

EXAMINERS GENERAL COMMENTS

BREACH OF EXAMINATION INSTRUCTIONS

IN SPITE OF THE EXAMINERS' GENERAL COMMENTS IN PREVIOUS EDITIONS OF THE "INSIGHT", IT WAS OBSERVED THAT A NUMBER OF CANDIDATES HAVE CONTINUED TO BREACH EXAMINATION INSTRUCTIONS AS STATED BELOW:

- A) BY ATTEMPTING MORE QUESTIONS THAN ALLOWED IN EACH PAPER; AND

- B) BY ATTEMPTING MORE QUESTIONS THAN ALLOWED IN EACH SECTION.

INADEQUATE COVERAGE OF THE SYLLABUS

IT HAS BECOME OBVIOUS THAT MANY CANDIDATES DO NOT COVER THE SYLLABUS IN DEPTH BEFORE PRESENTING THEMSELVES FOR THE EXAMINATION. CANDIDATES ARE THEREFORE ADVISED TO BE ADEQUATELY CONVERSANT WITH ALL ASPECTS OF THE SYLLABUS.

INSIGHT

FOREWORD

This issue of **INSIGHT** is published principally, in response to a growing demand, as an aid to:

- (i) Candidates preparing to write future examinations of the Institute of Chartered Accountants of Nigeria (ICAN) at an equivalent level;
- (ii) Unsuccessful candidates in the identification of those areas in which they lost marks with a view to improving their knowledge and presentation in subsequent examinations;
- (iii) Lecturers and students interested in acquisition of knowledge in the relevant subject contained therein; and
- (iv) The profession in a bid to improving pre-examination and screening processes.

The answers provided in this book do not exhaust all possible alternative approaches to solving the questions. Efforts have been made to use methods, which will save much of the scarce examination time.

It is hoped that the suggested answers will prove to be of tremendous assistance to students and those who assist them in their preparations for the Institute's Examinations.

NOTE

Although these suggested solutions have been published under the Institute's name, they do not represent the views of the Council of the Institute. They are entirely the responsibility of their authors and the Institute will not enter into any correspondence about them.

INSIGHT

CONTENTS	PAGE
PRINCIPLES AND PRACTICE OF FINANCIAL ACCOUNTING	4 - 29
PUBLIC SECTOR ACCOUNTING	30 - 56
INFORMATION TECHNOLOGY	57 - 78
QUANTITATIVE ANALYSIS	79 - 108

INSIGHT

**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2017**

PRINCIPLES AND PRACTICE OF 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 effect of discount received wrongly added to discount allowed in the statement of profit or loss
 - A. Increases the opening inventory
 - B. Increases the closing inventory
 - C. Increases the profit
 - D. Decreases the profit
 - E. Increases the purchases

2. The uses of Control Account include the following **EXCEPT**
 - A. It aids the location of errors
 - B. It provides a quick check of what is owed to trade payables
 - C. It acts as an internal check on ledger clerk
 - D. Management control is aided as a result of speed at which information is obtained
 - E. It enhances the postings of small expenses into the main ledger

3. The final accounts of a not-for-profit organisation is made up of
 - A. Subscriptions Account and Income and Expenditure Accounts
 - B. Subscriptions Account and Statement of Financial Position
 - C. Statement of Operation of Activities, Income and Expenditure Accounts and Statement of Financial Position
 - D. Receipts and Payments Accounts and Income and Expenditure Account
 - E. Subscriptions Account and Receipts and Payments Accounts

4. Sales ledger control account contains the total amount in respect of
 - A. Trade payables
 - B. Trade receivables

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- C. Investors
 - D. Prepayments
 - E. Shareholders
5. The starting point for the preparation of final accounts from incomplete records is to
- A. Ascertain the total sales
 - B. Compute the cost of goods sold
 - C. Verify the total purchases
 - D. Prepare list of trade payables
 - E. Prepare an opening statement of affairs
6. A credit balance on a receipts and payments account indicates that a not-for-profit organisation
- A. Had more revenues than expenses during the period
 - B. Did not owe much liabilities during the period
 - C. Received more cash than it paid out during the period
 - D. Made more cash payments than it received during the period
 - E. Had more total expenses than total revenue during the period
7. What is the entry in Royalty Account where actual production exceeds the minimum rent and the contract allows for recoupment of past short workings?
- A. Dr. Landlord's Account Cr. Short workings recoverable account
 - B. Dr. Landlord's Account Cr. Royalties payable account
 - C. Dr. Short workings recoverable account Cr. Landlord's account
 - D. Dr. Short workings recoverable account Cr. Royalties payable account
 - E. Dr. Royalties payable account Cr. Royalties recoverable account
8. The following costs can be specifically charged to the customer on the basis of the terms of contract cost **EXCEPT**
- A. Materials used in construction
 - B. Depreciation of plant and equipment used in construction
 - C. Selling and marketing costs
 - D. Labour cost, including supervision costs
 - E. Cost of moving materials to the contract site
9. A joint venture differs from partnership in that
- A. Joint ventures are usually for a limited period
 - B. No prior agreements are required to form joint ventures
 - C. Joint ventures are formed to deal in short term operations

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- D. Co-venturers do not contribute capital
 - E. Joint ventures are carried on indefinitely
10. When the head office sends goods to a branch at cost plus mark-up, unrealised profit would arise on
- i. Cash in transit
 - ii. Goods sent to branch
 - iii. Goods returned by customer to head office
 - iv. Closing inventory
- A. i and ii
 - B. i and iii
 - C. ii and iv
 - D. iii and iv
 - E. ii and iii
11. In accounting for leases, the following minimum disclosures are required in the financial statements **EXCEPT**
- A. The net carrying value for each financial asset at reporting date
 - B. General description of lessee's materials leasing agreements
 - C. Contingent rents
 - D. Reconciliation between the total of the minimum lease payments and their present value
 - E. The number of labour engaged during operation
12. Which of the following will be included in the statement of cash flow from operating activities using the direct method?
- i. Cash sales
 - ii. Depreciation charged
 - iii. Loss on sale of property
 - iv. Payment to suppliers
- A. i and ii
 - B. ii and iii
 - C. iii and iv
 - D. i and iv
 - E. ii and iv
13. Koler Limited operates on a gross profit margin of $33\frac{1}{3}\%$. Gross profit on sale was L\$8,000 and expenses were L\$6,800. The net profit percentage is

INSIGHT

- A. 22.67%
 - B. 18.5%
 - C. 11.25%
 - D. 5.00%
 - E. 3.75%
14. When the ordinary shares of a company are over-subscribed, this means that
- A. The shares were issued at a bonus
 - B. The number of shares applied for is more than the number of shares issued
 - C. Nominal value of the shares is more than the market value
 - D. The share premium of the company is very high
 - E. Ordinary and preference shareholders applied for the shares
15. When cash is received on application by a company issuing shares, the double entry required in the record of the company is
- A. Dr. Share Capital Account Cr. Share Application Account
 - B. Dr. Cash Cr. Share Capital Account
 - C. Dr. Cash Cr. Share Application Account
 - D. Dr. Cash Cr. Shares
 - E. Dr. Cash Cr. Share Allotment Account
16. Which of the following is **NOT** an example of preliminary expenses?
- A. Legal cost of incorporating a company
 - B. Registration fee paid at Company/Business Registry for share capital
 - C. Stamp duty paid on the issue of share capital
 - D. Repairs and maintenance of plant and machinery
 - E. Sitting allowance paid to promoters of company
17. Interest received by a company from another entity should be treated in its statement of cash flow as
- A. Closing cash equivalent
 - B. Investing activities
 - C. Financing activities
 - D. Cash and cash equivalent
 - E. Non cash transactions
18. Which of the following would increase profit to be shared by partners?
- A. Interest on partner's loan

