - \sum f_{Q_i}}{f_{Q_i}} \right) c$$

$$D_i = L_{D_i} + \left( \frac{\frac{iN}{10} - \sum f_{D_i}}{f_{D_i}} \right) c$$

$$P_i = L_{P_i} + \left( \frac{\frac{iN}{100} - \sum f_{P_i}}{f_{P_i}} \right) c$$

### **Spearman's rank correlation coefficient**

$$r = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$

### **EOQ with gradual replenishment**

$$Q = \sqrt{\frac{2cd}{h \left( 1 - \frac{d}{r} \right)}}$$

Length of Inventory cycle =  $\frac{Q}{d}$

Number of *production runs* =  $\frac{d}{Q}$

Production cost = *Ordering cost* + *Holdering cost*

$$Mode = L_{mo} + \left( \frac{\Delta_1}{\Delta_1 + \Delta_2} \right) c$$

## SECTION A: PART I

### MULTIPLE-CHOICE SOLUTIONS

1. A
2. A
3. E
4. A
5. D
6. C
7. A
8. C
9. D
10. B
11. E
12. B
13. C
14. D
15. D
16. E
17. B
18. C
19. E
20. B
21. A
22. D
23. B
24. B
25. A
26. D
27. C
28. A
29. B
30. C

### MCQ Workings

$x$	1	2	3	$\sum x = 6$
$y$	9	5	7	$\sum y = 21$
$x^2$	1	4	9	$\sum x^2 = 14$
$xy^2$	9	10	21	$\sum xy = 40$

$$4. \quad b = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2} = \frac{3(40) - (6)(21)}{3(14) - (6)^2} = \frac{120 - 126}{42 - 36} = \frac{-6}{6} = -1 \quad \text{Option A}$$

$$5. \quad a = \bar{y} - b\bar{x} = 7 - (-1)(2) = 7 + 2 = 9 \quad \text{Option D}$$

$$7. \quad p = \frac{15 + 20 + 25}{3} = 20 \quad \text{Option A}$$

$$8. \quad q = \frac{20 + 25 + 36}{3} = 27 \quad \text{Option C}$$

$$9. \quad r = \frac{25 + 36 + 42}{3} = 34.33 \quad \text{Option D}$$

$$10. \quad s = \frac{36 + 42 + 48}{3} = 42 \quad \text{Option B}$$

12. Let the

$$E_1 = P(\text{an employee comes late to work}) = 1 - 0.21 = 0.79$$

$$E_2 = P(\text{an employee is a female}) = 0.45$$

Then,

$$P(E_1 \cap E_2) = P(E_2) \cdot P(E_1/E_2)$$

$$P(E_1 \cap E_2) = 0.45 \times 0.79 = 0.3555 \quad \text{Option B}$$

13.

$$\text{Marked price} = \text{N}1,777.78$$

$$\text{10\% discount} = \text{N}1,777.78 \times \frac{10}{100}$$

$$= \text{N}177.78$$

$$\therefore \text{Selling price} = \text{N}1,777.78 - \text{N}177.78$$

$$= \text{N}1,600$$

$$\therefore \text{his profit} = \text{N}1,600 - \text{N}1,200$$

$$= \text{N}400$$

$$\begin{aligned} \text{profit\%} &= \frac{\text{profit}}{\text{CP}} \times \frac{100}{1} \% = \frac{\text{SP} - \text{CP}}{\text{CP}} \times \frac{100}{1} \\ &= \frac{400}{1200} \times \frac{100}{1} = 33.33 \end{aligned}$$

Option C

14. Total cost price,  $C = \cancel{N}350 \times 4 = \cancel{N}1,400$

Total revenue,  $R = \cancel{N}1250 \times 4 = \cancel{N}5,000$

Profit,  $P = R - C = \cancel{N} (5,000 - 1,400) \cancel{N}3,600$

**Option D**

15.  $I = P \times R \times T$

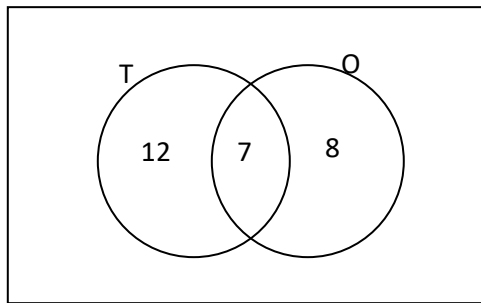
$I = 30000 \times 17/100 \times 9/12$

$I = 30000 \times 0.17 \times 0.75$

$I = 3825$

**Option D**

16.



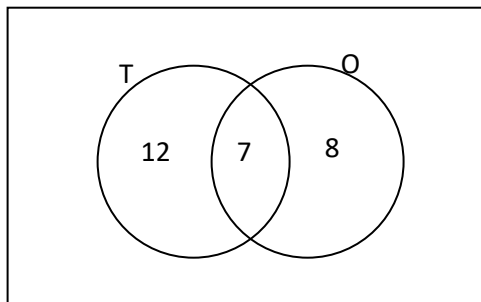
$$T^c = \{8\}$$

$$O^c = \{12\}$$

$$(T^c \cup O^c) = \{8, 12\}$$

**Option E**

17.



$$T^c = \{8\}$$

$$O^c = \{12\}$$

$$(T^c \cup O^c) = \{8, 12\}$$

$$n(T^c \cup O^c) = 2$$

**Option B**

$$18. \int_{-\infty}^0 100e^{0.05x} dx = \left[ \frac{100e^{0.05x}}{0.05} \right]_{-\infty}^0$$

$$= \frac{100e^{0.05 \times 0}}{0.05} - \frac{100e^{0.05 \times -\infty}}{0.05}$$

But  $e^{0.05 \times 0} = 1$  and  $e^{0.05 \times -\infty} = 0$

$$\int_{-\infty}^0 100e^{0.05x} dx = \frac{100 \times 1}{0.05} - \frac{100 \times 0}{0.05} = \frac{100}{5/100} - 0 = \frac{100 \times 100}{5} = 2,000 \quad \text{Option C}$$

20.

Monthly( $X_i$ )	Percentage of Failure	Probabilities ( $P_i$ )	$P_i X_i$
1	20	0.20	0.20
2	35	0.35	0.70
3	45	0.45	1.35
	100	1.00	2.25

$$T = \frac{\sum P_i X_i}{\sum P_i}$$

$$T = \frac{2.25}{1} = 2.25 \text{ months}$$

**Option B**

21.

Monthly ( $X_i$ )	Percentage Failure	Probabilities ( $P_i$ )	$P_i X_i$
1	20	0.20	0.20
2	35	0.35	0.70
3	45	0.45	1.35
	100	1.00	2.25

$$T = \frac{\sum P_i X_i}{\sum P_i}$$

$$T = \frac{2.25}{1} = 2.25 \text{ months}$$

$$R = \frac{N}{T}$$

$$R = \frac{675}{2.25} = 300$$

**Option A**

28. Total supply at the sources =  $30 + 29 + 38 + 23 = 120$  units

Total demand at the destinations =  $20 + 40 + 35 + 15 = 110$  units

Since the supply at the source is greater than the demand at the destination, a dummy is therefore required at the destination for the transportation problem to be balanced.

The capacity of the dummy required =  $120 - 110 = 10$  units

### Option A

#### Examiner's comment

All the 30 questions in this section averagely covered the entire syllabus.

They are all compulsory questions. Hence, all the candidates attempted them.

Generally, the performance of the candidates was fairly good. About 90% of the candidates obtained between 16 and 18 marks out of the 30 marks allocated to the section.

Most of the questions are straightforward to provide a reasonable opportunity for an average candidate to obtain a pass mark.