INSIGHT

- B. Interest on capital
 - C. Partner's salary
 - D. Interest on drawings
 - E. Partner's commission
19. In which of the following situations may partners' current accounts **NOT** be transferred to their capital accounts?
- A. Admission of a new partner
 - B. Retirement of a partner
 - C. Amalgamation of partnership
 - D. Dissolution of partnership
 - E. Conversion of partnership to limited liability company
20. Razak, Fatimat and Suleiman are in partnership sharing profit or loss in the ratio 7:5:2, Razak and Fatimat guaranteed Suleiman a minimum share of distributable profit of ₦8,000,000 every year. How much profit would Razak earn when the distributable profit is ₦63,000,000?
- A. ₦35,500,000
 - B. ₦31,500,000
 - C. ₦27,500,000
 - D. ₦23,500,000
 - E. ₦17,500,000
21. If a partner takes over an asset of the firm, his capital account is
- A. Debited with the carrying amount
 - B. Debited with the market value of the asset
 - C. Debited with the agreed amount for the asset
 - D. Debited with the difference between the market value and the carrying amount
 - E. Debited with the difference between amount for the asset and the market value
22. Which of the following is **NOT** involved in the steps necessary to account for dissolution of partnership?
- A. Debit all assets excluding cash to realisation account
 - B. Debit the realisation account with all relevant expenses related to the dissolution
 - C. Debit cash with proceeds from sale of assets
 - D. Credit realisation account with the agreed price of assets taken over by a partner

INSIGHT

- E. Recognise all assets in the statement of financial position at sales proceeds.
23. Purchase consideration when a partnership is converted to limited liability company may comprise of the following to the partners:
- i. Cash
 - ii. Issue of shares
 - iii. Issue of debentures
- A. i and ii
 - B. ii and iii
 - C. i and iii
 - D. i, ii and iii
 - E. ii
24. Property, plant and equipment have the following features **EXCEPT**
- A. They have useful life of more than one year
 - B. They are non-current assets
 - C. The entity has no control over the use of the assets
 - D. Benefits from its use flow to the organisation
 - E. They are used for production of goods or services or for rental
25. Which of the following is **NOT** a component of financial statements under IAS 1?
- A. Statement of cash flows
 - B. Statement of financial position
 - C. Statement of comprehensive income
 - D. Statement of affairs
 - E. Statement of changes in equity
26. Which of the following is **NOT** a qualitative characteristic of financial statements according to IASB framework?
- A. Relevance
 - B. Reliability
 - C. Materiality
 - D. Understandability
 - E. Comparability

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27. A statement of affairs may include only
- A. Assets, liabilities and expenses
 - B. Expenses, profits, assets and liabilities
 - C. Net income, expenses and assets
 - D. Accrued expenses, assets, liabilities and outstanding revenues
 - E. Expenses, assets, accrued revenues and liabilities.
28. If cost price is GH¢240,000 and selling price is GH¢300,000, then
- A. Mark-up is $33\frac{1}{3}\%$
 - B. Margin is $33\frac{1}{3}\%$
 - C. Margin is 20%
 - D. Mark-up is 20%
 - E. Mark-up is 8%
29. In which ledgers can data relating to discount be found?
- A. Cash book
 - B. Private ledger
 - C. Sales ledger
 - D. Nominal ledger
 - E. Public ledger
30. In computing a claim for loss of inventory, following a fire incident, these procedures are normally followed **EXCEPT**
- A. Calculate the gross profit percentage of the previous accounting period
 - B. Prepare a trading account for the period of the fire inserting the opening inventory, purchases and sales made during the period
 - C. Apply the gross profit percentage made in (A & B) above to the period of the incident to get the cost of sales
 - D. Calculate the plant and machinery purchased
 - E. The inventory lost is equal to the amount obtained by this formula (Inventory lost = opening inventory + purchases - cost of sales)

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

ATTEMPT ALL QUESTIONS IN THIS SECTION

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

1. In the final accounts of not-for-profit organisation, revenue expenditure are recorded in
2. A credit note for ₦7,200 issued to a debtor was entered in the returns inwards book for ₦2,700 and was posted to the ledger accordingly. State the necessary journal entries to correct the above error.
3. A debtor who owed a sum of L\$4,200 died without leaving anything behind to settle the debt owed. This amount was written off his account as bad debt but no other entry was made in the books. State the necessary journal entries to effect the above stated scenario.
4. The main use of Suspense Account is
5. The annual or a periodic minimum sum payable by the lessee of a mine to the lessor is called
6. Costs that relate to aspects of a contract which are not immediately certifiable is called
7. Amina and Florence formed a joint venture to buy and sell second hand clothing. Florence financed Amina by sending her a cheque for Le2 million. Show the accounting entry in the books of Florence.
8. In Branch accounts, branches that keep a separate account of their own operations are described as branches.
9. The retained earnings or undistributed profit of the business which are retained in the business for further expansion is called
10. In preparing statement of cash flows, the activities of the entity that relates to acquisition and disposal of non-current assets, long-term investments and investments property is classified as
11. State the formula for acid test ratio.

INSIGHT

12. The issue of shares to existing shareholders at a price which is lower than the market price is called
13. At the initial recognition of an item of Property, Plant and Equipment, it should be measured using the model or revaluation model.
14. Which of the qualitative characteristics of useful financial information is closely related to materiality?
15. The Depreciable amount of an asset is the cost of the asset less its
16. All payments for goods purchased should be debited to the account in the purchase ledger account.
17. If a partner is insolvent, on dissolution, his deficiency should be borne by the solvent partners in the ratio of their
18. State the double entry for a partnership general expenses settled personally by one of the partners.
19. When a partner has overdrawn his earnings in a partnership, the partner's current account will have a balance.
20. Ade and Appiah are in partnership sharing profit or loss in ratio 4:1. Ade guaranteed Appiah a minimum share of profit of GH¢560,000. Calculate the share of profit of Ade when profit available for distribution was GH¢3,400,000.

**SECTION B: ATTEMPT ANY FOUR QUESTIONS
(50 Marks)**

QUESTION 1

The following trial balance was extracted from the ledger of ELERE NIGERIA LIMITED as at 31 December 2016

	₦'000	₦'000
10% preference share capital		15,000
Ordinary share capital		30,000
Share premium		9,000
9% Loan notes		18,000
General reserve		13,920

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	N'000	N'000
Retained earnings, 1 January 2016		4,590
Plant & Machinery at cost	66,000	
Motor vehicle at cost	19,500	
Accumulated depreciation – Plant & Machinery		7,200
Accumulated depreciation – Motor vehicle		5,400
Furniture & fittings	7,200	
Accumulated depreciation – Furniture & fittings		1,680
Inventories, 1 January 2016	8,040	
Accounts receivable	72,600	
Bills receivable	8,502	
Accounts payable		54,630
Cash in hand and at Bank	25,860	
Revenue (Net)		224,640
Purchases (Net)	138,480	
Carriage inwards	4,860	
Salaries & Wages	16,980	
Rent & Rates	6,480	
Insurance	2,610	
Office expenses	5,490	
Bad debt	318	
Electricity & Water	516	
Interest income		150
Motor running expenses	774	
	384,210	384,210

The following additional information are provided:

- i. Allowance is to be made for depreciation on the non-current assets at the following rates:

Plant & Machinery	15%
Motor vehicle	20%
Furniture & Fittings	10%

- ii. The following payments were made in advance:

Rent	N1,680,000
Insurance	N438,000

- iii. One year interest is due on the loan notes.

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- iv. Allowance to be made for doubtful debts is ₦1,680,000.
- v. Allowance to be made for audit fees of ₦3,600,000.
- vi. Directors' fees of ₦4,500,000 were due at the year end.
- vii. Closing inventories at 31/12/2016 is ₦14,580,000.
- viii. The directors have recommended transfer of ₦6,000,000 to general reserve.
- ix. The year's preference dividend is to be provided for while 20% on nominal capital is to be recommended as dividend on ordinary share.
- x. Current year income tax charge ₦9,630,000.
- xi. Authorised share capital comprise:
 - 15,000,000 10% preference shares at ₦1 each ₦15,000,000
 - 45,000,000 ordinary shares at ₦1 each ₦45,000,000

You are required to prepare:

- a. The Statement of Profit or Loss
- b. The Statement of Changes in Equity
- c. The Statement of Financial Position

(Total 12½ Marks)

QUESTION 2

- a. Red Lion Bakery Limited suffered a fire outbreak on its premises while carrying out its business of plastics production on 31 December 2016. The most important books were not destroyed from which the following particulars were extracted:

	Le'000
Sales from 1/1/2016 to 31/12/2016	128,000
Purchases from 1 January 2016 to 31/12/2016	84,000
Inventory on hand at 1 January 2016	25,800

The gross profit for the past five years had averaged 40% on turnover.

The salvaged inventory was agreed at Le6,500,000.

Assuming all to be in order, draft a statement showing amount of the claim to the insurance company. (5 Marks)

- b. Explain the following terms as commonly used in loss of profit in insurance (consequential loss) policy.
 - i. Rate of gross profit

INSIGHT

- ii. Standard turnover
- iii. Standing charges
- iv. Indemnity period
- v. Average clause (7½ Marks)

(Total 12½ Marks)

QUESTION 3

In the absence of expressed or implied agreement to the contrary, partnerships are subjected to the rules set out in the Partnership Act or the relevant Act in your country.

Required:

- a. State **FIVE** provisions of the Act.
(5 Marks)
- b. State the features of a partnership under the following headings:
 - i. Ownership (1½ Marks)
 - ii. Management (1½ Marks)
 - iii. Raising of capital (1½ Marks)
 - iv. Liability (1½ Marks)
 - v. Final accounts (1½ Marks)

(Total 12½ Marks)

QUESTION 4

The following details were extracted from the books of Lift Me Up Enterprises for the year ended 30 April 2017.

	GH¢
Trade receivable balance, 1 May 2016	490,180
Trade payable balance, 30 April 2017(Dr)	640
Discounts from suppliers	8,400
Trade payable balance, 1 May 2016	168,000
Cheques received from customers	607,026
Trade receivable balance, 30 April 2017 (Cr)	1,140

INSIGHT

	GH¢
Payment to suppliers	159,600
Sundry charges by suppliers	4,000
Allowance for doubtful debts	25,000
Goods sold on credit	342,906
Trade payable balance, 1 May 2016 (Dr)	10,000
Trade receivable, 1 May 2016 (Cr)	3,380
Customers dishonoured cheques	3,052
Goods returned to suppliers	8,000
Goods bought on credit from suppliers	90,240
Goods returned by customers	8,112
Bad debt written off	5,106
Contra	16,900

You are required to prepare:

- b. Trade receivable control account and
- c. Trade payable control account for the year ended 30 April 2017.

(Total 12½ Marks)

QUESTION 5

- a. IAS 1 states the minimum information that should be disclosed on the face of a statement of profit or loss and other comprehensive income during each financial period.

State **FIVE** of such disclosures. (6¼ Marks)

- b. Entities are permitted to disclose by way of notes to the financial statements the information that cannot be disclosed on the face of financial statements.

State **FIVE** of the disclosures as stated by IAS 1. (6¼ Marks)

(Total 12½ Marks)

QUESTION 6

INSIGHT

Accounting concepts and conventions are fundamental to the understanding and assessment of accounting information.

Write short notes on each of the following:

- a. Going concern (2½ Marks)
- b. Accruals (2½ Marks)
- c. Entity (2½ Marks)
- d. Historical cost (2½ Marks)
- e. Periodicity (2½ Marks)

(Total 12½ Marks)

INSIGHT

SOLUTIONS TO MCQ

1. D

2. E

3. C

4. B

5. E

6. D

7. A

8. C

9. A

10. C

11. E

12. D

13. D

14. B

15. C

16. D

17. B

18. D

19. A

20. B

21. C

INSIGHT

22. E
23. D
24. C
25. D
26. C
27. D
28. C
29. D
30. D

WORKINGS

$$13. \text{ Sales} = \frac{8000}{33\frac{1}{3}\%} = \text{Le } 24,000$$

$$\text{Le } 8000 - \text{Le } 6,800 = \text{Le } 1,200$$

$$\therefore \text{NP \%} = \frac{1,200}{24,000} \times \frac{100}{1} = 5\%$$

Tutorial to question 3

Distributable profit N63,000,000

Suleiman share $\frac{2}{14} \times \text{N}63,000,000$
= N9,000,000

Since N9,000,000 is greater than N8,000,000 profit of N63,000,000 would be shared normally.

Hence Razak share is $\frac{7}{14} \times \text{N}63,000,000 = \text{N}31,500,000$

Examiner's report

The thirty Multiple Choice Questions were attempted by all the candidates and about 75% of them scored average and above mark.

INSIGHT

19. The partner's current account has a debit balance/Negative balance/Deficit Balance

20. L\$ 2,720,000

Tutorial

Minimum share to Appiah L\$560,000
Share of profit from L\$ 3,400,000 x $\frac{1}{5}$
= L\$680,000

Since the share of Appiah is greater than the minimum,

Ade would not supplement his salary, therefore share of profit of Ade is

$$\begin{aligned} & \frac{4}{5} \times \text{L\$}3,400,000 \\ & = \text{L\$}2,720,000 \end{aligned}$$

Examiner's Report

The twenty Short Answer Questions were attempted by all the candidates while about 50% scored average marks.