### SECTION A: PART II

#### SHORT-ANSWER SOLUTIONS

1. Not equal to
2. 04 - 47
3. Cost table, square matrix (in that order)
4. 54
5. Float
6. Loss percent of 39.23
7. Greater, less (in any order)
8. Annuity
9. ~~₹~~386,086.75
10. Secondary
11. 0.3055
12. True
13. Seasonal variations
14. Mutually exclusive

$$P(E_1 / E_2) = \frac{P(E_1 \cap E_2)}{P(E_2)}$$

- 15.
16. 2



17. Type I error, Type II error (in that order)
18.  $P(A)$ ,  $P(B)$ ,  $P(A)+P(B)$  (in that order)
19. Regression method
20. -8

**SAQ Workings**

2.

Daily Demand	Probability	Cumulative Frequency	Random Number Intervals
1	0.04	0.04	00-03
8	0.44	0.48	04-47
11	0.52	1.00	48-99

4.

Given that  $N=100$

Months	1	2	3
Failures rates	0.3	0.45	0.25

Let  $N_i$  represent the number of items replaced at the end of the  $i^{\text{th}}$  month and  $N_0=100$  Therefore, we have the following replacements in the subsequent months:

$N_0=100$  (initial)

At the end of 1<sup>st</sup> Month,  $N_1=N_0P_1=100 \times 0.3=30$

At the end of 2<sup>nd</sup> Month,  $N_2=N_0P_2+N_1P_1=100 \times 0.45+30 \times 0.3=54$

6.

Cost of goods = ₦1,000

Cost of transport = ₦1,100

Cost of renting space = ₦500

Selling price = ₦1,580

$\therefore$  Total cost = ₦(1,000 + 1,100 + 500)  
= ₦2,600

$\therefore$  Loss = ₦2,600 - ₦1,580  
= ₦1,020

$\therefore$  % Loss =  $1020/2600 \times 100$   
= 39.23%

9. 
$$P = \frac{A\{1-(1+r)^{-n}\}}{r}$$

But  $A = 50,000$ ,  $r = 0.05$  and  $n = 10$

$$P = \frac{50,000\{1-(1+0.05)^{-10}\}}{0.05}$$

$$P = \frac{50,000 \times 0.386}{0.05}$$

$$P = \text{₹}386,086.75$$

11. Let  $A$  = event of an employee comes regularly

$B$  = event of an employee is male

$C$  = event of an employee does not come regularly  $\therefore P(C) = 1 - 0.35 = 0.65$

$D$  = event of employee is female  $\therefore P(D) = 1 - P(B) = 1 - 0.53 = 0.47$

Since these events are independent,  $\therefore$  Probability of female employee not coming regularly is  $P(C \cap D) = P(C) \times P(D) = 0.65 \times 0.47 = 0.3055$

16.

Scores	71	73	75	77
Cumulative	71	144	219	296

The quartile deviation is

$$Q_d = \frac{Q_3 - Q_1}{2}$$

where

$Q_1 = \left(\frac{N}{4}\right)$ th value = the lower half of the given data (i.e, the score at 25% position).

$Q_1 = \left(\frac{296}{4}\right) = 74$ th value . This lies between 71 and 73 scores.

By interpolation, the actual  $Q_1 = 71 + \left(\frac{73-71}{144-71}\right)(74-71) = 71 + \frac{6}{73} = 71.08$

$Q_3 = \left(\frac{3N}{4}\right)$ th value = the upper half of the given data (i.e, the score at 75% position).

$Q_3 = \left(\frac{3 \times 296}{4}\right) = 222$ nd value . This lies between 75 and 77 scores.

By interpolation, the actual  $Q_3 = 75 + \left(\frac{77-75}{296-219}\right)(222-219) = 75 + \frac{6}{77} = 75.08$

Quartile deviation is

$$Q_d = \frac{75.08 - 71.08}{2} = \frac{4}{2} = 2$$

*ALITER*

$$\text{Median position} = \left(\frac{n+1}{2}\right)^{\text{th}} = \left(\frac{4+1}{2}\right)^{\text{th}} = 2.5^{\text{th}}$$

$$Q_1 \text{ Position} = \frac{\text{integral part of median position} + 1}{2}$$

$$= \left(\frac{2+1}{2}\right)^{\text{th}} = 1.5^{\text{th}}$$

From the data: 71, 73, 75, 77

Taking position in ascending order i.e from

$$Q_1 = \frac{71+73}{2} = \frac{144}{2} = 72$$

$$Q_2 \text{ Position} = \frac{\text{integral part of median position} + 1}{2}$$

$$= \left(\frac{2+1}{2}\right)^{\text{th}} = 1.5^{\text{th}}$$

From the arranged data: 71, 73, 75, 77

Taking position in descending order i.e from highest to smallest.

$$Q_3 = \frac{75+77}{2} = \frac{152}{2} = 76$$

$$\text{Quarter deviation, } QD = \frac{Q_3 - Q_1}{2} = \frac{76 - 72}{2}$$

$$= \frac{4}{2} = 2$$

$x$	<b>2</b>	<b>3</b>	$\Sigma x = 5$
$y$	<b>54</b>	<b>46</b>	$\Sigma y = 100$
$xy$	<b>108</b>	<b>138</b>	$\Sigma xy = 246$
$x^2$	<b>4</b>	<b>9</b>	$\Sigma x^2 = 13$

$$b = \frac{n \Sigma xy - \Sigma x \Sigma y}{n \Sigma x^2 - (\Sigma x)^2} = \frac{2(108+138) - (5)(100)}{2(4+9) - (5)^2} = \frac{492 - 500}{26 - 25} = \frac{-8}{1} = -8$$

### Examiner's comment

Similar to the MCQ section, all the 20 questions in this section are compulsory.

All the questions cover the syllabus fairly. The performance of the candidates was generally poor as about 9% of them scored a little bit above the average mark. Candidates' scores range between zero and 15 marks.

### SECTION B

#### SOLUTION 1

Class interval	Frequency ( $f$ )	Cumulative Frequency ( $cf$ )	$x$	$fx$	$x^2$	$fx^2$
10– 20	2	2	15.5	31.0	225.00	480.00
21– 30	4	6	25.5	102.0	650.25	2601.00
31 – 40	7	13	35.5	248.5	1260.25	8821.75
41– 50	3	16	45.5	136.5	2070.25	6210.75
51– 60	12	28	55.5	666.0	3080.25	36963.00
61– 70	15	43 → Median class	65.5	982.5	4290.25	64353.75
71– 80	8	51	75.5	604.0	5700.25	45602.00
81– 90	2	53	85.5	171.0	7310.25	14620.50
91– 100	7	60	95.5	668.5	9120.25	63841.75
	60			3,610		243,495.75

$$(i) \quad \text{Mean} = \frac{\sum fx}{\sum f}$$

$$\text{Mean} = \frac{3610}{60}$$

$$\text{Mean} = 60.17$$

$$(ii) \quad \text{Median} = L_1 + \left( \frac{N/2 - \sum f_1}{F_{median}} \right) C$$

$$\frac{N}{2} = \frac{\sum f}{2} = \frac{60}{2} = 30$$

Therefore, the median class is 61– 70 and  $L_1 = 60.5$ .

$$\sum f_1 = 28, C = 10 \text{ and } F_{median} = 15$$

$$\text{Median} = 60.5 + \left( \frac{30 - 28}{15} \right) \times 10$$

$$\text{Median} = 60.5 + \left( \frac{20}{15} \right)$$

$$\text{Median} = 60.5 + 1.3333$$

$$\text{Median} = 61.8333 \approx 61.83 \text{ or } \mathbf{61.8}$$

$$(iii) \quad \text{Standard deviation (SD)} = \sqrt{\frac{\sum fx^2 - \frac{(\sum fx)^2}{\sum f}}{\sum f}}$$

$$\text{Standard deviation (SD)} = \sqrt{\frac{243495 - \frac{(3610)^2}{60}}{60}}$$

$$\text{Standard deviation (SD)} = \sqrt{\frac{243495 - 217201.6666667}{60}}$$

$$\text{Standard deviation (SD)} = \sqrt{\frac{26293.333333}{60}}$$

$$\text{Standard deviation (SD)} = \sqrt{438.22222}$$

$$\text{Standard deviation (SD)} = 20.933757952 \approx 20.93$$

Accept 20.9 – 21

$$(iv) \quad \text{Coefficient of variation (CoV)} = \frac{\text{SD}}{\text{Mean}} \times 100$$

$$\text{Coefficient of variation (CoV)} = \frac{20.933757952}{60.16667} \times 100$$

$$\text{Coefficient of variation (CoV)} = 34.79\%$$

Accept 34.7% - 34.9%

### Examiner's comment

The content of this question tests the candidates' knowledge of the Measures of Location such as the Mean and the Median.