SOLUTION 1

ELERE NIGERIA LIMITED

Statement of Profit or Loss for the Year ended 31 December, 2016

	N'000	N'000
Revenue (Net)		224,640
Less Cost of Sales:		
Opening Inventories	8,040	
Add Purchases (Net)	138,480	
Carriage Inwards	<u>4,860</u>	
	151,380	
Less Closing Inventories	<u>14,580</u>	<u>136,800</u>
Gross Profit		87,840
Interest Income		<u>150</u>
		87,990
Less Expenses:		
Salaries and wages	16,980	
Rent and rates (N 6,480- N 1,680)	4,800	
Insurance (N 2,610- N 438)	2,172	
Office Expenses	5,490	
Bad debt	318	

INSIGHT

Allowance for doubtful debt	1,680	
Electricity and water	516	
Motor running expenses	774	
Audit fees	3,600	
Directors fees	4,500	
Finance cost - interest on loan notes	1,620	
- Preference Share Dividend	1,500	
Depreciation - Plant and Machinery	9,900	
Motor Vehicle	3,900	
Furniture Fittings	<u>720</u>	<u>58,470</u>
Profit before tax		29,520
Income tax expense		<u>9,630</u>
Profit for the year		<u>19,890</u>

(ii) **ELERE NIGERIA LIMITED**
Statement of changes in Equity for the year ended 31 December, 2016

	Ordinary Share N'000	Share Premium N'000	General Reserve N'000	Retained Earnings N'000	Total N'000
Balance b/f	30,000	9,000	13,920	4,590	57,510
Profit for the year	-	-	-	19,890	19,890
Transfer	<u>-</u>	<u>-</u>	<u>6,000</u>	<u>(6,000)</u>	<u>-</u>
Balance c/f	<u>30,000</u>	<u>9,000</u>	<u>19,920</u>	<u>18,480</u>	<u>77,400</u>

(iii) **ELERE NIGERIA LIMITED**
Statement of Financial Position as at 31 December, 2016

Non-Current Assets:		N'000	N'000		N'000
Plant and Machinery		66,000	(17,100)		48,900
Motor Vehicle		19,500	(9,300)		10,200
Furniture and Fittings		<u>7,200</u>	<u>(2,400)</u>		<u>4,800</u>
		<u>92,700</u>	<u>(28,800)</u>		<u>63,900</u>
Current Assets:					
Inventories				14,580	
Accounts Receivables		72,600			

INSIGHT

Allowance for Doubtful Debts	<u>(1,680)</u>	70,920	
Bills Receivable s		8,502	
Prepayment (₦1,680 + ₦438)		2,118	
Cash and Bank		<u>25,860</u>	<u>121,980</u>
			<u>185,880</u>
Equity and Liabilities: Authorised			
Ordinary Shares of ₦1 each	<u>45,000</u>		30,000
Share Premium			9,000
General Reserve			19,920
Retained Earnings			<u>18,480</u>
			77,400
Long Term Liabilities			
10% Preference Shares	15,000		
9% Loan Notes	<u>18,000</u>		33,000
Current Liabilities:			
Account Payables		54,630	
Accrued Expenses:			
- Audit Fees		3,600	
- Director Fees		4,500	
- Interest on Loan		1,620	
- Preference Dividend		1,500	
- Current Tax Expenses		<u>9,630</u>	<u>75,480</u>
			<u>185,880</u>
Examiner's Report			

The question that tests candidates' knowledge of preparation of final accounts of a company was attempted by about 95% of the candidates, and they put up good performance as about 75% score above average marks. The commonest pitfall was the inability of the candidates to prepare good statement of changes in Equity.

INSIGHT

SOLUTION 2

i. RED LION BAKERY LIMITED - STATEMENT OF CLAIM

	N'000	N'000
Opening Stock		25,800
Purchases		<u>84,000</u>
		109,800
Less:		
Sales	128,000	
Deduct 40% Gross Profit	<u>51,200</u>	
Cost of Goods Sold	<u>76,800</u>	<u>76,800</u>
Estimated Stock at date of fire		33,000
Less: Salvaged Stock		<u>6,500</u>
Amount of Claim		<u>26,500</u>

i. Rate of Gross Profit:

The rate of gross profit earned on the turnover during the financial year immediately before the date of damage. It is also allowed to use the average rate of gross profit for the past five years.

ii. Standard Turnover:

The turnover during that period in the twelve months immediately before the date of the damage which corresponds with the indemnity period.

iii. Standing Charges:

There are insured and uninsured expenditure that do not vary directly with production or sales. Insured standing charges refers to fixed cost or expenditure specified by the business and stated in the policy e.g. rent, salaries etc which the insured wishes to recover during the period of disruption. Uninsured are not stated in the policy hence not recoverable during the period of disruption.

iv. Indemnity Period: The period beginning with the occurrence of the damage and ending not later than the months during which the results of the business shall be affected in the consequence of the damage. The period must accommodate the

INSIGHT

period of damage or disruption which is the actual period that the business of the insured was adversely affected.

- v. **Average Clause:** This provides that if the sum insured by the policy be less than the sum produced by applying the rate of gross profit to the annual turnover, the amount payable shall be proportionately reduced. If the company insured for only a proportion of its gross profit then it can only expect to recover a corresponding proportion of the sales.

Examiner's Report

The question on computation of insurance claim was attempted by about 20% of the candidates and scored above average. Part b of the question was poorly answered.

SOLUTION 3

- a. Provision of the Partnership Act 1890
 - (i) Profits or losses shall be shared equally
 - (ii) Interest shall not be allowed on partners
 - (iii) Interest shall not be charged on partners' drawing
 - (iv) Interest shall be allowed on partners' loans at 5% per annum
 - (v) No partner shall be entitled to receive salary
 - (vi) No partner is allowed to make drawings
 - (vii) No person should be admitted as a partner without the consent of all the existing partners
- b. Features of Partnership
 - i. **Ownership:** Partnership is an association of two or more persons to carry on a business.
 - ii. **Management:** The business is managed by all the members or any of the persons concerned acting for them.
 - iii. **Raising of Capital:** The business is financed mainly by mixtures of partners' capital, including retained earnings and loans.
 - iv. **Liability:** The owners of the business are personally liable as

INSIGHT

individuals for the unpaid debts and other obligations of the business.

- v. Apart from the statement of profits or loss and the statement of financial position that are common to all types of business, partnership accounts include also: statement of distribution of income, partners' current accounts and partners' capital accounts.

Examiner' Report

The question on Partnership Act was attempted by about 90% of the candidates and good performance was demonstrated as about 75% scored above average marks.

SOLUTION 4

Lift me up Enterprises Trade Receivables Control Account

	N'000		N'000
Balance b/d	490,180	Balance b/d	3,380
Sales	342,906	Bank	
Bank	3,052	Contra	16,900
Balance c/d	1,140	Sales Returns	8,112
		Bad Debts	5,106
		Balance c/d	<u>196,754</u>
	<u>837,278</u>		<u>837,278</u>
Balance b/d	196,754	Balance b/d	<u>1,140</u>

Trade Payables Control Account

	N'000		N'000
Balance b/d	10,000	Balance b/d	168,000
Contra	16,900	Sundry Charges	4,000
Bank	159,600	Purchases	90,240
Discount Received	8,400	Balance c/d	640
Goods returned to suppliers	8,000		
Balance c/d	<u>59,980</u>		
	<u>262,880</u>		<u>262,880</u>
Balance b/d	640	Balance b/d	<u>59,980</u>

INSIGHT

Examiner's Report

The question on Partnership Act was attempted by about 90% of the candidates and good performance was demonstrated as about 75% scored above average marks.

SOLUTION 5

a. **INFORMATION TO BE PRESENTED ON THE FACE OF THE STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME**

1. Revenue
2. Finance Cost (e.g. interest expense)
3. Tax Expense
4. Profit or Loss for the year
5. Other Comprehensive Income
6. Total Comprehensive Income

b. **INFORMATION TO BE DISCLOSED AS A WAY OF NOTES**

1. Basis of preparation of the financial statements
2. Significant accounting policies adopted in the preparation and presentation of the financial statements
3. Information required to be disclosed specifically by IFRS/IAS e.g. that the financial statement complied with provision of IFRS
4. Supporting/detailed information for significant items presented on the face of each of the financial statements
5. Key measurement assumptions made in preparing and presentation of the financial statements
6. Dividend proposed or declared during the year
7. Other disclosures such as description of the nature of the entity's operations and its principal activities, the domicile and legality of the entity.