It also tests their knowledge of the Variation or Dispersion such as Standard Deviation and Coefficient of Variation.

The question was attempted by about 92% of the candidates with an average score of 8 marks.

Generally, the candidates, who attempted the question, demonstrated good understanding of the question.

Some of them had difficulty in using the appropriate class boundaries in calculating the Median.

A number of them failed to use the required Mid-point Value to calculate the Mean.

### SOLUTION 2

(a) (i)

Commodities	Price per unit (Naira × 1000)		
	Year 2019	Year 2020	Year 2021
Q	18	10	13
R	14	13	15
X	8	10	12
Y	10	14	20
Z	17	11	21
	$\sum p_{2019i} = 67$	$\sum p_{2020i} = 58$	$\sum p_{2021i} = 81$

$$\text{But } SAPI = \frac{\sum p_{1i}}{\sum p_{0i}} \times \frac{100}{1}$$

where the base year is 2019 i.e.  $\sum p_{0i} = \sum p_{2019i} = 67$

For the year 2020,

$$SAPI_{2020} = \frac{\sum p_{2020i}}{\sum p_{2019i}} \times \frac{100}{1} = \frac{58}{67} \times \frac{100}{1} = 86.57\%$$

For the year 2021,

$$\begin{aligned} SAPI_{2021} &= \frac{\sum p_{2021i}}{\sum p_{2019i}} \times \frac{100}{1} = \frac{81}{67} \times \frac{100}{1} \\ &= 120.895522388 \approx 121\% \end{aligned}$$

(ii)

Commodities	Year 2019 $p_0$	Year 2020 $p_1$	Year 2021 $p_2$	$\frac{p_1}{p_0}$	$\frac{p_2}{p_0}$
Q	18	10	13	0.56	0.72
R	14	15	15	0.93	1.07
X	8	10	12	1.25	1.50
Y	10	14	20	1.40	2.00
Z	17	11	21	0.65	1.24
				$\sum \left( \frac{p_1}{p_0} \right) = 4.79$	$\sum \left( \frac{p_2}{p_0} \right) = 6.53$

$$\text{But, } SARPI = \frac{\sum \left( \frac{p_{ii}}{p_{0i}} \right) \times 100}{n}$$

Using the year 2019 as the base year, for 2020,

$$SARPI_{2020} = \frac{\sum \left( \frac{p_1}{p_0} \right) \times 100}{n}$$

$$SARPI_{2020} = \frac{4.79 \times 100}{5}$$

$$SARPI_{2020} = 95.8\%$$

Using the year 2019 as the base year, for 2021,

$$SARPI_{2021} = \frac{\sum \left( \frac{p_2}{p_0} \right) \times 100}{n}$$

$$SARPI_{2021} = \frac{6.53 \times 100}{5}$$

$$SARPI_{2021} = 130.6\%$$

(b)

Items	Year 2019		Year 2020		$p_0q_0$	$p_0q_1$	$p_1q_0$	$p_1q_1$
	Unit price ( $p_0$ )	Quantity ( $q_0$ )	Unit price ( $p_1$ )	Quantity ( $q_1$ )				
A	32	35	25	45	1120	1440	875	1125
B	30	45	20	35	1350	1050	900	700
C	20	25	15	25	500	500	375	375
D	25	30	10	20	750	500	300	200
					3720	3490	2450	2400

$$\text{Fisher's Price Index} = \sqrt{\left(\frac{\sum p_1q_0}{\sum p_0q_0}\right) \times \left(\frac{\sum p_1q_1}{\sum p_0q_1}\right)} \times 100$$

where  $\sum p_1q_0 = 2450$ ,  $\sum p_1q_1 = 2400$ ,  $\sum p_0q_0 = 3720$  and  $\sum p_0q_1 = 3490$

Therefore,

$$\text{Fisher's Price Index} = \sqrt{\left(\frac{2450}{3720}\right) \times \left(\frac{2400}{3490}\right)} \times 100$$

$$\text{Fisher's Price Index} = \sqrt{65.86 \times 68.77} \times 100$$

$$= \sqrt{4529.19} \times 100$$

$$= 67.3\% \times 100$$

Accept 67.2% – 67.3%

### Examiner's comment

This question is on Index Numbers in which candidates are expected to calculate the Simple Aggregate Price Index (SAPE), Simple Average of Relative Price Index (SARPI) and the Fisher Ideal Price Index (FIPI) using the specified base years.

About 87% of the candidates attempted the question.

They demonstrated a fairly good understanding of the question though some of them had difficulty in differentiating between SAPI and SARPI.

In the same vein, some of them quoted wrong formula to calculate the Fisher Ideal Price Index.

Generally, the average mark obtained by candidates hovered around 8 marks.



### SOLUTION 3

$$\text{Total supply (TS)} = 10 + 80 + 50 = 140$$

$$\text{Total demand (TD)} = 75 + 20 + 50 = 145$$

This is an unbalanced transportation problem since the TS is not equal to TD. Therefore, it needs to be converted to a balanced transportation problem by creating a dummy row with a capacity of 5 and zero costs.

The solution is as follows:

		Destinations				Row penalties Iteration number					
		D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	Supply	1	2	3	4	5	6
Sources	S <sub>1</sub>	5	1 <b>(10)</b>	7	10	4	4	-	-	-	-
	S <sub>2</sub>	6	4	6	80	2	2	2	2	2	4
	S <sub>3</sub>	<b>(25)</b>	<b>(10)</b>	<b>(45)</b>	50	1	1	1	-	-	-
Dummy	S <sub>4</sub>	<b>(50)</b>	0	0	5	0	-	-	-	-	-
	Demand	75	20	50	145						
Column penalties Iteration number	1	3	1	5							
	2	2	1	1							
	3	3	2	1							
	4	6	4	6							
	5	6	4	-							
	6	-	4	-							

The initial basic feasible total Transportation Cost (TC) is

$$TC = (1 \times 10 + 6 \times 25 + 4 \times 10 + 6 \times 45 + 3 \times 50 + 0 \times 5) \times 10$$

$$TC = \text{N}6,200$$

## Tutorial

### 1<sup>st</sup> Iteration

Destination Sources	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	Supply	Row penalty
S <sub>1</sub>	5	1	7	10	4
S <sub>2</sub>	6	4	6	80	2
S <sub>3</sub>	3	2	5	50	1
Dummy	0	0	0	0	0
	—	—	5	5	
Demand	75	20	50	45	
Column penalty	3	1	5		

### 2<sup>nd</sup> Iteration

Destination Sources	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	Supply	Row penalty
S <sub>1</sub>		10		10	4
S <sub>2</sub>	6	4	6	80	2
S <sub>3</sub>	3	2	5	50	1
Dummy			5	0	
Demand	75	20	10	45	
Column penalty	2	1	1		

3<sup>rd</sup> Iteration

Destination Sources	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	Supply	Row penalty
S <sub>1</sub>		10		0	
S <sub>2</sub>	6	4	6	80	2
S <sub>3</sub>	50			<del>50</del> 0	1
Dummy			5	0	
Demand	<del>25</del> 25	10	45	0	
Column penalty	3	2	1		

4<sup>th</sup> Iteration

Destination Sources	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	Supply	Row penalty
S <sub>1</sub>		10		0	
S <sub>2</sub>	6 25	4	6	<del>80</del> 55	2
S <sub>3</sub>	50			0	
Dummy			5	0	
Demand	<del>25</del> 0	10	45	0	
Column penalty	6	4	6		

5<sup>th</sup> Iteration

Destination Sources	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	Supply	Row penalty
S <sub>1</sub>		10		0	
S <sub>2</sub>	6 25	4	45	<del>45</del> 10	2
S <sub>3</sub>	50			0	
Dummy			5	0	
Demand	0	10	<del>45</del> 0		
Column penalty	6	4			

6<sup>th</sup> Iteration

Destination Sources	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	Supply	Row penalty
S <sub>1</sub>		10		0	
S <sub>2</sub>	25	10	45	<del>10</del> 0	4
S <sub>3</sub>	50			0	
Dummy			5	0	
Demand	0	<del>10</del> 0	0	0	
Column penalty		4			

The initial basic feasible total Transportation Cost (TC) is

$$TC = (1 \times 10 + 6 \times 25 + 4 \times 10 + 6 \times 45 + 3 \times 50 + 0 \times 5) \times 10$$

$$TC = \text{N}6,200$$

### Examiner's comment

Candidates' knowledge of using Vogel's Approximate Method to solve a typical transportation problem is tested in this question.