INSIGHT

Examiner's Report

The question that tests candidates' knowledge of IAS 1 was attempted by about 25% of the candidates while about 10% were able to score average marks. They lack the understanding of disclosures in a statement of profit or loss and other comprehensive income.

SOLUTION 6

ACCOUNTING CONVENTIONS AND CONCEPTS

1. Going Concern

The going concern concept is an **assumption in accounting** which states that an entity will continue to **operate for the foreseeable future** and has neither the intention nor **need to go into liquidation** or reduce materially the scale of its operations.

The concept assumes that, when preparing the financial statement, the entity will continue to operate in approximately the same manner for at least the next twelve months. The going concern assumption is particularly relevant for the valuation of Assets.

2. Accruals/Matching

The accrual basis is an assumption in accounting which states that in preparing the statement of profit or loss and other comprehensive income, that the revenue earned must be matched against expenditure (costs) incurred in earning it. The basis advocates that entities should prepare their financial statements on the basis which transactions are recorded in them, that is as revenue or expenses and earned or incurred in the relevant accounting period concerned and not in the period when the cash is paid or received.

The assumption is also referred to as **the matching concept**.

3. Entity

Every economic unit, regardless of its legal form of existence, is treated as a separate entity (in accounting) from parties having proprietary or economic interest in it.

A strict application of this concept ensures that only the expenses incurred by/for the business, incomes earned by the business, assets acquired for the business and liabilities owed by the business

INSIGHT

are relatively recorded as expenses, incomes, assets and liabilities in the books of the business. For instance, if the owner withdraws money from the bank account of the business to pay the rent of his residential accommodation, the amount would not be debited to the rent account in the books of the business but to the owner's drawing account.

4. **Historical Cost**

The historical cost concept holds that cost is the appropriate basis for initial accounting recognition of all assets acquisitions, services rendered/received, expenses incurred, 'creditors' and 'owners' interest; and it also holds that subsequent to acquisition, cost values are retained through the accounting process.

In framework, the IASB notes that financial statements are most commonly prepared in accordance with **an accounting model based** on recoverable historical cost and the nominal financial capital maintenance concept.

5. **Periodicity**

Although the results of a business unit cannot be determined with precision until its final liquidation, the business community and users of financial statements require that the business be divided into accounting periods (usually one year) and most changes in position be **measured over these periods**.

Examiner's Report

The question on accounting concepts and conventions was attempted by about 90% of the candidates, but their performance was generally poor as about 10% could score average marks.

INSIGHT

AT/172/PII.6

**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2017**

PUBLIC SECTOR ACCOUNTING

Time Allowed: 3 hours

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

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. Sources of finance for a public school include all of the following **EXCEPT**
 - A. School fees
 - B. Boarding fees
 - C. Government Subvention
 - D. Parents Teachers Associations' Contribution
 - E. Gift from external bodies as Trust and Foundations

2. A situation where one or more persons are constituted into a Board to determine causes of action or conduct an investigation is called
 - A. Store Survey
 - B. Stamp and License Survey
 - C. Board of Enquiry
 - D. Tribunal
 - E. Court of Justice

3. The reports of Board of Survey are sent to the following **EXCEPT**
 - A. The Accounting Officer or Permanent Secretary
 - B. The Accountant General
 - C. The Auditor General
 - D. The Secretary to Civil Service Commission
 - E. Head of State

4. In accordance with the Public Procurement Act 2007, the Bidding Method which all contractors shall be subjected to is called
 - A. Selective Bidding
 - B. Subjective Bidding
 - C. Open Competitive Bidding
 - D. Open Selective Bidding
 - E. Closed Competitive Bidding

INSIGHT

5. An aggregate amount of cash advanced to a Public Servant to meet up with urgent expenditure as contained in the budget, but for which vouchers CANNOT be immediately prepared and presented is called
- A. Cash Advance
 - B. Mobilisation fees
 - C. Imprest
 - D. Special Votes
 - E. Pocket Money
6. A Terminal Benefit Method in which the employee and employer contribute toward the payment of an employee is called
- A. Pension and Gratuity
 - B. Contributory Pension Scheme
 - C. Life Assurance Policies
 - D. Death Gratuity
 - E. Workers Compensation Scheme
7. Which of the following is NOT a function of the Cash Office?
- A. Receipt and payment of liquid cash
 - B. Safe custody of cash
 - C. Maintenance of a conventional cash book to record all cash transactions
 - D. Balancing of cash book transactions on daily basis
 - E. Keeping register of those that deposit money and receive money daily
8. The Auditor-General for your country is expected to state in his report, whether in his opinion,
- i. Proper books of accounts have been kept
 - ii. Financial Statements statutorily required are prepared without delay
 - iii. Monies have been expended for the purpose for which they were appropriated
- A. (i) and (ii)
 - B. (i), (ii) and (iii)
 - C. (ii) and (iii)
 - D. (i) and (iii)
 - E. (i) only
9. Which of the following particulars is **NOT** required in an Adjustment Voucher?
- A. Name of beneficiary
 - B. Reason for the transfer or adjustment

INSIGHT

- C. Particulars of treasury or audit query that originates the adjustment
 - D. Month of account
 - E. Voucher number
10. Which of the following Expenditure Warrant is expected to be in operation for a maximum period of six months until the budget has been approved?
- A. Provisional general warrant
 - B. Supplementary (Statutory) expenditure warrant
 - C. Annual general warrant
 - D. Supplementary (Contingencies) warrant
 - E. Reserve expenditure warrant
11. Funds which are held and managed by the government as custodians and trustees are known as funds
- A. Custodian
 - B. Revolving
 - C. Proprietary
 - D. General
 - E. Fiduciary
12. Which budgeting technique requires that every item of expenditure be justified as if the activity or programme is taking off for the first time?
- A. Line item budgeting
 - B. Zero-based budgeting
 - C. Incremental budgeting
 - D. Planning programming budgeting system
 - E. Performance budgeting
13. IPPIS is an acronym for
- A. Integrated Personnel Payroll Information System
 - B. Integrated Personnel Payment Information System
 - C. Integrated Payroll Personnel Information System
 - D. Integrated Payment Personnel Information System
 - E. International Payment and Personnel Information System
14. Transcript is a monthly
- A. Summary of receipt and payment transactions of a self-accounting department or unit
 - B. Summarised analysis of payment transactions of self-accounting department or unit
 - C. Total analysis of receipt and payment transactions of a self-accounting department or unit

INSIGHT

- D. Summarised total receipts and payment of a self-accounting department or unit, analysed according to sub-heads and below-the-line accounts
 - E. Summarised total receipts and payments of a self-accounting department or unit, analysed according to head, sub-head and above-the-line accounts
15. Which of the following is **NOT** a characteristic of Non-Self Accounting Unit?
- A. It establishes an internal audit department
 - B. It renders returns in detail
 - C. It attaches copies of vouchers to their returns
 - D. It does not operate an accounting code
 - E. It does not have clearance account
16. In Public Sector organizations, parastatals have ministries
- A. Monitoring
 - B. Controlling
 - C. Co-ordinating
 - D. Supervising
 - E. Planning
17. Which of the following is **NOT** a benefit of Treasury Single Account (TSA)?
- A. It supports monetary policy implementation
 - B. It provides complete and timely information on government cash resources
 - C. It improves operational control on budget execution
 - D. It enables efficient cash management
 - E. It reduces bank fees and transaction costs
18. The transcript prepared by a Self-Accounting Unit should be accompanied by a Certificate of balances.
- A. Main Ledger
 - B. General Ledger
 - C. Cash Book
 - D. Bank and cash
 - E. Bank
19. Which of the under-listed is **NOT** an Accounting Officer of a Ministry/Extra-Ministerial Department?
- A. The Accountant-General of the Federation/Nation
 - B. Minister of Finance
 - C. The Auditor-General for the Federation/Nation
 - D. The Governor of Central Bank
 - E. The Director-General of NAFDAC

INSIGHT

20. A 'Call Circular' is an invitation to submit
- A. Estimated revenue, personnel cost and capital cost for the previous year
 - B. Estimated revenue and overhead cost for the years to come
 - C. Estimated revenue, personnel, overhead and capital cost for the next year
 - D. Estimated capital cost for the next year
 - E. Estimated revenue and overhead cost for the next year
21. Expense items such as wages and salaries, defence and internal security to ensure effective organization are likely to be under
- A. Administration
 - B. Economic services
 - C. Social and community services
 - D. Committed expenditure
 - E. Consolidated Revenue Fund
22. **TWO** of the following bodies were established by the Public Procurement Act, 2007
- i. National Council on Public Procurement
 - ii. Bureau of Public Procurement
 - iii. Code of Conduct Bureau
 - iv. Due Process Bureau
- A. (ii) and (iv)
 - B. (i) and (iv)
 - C. (i) and (ii)
 - D. (iii) and (iv)
 - E. (i) and (iii)
23. Which of these is **FALSE** about EFCC or ICPC?
- A. EFCC can prosecute directly without recourse to Attorney-General's office
 - B. ICPC can only prosecute through Attorney-General's office
 - C. ICPC has no time limitation as to when crime was committed
 - D. ICPC is to enforce laws relating to fraud, corruption and embezzlement of funds in public service
 - E. EFCC is to enforce laws relating to banking, money laundering, advance fee fraud, miscellaneous offences and other related offences
24. Which of the following Officers is to collect a specified form of revenue on behalf of government?
- A. Cashier
 - B. Bursar

INSIGHT

- C. Revenue collector
 - D. Finance Director
 - E. Imprest holder
25. In Public Sector, which of the under-listed is the type of Board of Survey that can be convened
- A. Surprise Board of Survey usually held thrice a year
 - B. Surveyor-General surprised investigation
 - C. Annual budget call circular
 - D. Well-informed Board of Survey usually held weekly
 - E. Board of Secretaries
26. In considering whether a Board of Enquiry meeting should be held, evaluation is always given to
- A. Whether cash collected from bank is kept in a safe
 - B. The name of the Accounting Officer
 - C. If the Officer controlling expenditure keeps vote book
 - D. If the loss took place systematically over time
 - E. If internal control is effective and there is no fraud
27. The Annual Report of the Accountant-General contain the following **EXCEPT**
- A. The Financial Statements
 - B. Guidelines on Fiscal Policy of the Federal government
 - C. The narrative reports on the Federal government finance
 - D. The state of financial affairs of the Federal government
 - E. Data, tables, time series, extracts
28. Which of the following is NOT a benefit of adopting and implementing IPSAS
- A. Enhanced non-implementation of the Freedom of Information
 - B. Transparency
 - C. Improved service delivery
 - D. Political leverage
 - E. Economic leverage
29. IPSAS 12 on inventories, applies to all inventories relating to the following **EXCEPT**
- A. Assets held for sale in the ordinary course of business
 - B. Inventories accumulated under long-term construction contracts
 - C. Assets in the process of production for sale or distribution
 - D. Assets held for sale or distribution in the ordinary course of operations

INSIGHT

- E. Assets to be consumed in the production of goods or services for sale
30. Which of the following is the duty of the Auditor-General for the Federation/Nation?
- A. Appropriation Audit to ensure that funds are expended as appropriated by the National Assembly
 - B. He submits to the Accounting Officer a detailed programme of audit
 - C. Maintenance of cash book
 - D. Promptly prepares such financial statements as required by law
 - E. Maintenance of statement of cash flows

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

ATTEMPT ALL QUESTIONS IN THIS SECTION

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

1. Where the loss of store is established, the officer that authorises the write-off is
2. The account maintained by the Pension Fund Administrator on behalf of employees to keep the record of employees and employers' contributions is called
3. An independent appraisal of system of control to which an organization is subjected to is
4. The stores acquired for general use of which the final value charged is yet to be determined is
5. The immediate purpose of introducing Government Integrated Financial Management Information System is to
6. The items of revenue and expenditure not provided for in the budget but which form part of government accounts are called
7. What is the full meaning of the acronym ATRRS?

INSIGHT

8. A system that is conceived by the Federal Government of Nigeria (FGN) to improve the effectiveness and efficiency on the storage of personnel records is called
9. The account that does not form part of the double entry system although indispensable for its valuable control function is called
10. The book into which all contract agreements are recorded is called
11. Which organ of government issues guidelines on the preparation of budgets?
12. The document that authorizes money for spending by Ministries, Departments and Agencies issued by the Ministry of Finance is called
13. **ONE** of the procedural activities for the conduct of surveys is ensuring that all currency notes and coins (if any) are counted and denominated (True or False)?
14. A case in the Public Service leading to an abnormality such as “where the responsibility of officers is not well spelt out” will invariably attract
15. Applying an accounting policy to a transaction or event that did not occur previously or was immaterial is not considered as a change in an accounting policy (True or False)?
16. An entity’s resources that accumulate over-time and which are capable of generating future economic benefits or services is known as
17. The Officer that is empowered to engage in and approve virement is
18. The Independent Corrupt Practices and Other Related Offences Commission (ICPC) composition has a Chairman and twelve other members, two of whom shall come from.....,
19. In the Public Sector, when money is expended without prior provision, such outlay is referred to as

INSIGHT

20. The Committee that is set up in accordance with Section 162(6) of the Constitution to administer the Federation Account at the State Level is called

SECTION B ATTEMPT ANY FOUR QUESTIONS (50 Marks)

QUESTION 1

- a. i. What is the purpose of introducing Government Integrated Financial Management Information System (GIFMIS)? (1½ Marks)
- ii. State **SIX** of the characteristics of a Self-Accounting Unit. (6 Marks)
- b. Part I of the Third Schedule of the 1999 Constitution established the Code of Conduct Bureau and highlighted a number of powers vested in the Bureau.
State **FIVE** of such powers. (5 Marks)

(Total 12½ Marks)

QUESTION 2

- a. i. State the scope of application of Public Procurement Act, 2007 as contained in Section 15 of the Act. (2½ Marks)
- ii. What are the objectives of establishing the Bureau of Public Procurement? (4 Marks)
- b. State the Accounting entries and procedure for the write-off of “unserviceable stores”. (6 Marks)

(Total 12½ Marks)

QUESTION 3

- a. Chapter One of Financial Regulations, 2009 clearly stipulates financial authorities and responsibilities of Public Officers.

You are required to:

- i. According to Section 106 of Financial Regulation, define the Office of the Accountant-General of the Federation (1½ Marks)
- ii. List **SIX** functions of the Accountant-General (6 Marks)

INSIGHT

- b. In convening a Board of Enquiry whenever a loss of fund occurs, the Head of the Division where the officer concerned is serving has some roles to play.