About 60% of the candidates attempted the question.

The average mark scored by the candidates was between 5 and 7 marks.

The major difficulty of some of the candidates, who attempted the question, was in their inability to set up appropriate Penalty Factors in both Row and Column directions.

### SOLUTION 4

(a) The Economic Order Quantity (EOQ) is

$$EOQ = Q = \sqrt{\frac{2 \times d \times C_o}{h}}$$

$$EOQ = \sqrt{\frac{2 \times 2600 \times 500}{20 \times 0.1}}$$

$$EOQ = 1140.175425$$

$$EOQ = 1,140 \text{ units}$$

(b) Number of orders per annum is

$$N = \frac{\text{Annual demand}}{EOQ}$$

$$N = \frac{d}{EOQ}$$

$$N = \frac{2600}{1140}$$

$$N = 2.28070175$$

$$N \approx 3 \text{ orders per year}$$

(c) The holding cost per annum is

$$C_h = \frac{cd}{Q}$$

$$C_h = \frac{500 \times 2600}{1140}$$

$$C_h = 1140.350877$$

$$C_h \approx 1,140.35$$

(d) The ordering cost per annum is  $\frac{hQ}{2}$

$$= [(0.2 \times 20) \times 1,140] / 2$$

$$= 1,140$$

(e) Total cost per annum = ordering cost per annum + holding cost per annum  
 = 1140.35 + 1400  
 = 2,280.35

(f) The cycle time =  $T = \frac{I}{N} = \frac{52Q}{d}$   
 $= \frac{1}{2.28} = 0.4386$  years  
 $= \frac{52}{2.28} = 22.8$  weeks  
 $= \frac{22.8}{4} = 5.7$  months  
 $= \frac{12}{2.28} = 5.26$  months

**Examiner's comment**

This question, which tests candidates' knowledge of Inventory and Production Control, was attempted by over 57% of the candidates.

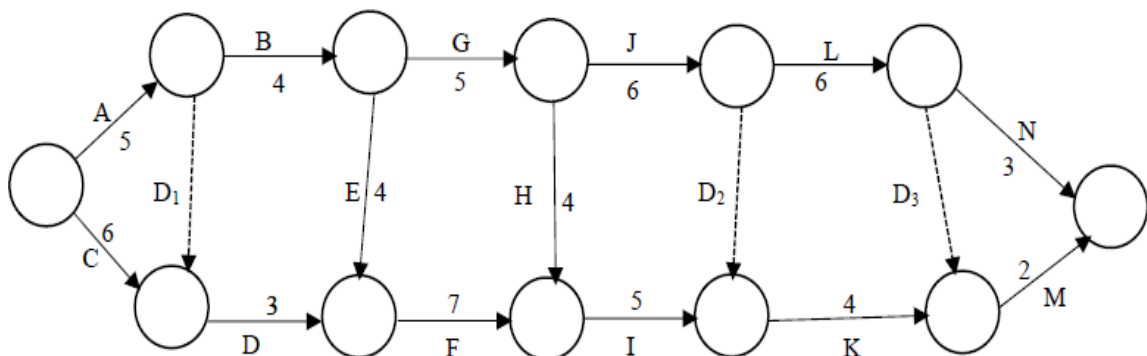
Generally, their performance was poor as about 35% of them obtained marks ranging between zero and 10 marks.

The major pitfall of those candidates who attempted the question arose from the fact that they did not substitute correct values into the given formular.

Some of these candidates confused Holding Cost with Ordering Cost.

**SOLUTION 5**

(i) The Activity-On-Arrow (AOA) network for the project is as shown below:



where D<sub>1</sub>, D<sub>2</sub> and D<sub>3</sub> are the dummies

(ii) List all the paths and calculate their durations.

Paths	Durations (months)
A, B, G, J, L, N	$5 + 4 + 5 + 6 + 6 + 3 = 29$
A, D <sub>1</sub> , D, F, I, K, M	$5 + 0 + 3 + 7 + 5 + 4 + 2 = 26$
C, D, F, I, K, M	$6 + 3 + 7 + 5 + 4 + 2 = 27$
A, B, E, F, I, K, M	$5 + 4 + 4 + 7 + 5 + 4 + 2 = 31$
A, B, G, H, I, K, M	$5 + 4 + 5 + 4 + 5 + 4 + 2 = 29$
A, B, G, J, D <sub>2</sub> , K, M	$5 + 4 + 5 + 6 + 0 + 4 + 2 = 26$
A, B, G, J, L, D <sub>3</sub> , M	$5 + 4 + 5 + 6 + 6 + 0 + 2 = 28$

(iii) The critical path is A, B, E, F, I, K, M with duration of 31 months.

### **Examiner's comment**

This is a Constructing Network Diagram based on Activity - On - Arrow (AOA) project concept.

The candidates are expected to list out all the possible paths together with their durations.

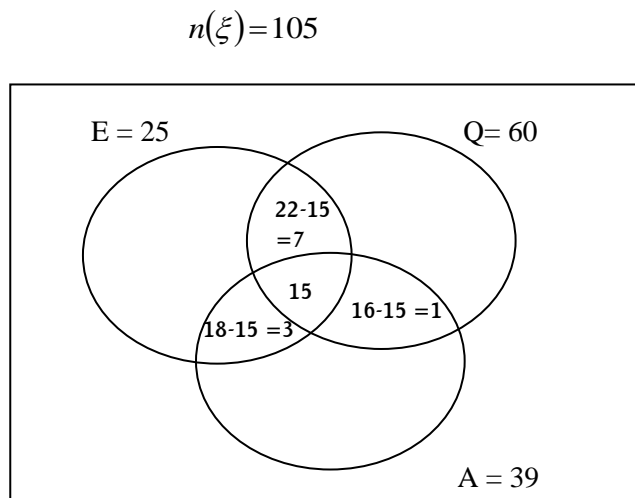
They are also required to identify the Critical Path together with its Duration. About 32% of the candidates attempted the question.

The candidates, who attempted the question, demonstrated a very poor understanding of what is involved in the question. The average mark obtained by the candidates, who attempted the question, was about 3 marks.

The major pitfall of the candidates was the inability of the candidates to introduce appropriate Dummies.

## SOLUTION 6

- (i) The Euler-Venn diagram to display the given information in (a).



- (ii) number of candidates who registered for E and Q only (from the diagram)  
 $= 22 - 15 = 7$   
number of candidates who registered for E and A only (from the diagram)  
 $= 18 - 15 = 3$
- (iii)  $n(\text{E only}) = 25 - (7 + 15 + 3) = 0$   
 $n(\text{Q only}) = 60 - (7 + 15 + 1) = 37$   
 $n(\text{A only}) = 39 - (15 + 3 + 1) = 20$   
 $\text{Total} = 0 + 20 + 37 = 57$
- (iv)  $n(\text{None}) = 105 - (25 + 60 + 39 + 0 + 7 + 37 + 1 + 3 + 20)$   
 $= 105 - 83$   
 $= 22$

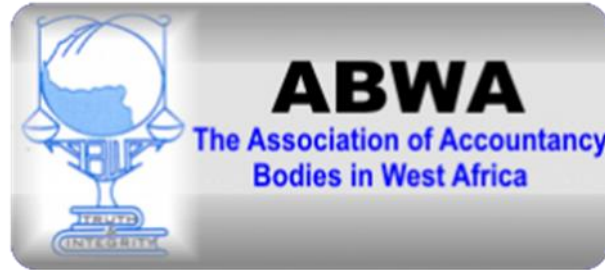
### Examiner's comment

Knowledge of Set Theory is tested in this question.