Required:

- i. List **TWO** roles of the Head of the Division (2 Marks)
- ii. List **THREE** Officers that must receive completed Parts II and III of Treasury Form 146 in the process of investigating loss of fund

(3 Marks)

(Total 12½ Marks)

QUESTION 4

- a. Zero-Based Budgeting (ZBB) system is an effective way of allocating resources and controlling discretionary costs.

Required:

- i. List **FOUR** stages in the implementation of a ZBB system (2Marks)
- ii. State **THREE** merits associated with the ZBB system (3 Marks)
- iii. Enumerate **TWO** short-comings of ZBB system (2½ Marks)
- b. i. National Pension Commission was established to administer the Contributory Pension Scheme. State **THREE** functions of the National Pension Commission. (3 Marks)
- ii. Who is a Pension Fund Custodian? Mention **THREE** functions of the Pension Fund Custodian. (2 Marks)

(Total 12½ Marks)

QUESTION 5

- a. i. Define the concept of “Value-for-Money Audit” in the Public Sector. (1 Mark)
- ii. Briefly describe the reasons behind the operation of “Value-for-Money Audit” in the Public Sector (2 Marks)
- iii. What is Effectiveness Audit? (2 Marks)
- b. MAYOR State of Nigeria extracted the following information from its Treasury Final Account for the year ended 31 December 2016

	2016	2015
	₦'000	₦'000
Tax collected	656,500	575,000

INSIGHT

Interest from Lag Lagan	491,000	379,000
Pension	175,000	145,000
Contract supplies	75,000	60,000
Revenue from services	493,500	375,000
Grant from Canada	437,500	337,500
Interest paid on loans	50,500	44,500
Proceeds from sale of equipment	57,500	50,000
Loans	170,000	120,000
Other administrative expenses	150,500	103,500
Accrued operating surplus	410,500	262,500
Proceed from sale of Treasury Bills	319,500	247,500
Purchase of foreign currency	157,500	150,500
Repayment of loans	70,000	60,000
Proceeds from sale of bonds	394,500	326,500
Purchase of equipment	350,000	325,000
Employee cost	725,000	605,000
Cash book balance at 1 January	2,187,500	1,007,500
Cash and cash equivalent at 31 December	3,864,500	2,187,500

You are required to:

Prepare the Statement of Cash flows of the State for the year ended 31 December 2016 using the Direct Method. (7½ Marks)

(Total 12½ Marks)

QUESTION 6

- a. The Provisions of the Finance (Control and Management) Act, 1958 as amended by CAP A15 LFN 2004 is entrenched in the constitutional, legal and administrative framework of Government Accounting.
- What is the purpose of the 'Act'? (1 Mark)
 - State **FOUR** Provisions of the Act. (4 Marks)
- b. The Pension Reform Act, 2014 provides regulatory framework for the operation of Pension Fund Administrator.
- State **FIVE** functions of a Pension Fund Administrator. (5 Marks)
 - State **THREE** controls over Pension Administrator's operations to protect employees. (2½ Marks)
- (Total 12½ Marks)**

INSIGHT

SOLUTION TO MULTIPLE CHOICE QUESTIONS (MCQ)

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

INSIGHT

30. A

Examiner's Report

This is a 30 marks compulsory questions that covers the entire areas of the syllabus. About 99% of the candidates attempted this question. And the performance was high as above 90% of them scored above 40% of marks obtainable.

SOLUTION TO SHORT ANSWER QUESTIONS

1. Accounting Officer or Permanent Secretary
2. Retirement Saving Account (RSA)
3. Internal Auditing
4. Unallocated store
5. Enable an executable budget
6. Below- the -line-account
7. Automated Accounting Transaction Recording and Reporting system
8. Integrated Personnel and Payroll Information System (IPPIS)
9. Memorandum Account
10. Contract Register
11. Ministry of Budget and Planning
12. Warrant
13. True
14. The Board of Enquiry
15. True
16. Assets
17. The Minister of Budget
18. Each of the six geo-political zones
19. Extra Budgeting
20. The Joint Accounts Allocation Committee.

Examiner's Report

This is a 20 marks compulsory questions that cover the entire syllabus. There was about 96% attempt on this part of the questions. The performance is average as only about 50% of the candidates scoring above 40% of marks obtainable

INSIGHT

SOLUTION 1

a.

i) The purpose of introducing Government Integrated Financial Management Information System (GIFMIS) is to assist the Federal Government of Nigeria (FGN) in improving the management, performance and outcomes of Public Financial Management (PFM).

ii) Characteristics of a self - Accounting Unit:

- i. It operates a central pay office
- ii. It establishes an internal audit department
- iii. It maintains an accounting code
- iv. It renders return in Heads
- v. It does not forward vouchers relating to its units to the Accountant -General of the Federation
- vi. It is allocated an internal Bank Adjustment Account
- vii. It is allocated a clearance account by the Accountant- General of the Federation.

b. POWERS OF CODE OF CONDUCT BUREAU

The code of conduct bureau was set up to:

- a) Receive declarations by public officers made under paragraph 12 of part 1 of the 5th schedule of the 1999 constitution.
- b) Examine the declarations in accordance with the requirement of the cost of conduct or any law
- c) Retain custody of such declaration and make them available for inspection by any citizen of Nigeria on such

INSIGHT

items and conditions as the National Assembly may prescribe

- d) Ensure compliance with and where appropriate enforce the provisions of the code of conduct or any law relating thereto
- e) Receive complains about non-compliance with or breach of the provisions of the code of conduct or any law in relation thereto
- f) Investigate the complaint above and where appropriate refer such matters to the code of conduct tribunal
- g) To carry out any other function as may be conferred upon it by the National Assembly.

Examiner's Report

The question is divided into two parts. Part 'a' tested GIFMIS and on the characteristics of a self-Accounting Unit. Part 'b' tested the candidates understanding on the powers vested in the Code of Conduct Bureau. About 80% of the candidates attempted the question and about 40% scored above 40% of marks obtainable.

SOLUTION 2

- a. (i) Section 15 of Public Procurement Act, 2007 states that:
 - 1. The provisions of this Act shall apply to all procurement of goods, works and services carried out by:
 - a) The Federal Government and all procurement entities.
 - b) All entities outside the foregoing description which derive at least 35% of the fund appropriated or proposed to be appropriated for any type of procurement described in this Act from the federation share of Consolidated Revenue Fund

INSIGHT

2. The provision of this Act shall not apply to the procurement of special goods, works and services involving national defense or national security unless the president's express approval has been first sought and obtained.

(ii) **Objectives of the Bureau of Public Procurement**

- (a) The harmonization of existing government policies and practices on public procurement.
- (b) The establishment of pricing standards and benchmarks
- (c) Ensuring the application of fair, competitive, transparent and standard practices for the procurement and disposal of public assets and services
- (d) The attainment of transparency, competitiveness and professionalism in the public sector procurement system

2(b) **ACCOUNTING PROCEDURE FOR THE WRITE-OFF OF STORES LOST OR UNSERVICEABLE**

- (i) On the discovery of a loss of stores, a memorandum note in red ink shall be made of the details of the deficiency in the relative stores ledger account and tally card ((Financial Regulation 2704(ii))
- (ii) On receipt of the authority for the write off of allocated stores, an issue voucher shall be raised to support the write-off entry to be made in the relative stores ledger account and tally card, and the voucher entry in the ledger shall be duly initialed by the officer in charge of the store. A reference to the write-off authority shall be written against the entry and included in the detail of the issue voucher.