It is based on Euler-Venn Diagram. About 78% of the candidates attempted this question.

They put up fairly good performance as about 45% of those who attempted the question obtained marks in the range of between 0.5 and 12.5 marks. Their major difficulty was in the interpretation of the data given and their inability to interpret the word "ONLY".



**THE ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA****ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA  
MARCH 2024 EXAMINATIONS (PART II)****INFORMATION TECHNOLOGY**

**PLEASE READ THESE INSTRUCTIONS BEFORE COMMENCEMENT OF THE PAPER**

**EXAMINATION INSTRUCTIONS**

1. All solutions should be in ink. Any solution in pencil will not be marked.
2. Read all instructions on each part of the paper carefully before answering the questions.
3. Ensure that you do not answer more than the number of questions required for **Section B (The Essay Section)**.
4. Check your pockets, purse and mathematical sets, etc to ensure that you do not have prohibited items such as telephone handset, electronic storage device, wrist watches, programmable devices or any form of written material on you in the examination hall. You will be stopped from continuing with the examination and liable to further disciplinary actions including cancellation of examination result if caught.
5. Do not enter the hall with anything written on your docket.
6. Insert your examination number in the space provided above.

**TUESDAY, MARCH 26, 2024**

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**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA  
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA  
PART II EXAMINATIONS – MARCH 2024**

**INFORMATION TECHNOLOGY**

**Time Allowed: 3 hours**

**SECTION A: PART I                      MULTIPLE-CHOICE QUESTIONS                      (30 Marks)**

**ATTEMPT ALL QUESTIONS IN THIS SECTION**

**Write ONLY the alphabet (A, B, C, D or E) that corresponds to the correct option in each of the following questions/statements.**

1. Which of the following is **NOT** an objective of a business organisation?
  - A. Generate a reasonable financial return for shareholders
  - B. Maintain a low market share
  - C. Increase productivity annually
  - D. Acknowledge social responsibilities
  - E. Develop a reputation as a responsible employer
  
2. When Systems are decoupled
  - A. They become too complex to understand
  - B. They become too complex to operate
  - C. They are difficult to administer
  - D. They are more flexible
  - E. They become difficult
  
3. Which of the following is **NOT TRUE** about data?
  - A. Data is raw and unchanged fact
  - B. Data by itself is significant
  - C. Data serves as input into the computer system
  - D. Data is the lowest level of knowledge
  - E. Observation and recording are done to produce data
  
4. Which of the following is **NOT** a benefit of an information system?
  - A. Operational efficiency
  - B. Functional effectiveness
  - C. Better product selection
  - D. Competitive advantage
  - E. Ease of fraud

5. Which of the following is **NOT** a feature of the Fifth Generation of computers?
- A. Development of Artificial Intelligence
  - B. Development of Natural Language Processing
  - C. Advancement in parallel processing
  - D. More user-friendly interfaces with multimedia features
  - E. Storage media is magnetic storage
6. Which of the following is **NOT** a direct input device?
- A. Touch screens
  - B. Light Pens
  - C. Voice Recognition system
  - D. Barcode
  - E. Joystick
7. Keyboard contains the following, **EXCEPT**
- A. Alphabetic keys
  - B. Numeric Keys
  - C. Control Keys
  - D. Function keys
  - E. Leading Keys
8. Which of the following is **NOT** an example of an image input device?
- A. Graphic Tablet
  - B. Image Creator
  - C. Cross hair cursor
  - D. Image Scanner
  - E. Digitising Camera
9. Which of the following is **NOT** an advantage of flat panel display?
- A. They are lightweight
  - B. They are compact
  - C. They provide better resolution than CRT
  - D. They are bulky
  - E. They are modern
10. VGA is an acronym for
- A. Video Graphic Array
  - B. Video Graphic Adapter
  - C. Versatile Graphic Array
  - D. Versatile Graphic Adapter
  - E. Visual Graphic Array

11. Which of the following is **NOT** carried out by the Arithmetic Logic Unit (ALU)?
- A. Repetition
  - B. Movement of data
  - C. Comparison
  - D. Addition and subtraction
  - E. Multiplication and Division
12. Which of the following is **NOT** stored in the primary memory?
- A. Programs that contain instructions that will be used for processing
  - B. Raw facts and figures
  - C. Data that has been read from an input device or a secondary storage device
  - D. Intermediate results
  - E. Output information that is ready to be sent to an output device or a secondary storage device.
13. Which of the following is **NOT** a type of system software?
- A. Operating System
  - B. Editors
  - C. Browsers
  - D. Loaders
  - E. Compilers
14. Which of the following is **NOT** an advantage of interpreters over compilers?
- A. They are fast and easier to use
  - B. It takes longer time for a program to run
  - C. They are cheaper
  - D. They are suitable for interactive work
  - E. They are very useful for small program writing
15. Which of the following is **NOT** an example of an electronic spreadsheet?
- A. Multimate
  - B. Multiplan
  - C. Quattro Pro
  - D. Supercalc
  - E. Excel
16. Which of the following is **NOT** a feature of machine language?
- A. Machine language code is in the form of binary digits represented by zero (0) and one (1)
  - B. An instruction code in machine language consists of an operation code and operand address.
  - C. Machine language is the first-generation language
  - D. It is machine independent
  - E. It is only written by highly skilled programmers

17. Which of the following is **NOT** an advantage of Object Oriented Programming?
- A. It uses graphical interface
  - B. It's not easy to use
  - C. Faster program development
  - D. Enhanced programmer productivity
  - E. Programs produced are more reliable
18. Which of the following is **NOT** a resource used in Office Automation?
- A. Typewriter
  - B. Word Processing
  - C. Desktop Publishing
  - D. Facsimile
  - E. Teleconferencing
19. Which of the following is **NOT** a characteristic of files?
- A. Hit Rate
  - B. Volatility
  - C. Robustness
  - D. Size
  - E. Access time
20. Which of the following is **NOT** a method of storing data on disk?
- A. Serial
  - B. Sequential
  - C. Indexed Sequential
  - D. Random
  - E. Indirect
21. Which of the following is **NOT** a feature of Multiprocessing technique?
- A. If one processor (CPU) fails, the processing system can shift work to the remaining CPU
  - B. The system provides fast throughput for jobs
  - C. It pays particular attention to individual tasks/jobs to give them rapid service.
  - D. Inability to share memory among the CPU
  - E. If a task/job requires more resources than the one available on any of the systems, all the resources can be pooled together to serve only one processor
22. A processing technique in which data is processed from terminals connected to the central processor is called
- A. On-line processing
  - B. Real-time processing
  - C. Batch processing
  - D. Centralized processing
  - E. Distributed processing

23. Which of the following is **NOT** a major role available in an Information Technology (IT) department?
- A. Software engineer
  - B. Software technologist
  - C. System Analyst
  - D. Network engineer
  - E. Technical support
24. Which of the following is **NOT** possible for user on the Computer networks?
- A. Share peripheral devices
  - B. Share programs
  - C. Ability to control the network
  - D. Engage in better communication
  - E. Share data
25. Which of the following is **NOT** a network equipment?
- A. Router
  - B. Switch
  - C. Bridge
  - D. Gateway
  - E. Panel
26. The set of rules and procedures for exchanging information between computers on the network is called
- A. Ethernet
  - B. Internet
  - C. Protocol
  - D. Network
  - E. Intranet
27. SMTP is an acronym for
- A. Simple Mail Transfer Protocol
  - B. Simple Message Transfer Protocol
  - C. Simple Mail Transfer Packet
  - D. Simple Message Transfer Packet
  - E. Simple Message Total Packet
28. The 5th layer of the OSI model is
- A. Physical
  - B. Network
  - C. Session
  - D. Transport
  - E. Application

29. Which of the following is **NOT** a social media platform?
- Facebook
  - Twitter
  - Whatsapp
  - Instagram
  - DOS
30. A Computer crime that uses psychological manipulations to trick users into making security mistakes or divulging confidential information is
- Social engineering
  - Salami Technique
  - Hacking
  - Denial of service attack
  - Masquerading

**SECTION A: PART II**

**SHORT ANSWER QUESTION**

**(20 MARKS)**

**ATTEMPT ALL QUESTIONS**

**Write the correct answer that best completes each of the following questions/statement**

- A combination of interrelated elements organised in such a way to function as a whole is known as .....
- A system that interacts with its environment for the collection of information is known as .....
- A system in which some states or activities can be predicted with varying degrees of probabilities is called .....
- The smallest unit of data in a computer system is .....
- The standard coding form in which each character is coded using 8 bits is known as .....
- The Technology used for 1<sup>st</sup> generation computers is .....
- The physical unit, which is the connection of electronic components of the computer system is .....
- A sequence of instructions written in a particular computer language, that is carried out by the hardware to solve a given problem is called .....
- A hardware device that is designed to transform graphical images such as drawings, photographs, and maps into machine readable form is known as .....
- The collection of programs that manages the Computer Based Information System (CBIS) resources in the wisest manner possible is known as .....

11. A program that translates a source program written in low-level language into machine code is known as .....
12. Software that builds, manages, and provides access to a database is called .....
13. A finite sequence of instructions/procedures to solve a given problem is .....
14. The smallest element in a file that can be alphabetic, numeric or special symbols is .....
15. A department or office that is manned by technically skilled staff that assist the Information System (IS) department staff with regard to user requests and complaints is .....
16. A person who uses a computer or network service without the technical expertise required to fully understand it is called .....
17. A sequence of characters to be entered into a computer system in order to gain access to the system is known as .....
18. The physical materials and nonphysical means used to establish communication through which data is transmitted from one computer/device to another computer/device is called .....
19. A collection of related web pages, including multimedia content, typically identified with a common domain name and published on at least one web server is .....
20. The act of browsing the internet by going from one page to other using hyperlinks is called .....

**SECTION B:**

**ATTEMPT ANY FOUR QUESTIONS**

**(50 MARKS)**

**QUESTION 1**

- a. Define the following with an example each
  - i. Quantitative Information (2 Mark)
  - ii. Qualitative Information (1½ Marks)
- b. Describe briefly **FIVE** benefits of Information system to an organisation. (5 Marks)
- c. Describe briefly **FOUR** challenges of Information system in a business environment (4 Marks)

**(TOTAL 12½ MARKS)**



## QUESTION 2

- a. What is an Output device? (1 Mark)
  - b. Describe **FOUR** features of Impact printers as an output device (4 Marks)
  - c. Identify and explain **FIVE** output devices different from a printer (7½ Marks)
- (Total 12½ Marks)**

## QUESTION 3

- a. Describe briefly an application package? (1 Mark)
  - b. Enumerate **FIVE** advantages of off-the-shelf application package over In-house package (5 Marks)
  - c. Enumerate **FIVE** disadvantages of off-the-shelf application package over In-house packages (5 Marks)
  - d. Enumerate **TWO** differences between System Software and Application Packages (1½ Marks)
- (Total 12½ Marks)**

## QUESTION 4

- a. Explain Realtime data processing with an example. (2½ Mark)
  - b. Enumerate **FIVE** benefits of Realtime data processing to an organisation (5 Marks)
  - c. Enumerate **FIVE** challenges of Realtime data processing to a business environment (5 Marks)
- (Total 12½ Marks)**

## QUESTION 5

- a. What is a Computer Network? (1 Mark)
  - b. What is cloud computing? (2½ Marks)
  - c. List and describe briefly **THREE** technologies deployed in cloud computing (9 Marks)
- (Total 12½ Marks)**

## QUESTION 6

- a. What is safety and security in a workplace? (1 Mark)
  - b. List and describe **THREE** health issues that can happen to a user of computer in a workplace. (9 Marks)
  - c. List **FIVE** basic steps/techniques involved in Forensics Processes (2½ Marks)
- (Total 12½ Marks)**

## **SECTION A: PART I**

### **MULTIPLE-CHOICE SOLUTIONS**

1. B
2. D
3. B
4. E
5. E
6. D
7. E
8. B
9. D
10. A
11. A
12. B
13. C
14. B
15. A
16. D
17. B
18. A
19. C
20. E
21. D
22. A
23. B
24. C
25. E
26. C
27. A
28. C
29. E
30. E

#### **Examiner's comment**

This section contains thirty (30) multiple choice questions which cover the entire syllabus. All the questions are compulsory.

The candidates are very familiar with the questions and the performance is very good as over 80% of the candidates scored over 70% of the allotted marks.

## **SECTION A: PART II**

### **SHORT-ANSWER SOLUTIONS**

1. System
2. Open system
3. Probabilistic or stochastic system
4. Binary digit (Bit)
5. EBCDIC – Extended Binary Coded Decimal Instruction Code
6. Vacuum tube
7. Hardware
8. Program
9. Scanner/Image input device
10. Operating System (OS)
11. Assembler
12. Database Management System (DBMS)
13. Algorithm
14. Character
15. Information centre or Help desk
16. End user/User
17. Personal Identification Number (PIN)/ Password
18. Channel/transmission media/communication media
19. Website
20. Web surfing/surfing

### **Examiner's comment**

This section contains twenty (20) short answer questions which cover the whole syllabus. All the questions are compulsory and the solutions are one word answer each. The performance was poor as less than 40% of the students scored below 35% of the allotted marks.

This section demands for the exact meaning of concepts and the definitions of some key terms in INFORMATION TECHNOLOGY.

Students are advised to be more familiar with the definitions of terms in Information Technology.

Students should use standard Textbooks and in particular the ICAN INSIGHT for future examinations.

## **SECTION B**

### **SOLUTION 1**

#### **a.i. Quantitative Information**

This deals with the magnitude of variables, their variabilities or absolute values.

**Examples of Quantitative information include:**

- i. Annual sales of Production in a Company
- ii. Variation in the wages of staff in an organisation
- iii. Number of people who log in within a specified period by checking the system log
- iv. Number of employee work report for work through the use of clocking machine
- v. Prices of goods
- vi. Number of hours worked on a production line
- vii. Number of people who download a particular application from the App Store.

#### **ii. Qualitative Information:**

This is an information that is related to the attributes of an entity in respect of quality factors. This type of information is not exact in nature but it is very useful for comparative measurement.

**Examples of qualitative information include:**

- i. Notes taken during a focus group on the quality of the food at Cafe
- ii. Responses from an open-ended questionnaire
- iii. Standard of finished product in respect of paintwork
- iv. Variation of tolerances of manufactured equipment
- v. Colours of items
- vi. Human emotions.

#### **b. Information systems provide numerous benefits to organizations including:**

##### **1. Improved decision-making:**

Information systems provide timely and accurate data that can be used by managers to make informed decisions, leading to better outcomes for the organisation.

##### **2. Increased efficiency:**

Automation of tasks and processes through information systems can streamline operations, reduce manual errors, and save time and resources.

##### **3. Enhanced communication:**

Information systems facilitate communication and collaboration among employees, departments, and even external stakeholders, leading to better coordination and teamwork.

4. **Better customer service:**  
Information systems enable organizations to track customer interactions, preferences, and feedback, allowing them to tailor products and services to meet customer needs more effectively.
5. **Competitive advantage:**  
Organizations that effectively leverage information systems can gain a competitive edge by innovating faster, responding to market changes more swiftly, and delivering superior products and services.
6. **Data analysis and insights:**  
Information systems help organizations collect, store, and analyze large volumes of data, enabling them to identify trends, patterns, and opportunities for improvement.
7. **Risk management:**  
Information systems can help organizations identify and mitigate risks by providing real-time monitoring, compliance tracking, and predictive analytics.
8. **Cost savings:**  
By streamlining processes, reducing errors, and optimizing resource allocation, information systems can help organizations lower operational costs and improve profitability.

c. **Challenges of information system include:**

1. Loss of valuable data due to virus infection, end users mistakes or deliberate action by the user.
2. Users activities will be system dependent, therefore if the system breaks down activities of the user will be affected.
3. Unauthorised access due to hacking or eavesdropping to enhance the fraudulent activities of fraudsters.
4. GIGO phenomenon (Garbage-in Garbage-out) which means whatever you feed into a system will be processed by the system. Therefore, if wrong data is fed into the system wrong information will be produced.
5. Users may be prone to some health hazard such as eye strain, finger strain, wrist pain and general tiredness.
6. Information produced and not well understood or explained can lead to wrong use.
7. It can lead to staff redundancy.
8. The use of information system requires some level of computer literacy.
9. High cost of acquisition.
10. High cost of maintenance.

## **Examiner's comment**

This question tests the knowledge of the candidates on the types of information, viz Quantitative and Qualitative information. It also demands for the benefits and constraints of information systems to an organisation.

Around 95% of the candidates attempted this question and the performance is excellent as over 65% of the candidates scored above 50% of the allotted marks.

Information systems is central to the syllabus and more students are advised to pay more attention.

## **SOLUTION 2**

a. Output devices are devices that bring out computer output or information from the central processing unit to the outside world such as monitor, printer or speaker.

b. **Features of impact printer as an output device include:**

- i. There is physical contact with the paper to produce an image
- ii. It makes noise when printing
- iii. It cannot print a page at a time
- iv. It does not have good quality print out
- v. It is very slow
- vi. It uses ink ribbon so multiple copies can be produced

c. **Examples of output devices include:**

1. Monitor or Visual Display Unit
2. Computer Output on Micro form (COM)
3. Voice response (Audio response unit)
4. Graph Plotter
5. Speaker
6. Projector
7. Headphone

1. **MONITOR:**

This is a device that displays computer output on its screen (sometimes in colours) in the form of text, graph, diagram or picture. The Visual Display Unit output is called softcopy output and is only suitable for data of temporary use.

2. **COMPUTER OUTPUT ON MICROFORM (COM)**

**Computer Output on Microform** is a form of computer output whereby the output is projected onto a cathode ray tube and photographed into a very much reduced form i.e. into a microform. Microform is readable but it requires a magnifying reading device or photographic development before it can be viewed.

3. **VOICE RESPONSE (AUDIO RESPONSE UNIT):**  
A voice response system is also known as an audio response unit or a voice answer back machine and is one of the least familiar peripherals. It has a restricted vocabulary of fixed words that are produced as audio output to sound like a human voice.
4. **GRAPH PLOTTER:**  
This is a device used for the output of graphical information on large and small computers. The most common type is the drum plotter. Continuous paper lies over the surface of the drum with the pen in a cradle that will move auxiliary with respect to the drum.
5. **SPEAKERS:** It is an output device that produces sound from the computer.
6. **PROJECTOR:** It magnifies computer output on screen so that it can be viewed by a group of people.
7. **HEADPHONE:** Its work is similar to a speaker that produces audio from the computer and it is worn on the head and which will also cover the ears.

### **Examiner's comment**

This question tests the candidates' understanding of the input and output systems of the computer. It demands for the features of these systems.

This question is very popular among the candidates as over 85% of the candidates attempted the question and the performance is excellent as over 60% of the candidates score above 50% of the allocated marks.

Input and output systems are also very central in the syllabus, so students are advised to pay more attention.

### **SOLUTION 3**

#### **a. Application package**

Application packages is a software that consists of programs which are written to solve specific user's problems. It consists of programs which direct the computer system to solve specific data processing activities required for the solution of business and other problems of the computer user.

#### **b. ADVANTAGES OF OFF THE SHELF APPLICATION PACKAGES OVER IN-HOUSE PACKAGES INCLUDE:**

##### **1. Cost-effectiveness:**

Off-the-shelf applications are often less expensive than custom-developed software since the development costs are spread across multiple users. This makes them an attractive option for small and medium-sized businesses with limited budgets.

2. **Quick implementation:**  
Since off-the-shelf applications are pre-built and ready to use, they can be implemented much faster than custom solutions. This allows businesses to start using the software sooner and realize benefits more quickly.
3. **Proven reliability:**  
Off-the-shelf applications are typically thoroughly tested and used by a large number of customers, which means they are likely to be more reliable and stable than custom-developed software.
4. **Regular updates and support:**  
Most off-the-shelf software vendors provide regular updates, patches, and technical support to address bugs, security vulnerabilities, and compatibility issues. This ensures that the software remains up-to-date and continues to meet the needs of the business.
5. **Scalability:**  
Off-the-shelf applications are often designed to scale with the needs of the business, allowing users to easily add additional features or licenses as their requirements grow.
6. **Lower maintenance overhead:**  
Since off-the-shelf applications are maintained by the software vendor, businesses do not need to allocate resources to develop, test, and maintain the software themselves. This reduces the ongoing maintenance overhead and allows businesses to focus on their core activities.
7. **Access to advanced features:**  
Off-the-shelf applications often include a wide range of features and functionalities that would be costly and time-consuming to develop in-house. This allows businesses to access advanced capabilities without investing significant time and resources.
8. **Reduced risk:**  
By choosing a well-established off-the-shelf application with a proven track record, businesses can mitigate the risks associated with custom software development, such as project delays, cost overruns, and quality issues.



**c. DISADVANTAGES OF OFF THE SHELF APPLICATION PACKAGES OVER IN HOUSE PACKAGES INCLUDE:**

**1. Limited customisation:**

Off-the-shelf applications are designed to meet the needs of a broad range of users, which means they may not fully align with the specific requirements or workflows of a particular business. Customisation options are often limited, making it difficult to tailor the software to fit unique business processes.

**2. Dependency on vendor:**

Businesses using off-the-shelf software are dependent on the vendor for updates, support, and maintenance. If the vendor discontinues support for the product or goes out of business, it can leave the business vulnerable to security risks, compatibility issues, and lack of updates.

**3. Potential for feature bloat:**

Off-the-shelf applications may include features and functionalities that are not relevant to the business, leading to unnecessary complexity and confusion for users. This can impact usability and productivity if users have to navigate through irrelevant features to find what they need.

**4. Lack of control over updates:**

While regular updates can improve security and add new features, they can also introduce bugs, compatibility issues, or changes in functionality that disrupt workflows. Businesses may have limited control over when updates are applied or may need to test updates thoroughly before deploying them.

**5. Security concerns:**

Off-the-shelf applications are used by a large number of customers, making them attractive targets for hackers and cybercriminals. Security vulnerabilities discovered in the software can put businesses at risk of data breaches, malware infections, and other security incidents.

**6. Integration challenges:**

Off-the-shelf applications may not seamlessly integrate with existing systems or third-party software used by the business. This can result in data silos, duplicate data entry, and inefficiencies in workflows.

**7. License costs:**

While off-the-shelf software is generally less expensive than custom development, businesses still need to purchase licenses for each user or device. As the number of users grows or additional features are needed, license costs can become significant over time.

**8. Vendor lock-in:**

Once a business has invested time and resources into implementing an off-the-shelf application, switching to a different solution can be costly and disruptive. Businesses may feel locked into the software vendor's ecosystem, limiting their flexibility and ability to adapt to changing needs.

d. Differences between system software and application software include:

S/N	SYSTEM SOFTWARE	APPLICATION SOFTWARE
1	It is a software that manages and controlsthe hardware and provides a platform for running applications	It is a software developed to solve users specific problems
2	It includes operating systems, device drivers, utility programs, and middleware	It includes word processing software, spreadsheet software, desktop publishing software etc
3	It interacts directly with the hardware and provides essential services such as memory management, file management, process management, and security.	It does not directly manage hardware or provide core services to the computer system; instead, they utilize the services provided by the underlying operating system.
4	It runs in the background and is essential for the operation of the computer systemitself.	They are designed to be user-friendly and provide interfaces that allow users to interact with and manipulate data.

### Examiner's comment

This question tests the students' understanding of the computer software. It demands for the differences between the system software and the application packages. It also demands for the advantages of the off-the-self packages over the in-house packages.

This question is very popular among the candidates as over 70% of the candidates attempted this question and the performance is very encouraging as over 50% of the candidates score above 50% of the allotted mark.

Computer software is very central in the syllabus and students are advised to take it seriously.

### SOLUTION 4

#### a. Real-time Processing

In realtime processing, data are captured electronically, edits for accuracy and completeness, process it instantly and produces result. Output from realtime processing is generated immediately so that it can be used to influence the current activities.

**Examples of realtime processing include:**

- i. Reservation of hotel booking
- ii. Cash withdrawal from automated teller machine
- iii. Mobile money transfer
- iv. Booking and reservation of airline ticket
- v. Space exploration

**ii. Benefits of realtime processing include:**

- i. Result is made available immediately
- ii. It enhances paperless transaction
- iii. In realtime processing, several databases can be updated concurrently
- iv. It enables users to see the cumulative effect of all transactions for decision making
- v. It avoid costly and time consuming data preparation and control
- vi. It is interactive
- vii. It enhances quick decision making due to immediate result from the system

**iii. Challenges of realtime processing include:**

- i. It is very complex to design and implement
- ii. Processing activities will be network dependent
- iii. It is prone to security challenges such as hacking and eavesdropping
- iv. There is no enough time to adequately check input data for error
- v. Organisation with critical realtime applications have to pay a high cost premium forthe security of fault tolerant computer system
- vi. It is expensive to implement
- vii. Users may be prone to some ergonomic risk factors such as eye strain
- viii. Implementation of realtime processing requires a lot of expertise

**Examiner's comment**

This question tests candidates' knowledge on processing techniques. It demands for the benefits and demerits of the Real-time processing technique in an organisation.

Over 60% of the candidates attempted this question but the performance is just average as less than 45% of the candidates score below 50% of the allotted mark.

The major pitfall is that majority of the students confused or misinterpreted On-line processing for Real-time processing. It is true that Real-time is On-line but not all On-line are Real-time.

Most critical activities are now Real-time, so students must pay more attention to distinctions between Real-time and Ordinary On-line processing.

All processing techniques are important, and students should pay more attention.

## **SOLUTION 5**

### **a. Computer Network**

A computer network is a collection of computers and other devices interconnected by communication channels that allow them to share resources, exchange data, and communicate with each other.

### **b. Cloud Computing**

Cloud computing is an internet-based computing whereby shared resources, software and information are provided to computers and other devices on-demand, like a public utility. It allows consumers and business to use applications without installation and access their personal files at any computer with internet access. This technology allows for much more efficient computing by centralised storage, memory, processing and bandwidth.

### **c. Technologies used in Cloud Computing include:**

- i. Infrastructure – as – a – service (IaaS)
  - ii. Platform-as-a-service (PaaS)
  - iii. Software-as-a-Service (SaaS)
- 
- i. **Software-as-a-Service (SaaS)** - In the past, the end-user would generally purchase a license from the software provider and then install and run the software directly from on-premise servers. Using on-demand service, the end-user pays the software a subscription fee for the service. The software is hosted directly from the software provider servers and is accessed by the end-user over the internet. Some of the companies that offers SaaS business include: Sales force.com, Google, NetSuite, Info Technologies, Canada software.net.
  - ii. **Platform as-a-Service (PaaS)** – The platform segment of cloud computing refers to products that are used to deploy applications. Platforms serves as an interface for users to access applications provided by partners or in some cases the customers. Examples of platforms are salesforce.com platform, NetSuite, Amazon, Google, Sun Oracle, Microsoft etc.
  - iii. **Infrastructure-as-a-Service (IaaS)** – This is the backbone of the entire concept where the vendors provide the physical storage space and processing capabilities that allow for all the services described above. Major infrastructure vendors are:
    - i. Google – managed hosting, development environment
    - ii. International Business Machine (IBM) – managed hosting
    - iii. Terremark – managed hosting
    - iv. Amazon.com – cloud storage
    - v. Rackspace Hosting – manages hosting and cloud computing

## **Examiner's comment**

This question tests the candidates' understanding of Network computing particularly Cloud computing.

It also demands for the various technologies deployed in Cloud Computing.

This topic is just evolving, and students are yet to have a complete grip. It is not popular among the students. The performance is not encouraging as over 40% of the candidates score less than 25% of the allotted mark.

Students need to read more on this topic. Consult ICAN INSIGHT for more details.

## **SOLUTION 6**

### **a. Safety and security in workplace:**

This is a set of measures put in place to protect an employee from work related illness and injury and to make the workplace safe, secure and conducive for employees. Safe and secure working environment can be provided by using thorough security system including access control systems, CCTVs (Closed Circuit Televisions), keycards, clean environment, emergency exits, training the employees about security procedures, constant improvement of the system as well as using security guards to physically guard the entire work place.

### **b. Health issues that can happen to a user of a computer in a work place include:**

- i. Eye strain
- ii. Back pain
- iii. Finger strain and wrist pain
- iv. Repetitive Stress Injury (RSI)
- v. Obesity
- vi. Stress and mental health issue
- vii. Electromagnetic radiation exposure

#### **i. Eye strain:**

Focusing eyes at the same distance point for long periods of time causes eye problem. The human eye structurally prefers to look at objects more than six metres away, so any work performed close up puts extra demands on the eye muscles.

The illuminated computer screen can also cause eye fatigue therefore, computer users may get symptoms such as blurred vision, temporary inability to focus on faraway objects and headaches.

#### **ii. Back pain:**

Improper use of furniture and use of chair without back rest can cause back pain which may result to miscarriage in pregnant women. User must constitute the habit of using proper furniture with back rest.

- iii. **Finger strain and wrist pain:**  
Improper positioning of keyboard and using inability to rest the wrist on the table when using the keyboard may lead to finger strain as well as wrist pain.
  - iv. **Repetitive Stress Injury (RSI):**  
This consists of wrist, hand, arm and neck injury resulting when muscle are forced through fast and repetitive motion. Repetitive stress injury can as well lead to damage to the nerves and tendons in the hands.
  - v. **Obesity**  
This is state of being grossly fat or overweight due to prolong sitting when using the computer system. Prolong use of the system will prevent the user from doing regular exercise which may lead to obesity. To prevent this, regular exercise is required to burn the excess fat.
  - vi. **Stress and Mental Health Issues**  
Excessive use of computers and digital devices, along with constant connectivity and information overload, can contribute to stress, anxiety, and mental health issues such as depression and burnout. Taking regular breaks, practicing stress management techniques, and setting boundaries for technology use can help mitigate these issues.
  - vii. **Electromagnetic Radiation Exposure**  
Some people are concerned about potential health risks associated with prolonged exposure to electromagnetic radiation emitted by computers and electronic devices. While research on this topic is ongoing, there is currently no conclusive evidence linking computer use to adverse health effects from electromagnetic radiation.
- c. **The following are basic steps involved in forensic processes:**
- i. Preparation of investigator's data
  - ii. Collection of the data
  - iii. Examination of data
  - iv. Analysis of data
  - v. Reporting

### **Examiner's comment**

This question tests students' knowledge on the safety and security in a workplace. It also demands for the basic steps involved in Forensic processes.

This is a familiar topic among the students. Any computer user is familiar with this topic. Over 75% of the candidates attempted this question and the performance is encouraging as over 60% of the candidates score over 50% of the allotted mark.