INSIGHT

- (iii) The procedure for the write-off of unallocated stores shall be in accordance with Financial Regulations Chapter 22 part II.

Examiner's Report

The question tested candidates' knowledge of the scope of application and objectives of the Public Procurement Act as well as on the accounting entries and procedures for write-off of 'unserviceable stores'. Attempt was poor as only about 20% of the candidates attempted the question and less than 10% of them scoring 40% of marks obtainable.

SOLUTION TO QUESTION 3

- a. (i) Section 106 of Financial Regulation described the Accountant General of the Federation as the Head of the Federal Government Accounting Service and the Treasury. Section 107 described him as the Chief Accounting Officer for the receipts and payments of the government of the Federation
- (ii) **Functions of the Accountant General of the Federation**
The functions of the Accountant-General of the Federation as contained in Financial Regulations 107 include:
- (a) Serve as the Chief Accounting Officer for the receipts and payments of the government of the federation;
- (b) Supervise the accounts of federal ministries, extra-ministerial offices and other arms of government;
- (c) Collate, prepare and publish statutory financial statements of the Federal Government and any other statements of accounts required by the Minister of Finance
- (d) Manage Federal Government Investments

INSIGHT

- (e) Maintain and operate the accounts of the Consolidated Revenue Fund, Development Fund, Contingencies Fund and other Public Funds and provide cash backing for the operation of the Federal Government.
- (f) Maintain and operate the Federation Account
- (g) Establish and supervise Federal Pay Offices in each state capital of the Federation.
- (h) Conduct routine and in-depth inspection of the books of accounts of federal ministries, extra-ministerial offices and other arms of government to ensure compliance with rules, regulations and policy decisions of the Federal Government
- (i) Approve and ensure compliance with accounting codes, internal audit guides and stock verification manuals of federal ministries, extra-ministerial offices and other arms of government
- (j) Investigate cases of fraud, loss of funds, assets and store items and other financial malpractices in ministries/extra - ministerial offices and other arms of government
- (k) Provide financial guidelines through the issuance of Treasury Circulars to federal ministries/extra ministerial offices and other arms of government to ensure, strict compliance with existing control systems for the collection, custody and disbursement of public funds and stores
- (l) Supervise and control the computerization of the accounting system in the federal ministries, extra-ministerial offices and other arms of government;
- (m) Carry out revenue monitoring and accounting
- (n) Issue officially approved forms bearing Treasury numbers for use in all

INSIGHT

- federal ministries, extra-ministerial offices and other arms of government to ensure uniformity
- (o) Formulate the accounting policy of the Federal Government;
 - (p) Service public debt and loans; and
 - (q) Organise training of accounts and internal audit personnel in all federal ministries, extra-ministerial offices and other arms of government
- b. (i) The Head of the Division, where the office concerned is serving will:
- a. Transmit brief information of the case to his Permanent Secretary or Head of extra-ministerial Department
 - b. Carry out an investigation into the whole incident at the earliest possible Moment.
 - c. Evaluate whether or not a Board of Enquiry is necessary
- (ii) One copy each of the completed parts II and III of Treasury form 146 forwarded to:
- (a) The Permanent Secretary of his Ministry
 - (b) The Accountant- General of the Federation
 - (c) The Auditor-General for the Federation and
 - (d) The Secretary, Federal Civil Service Commission

Examiner's Report

The question tested candidates' understanding of the responsibilities of Public Officers with particular reference to the Accountant- General of the Federation. Part 'b' is on the roles played by Heads of Division on Loss of Fund when covering a Board of Enquiry as well as on the distribution of the Board's reports. There was 100% attempt on the question and over 70% of them scoring above 40% of marks obtainable.

INSIGHT

SOLUTION TO QUESTION 4

- a (i) 'Zero -Base' budgeting involves the use of decision-package approach, based on the identification of activities which may be classified into the following **FOUR** basic events:
- a. Identification of 'decision units' and formulating operational plan. The entire ministry or parastatal is divided into smaller components called 'decision units'
 - b. Analysing the whole budget into 'decision packages', based on the 'decision-units' to which costs are assigned and to the alternative ways of executing the same operation. It also involves assessing the effect of not performing the activity at all. Different levels of performance between the minimum and maximum points are evaluated so as to obtain optimality. Ranking in priority the 'decision packages' covering the activities, both new and existing, in a competitive manner.
 - c. Determination of the 'cut-off' point to choose the packages which can be included and those to be rejected
 - d. Prioritisation of the packages to highlight the ones which fit in with the available resources

(ii) Merits of Zero-Base Budgeting

The following advantages have been associated with the use of Zero Base budgeting:

- (a) It acts as a tool for change from which benefits are likely to accrue
- (b) It allows for optimum allocation of resources. This is made possible by the formulation of alternative courses of action and evaluating each on its own merit. Resources are therefore

INSIGHT

allocated by need and benefit accruing, rather than political or emotional considerations

- (c) It creates questioning attitude instead of assuming that current practice maximises expected money value. Wasteful spending is thereby reduced
- (d) It provides a better yardstick for the measurement of performance
- (e) The technique allows for the participation of the various organs of the decision unit
- (f) It focuses attention on the future rather than the past; old and new projects are therefore appraised on the same basis
- (g) Under 'Zero-Base' budgeting, important projects can continue to receive funds, owing to their viability.
- (h) It is good for profit-oriented projects.

(iii) **SHORT COMINGS OF ZERO-BASE BUDGETING**

The following are the disadvantages of using 'Zero-Base' Budgeting:

- (a) Lack of and sometimes unreliable data may inhibit or undermine the usefulness of the approach in the less developed economic environment as ours
- (b) It may cause a major shift in resources allocation
- (c) Bureaucrats often do not trust the approach and hence frustrate its effectiveness
- (d) In determining decision packages there is sometimes, the problem of fixing the minimum level of expenditure
- (e) It involves the task of analysing and ranking a lot of data and information which a number of civil servants find difficult to manage. This situation is further complicated by lack of

INSIGHT

qualified and competent personnel in the public sector, to handle the application of this technique

- (f) There is need to make accounting structure conform to the 'Zero-Base' philosophy, for the purpose of evaluation and control. This may necessitate a general review, overhauling, adding or scrapping of activities and functions
- (g) It is not so good for recurrent expenditure. It has not been successful in the public sector.

B (i) **Functions of National Pension Commission**

1. Regulate and supervise Contributory Pension Scheme
2. Issue guidelines, rules and regulation for investment and administration of fund
3. Approve, licence, regulate and supervise Pension Fund Administration and Custodian
4. Establish standard, bench mark, guideline procedure rules and regulation for the management of pension fund
5. Ensure the maintenance of a national data bank on pension matters
6. Carry out public awareness, enlightenment and education on establishments, operation and management of the scheme.
7. Promote capacity building and Institution strengthening of Pension Fund Administration and Pension Fund Custodian
8. Receive investigate and mitigate compliant of impropriety made against Pension Fund Administrator, custodian employee staff and agent
9. Prove and offer technical assistant for the application of the scheme

INSIGHT

by the State Government.

- ii. Pension Fund Custodian means a company incorporated under CAMA that has been licensed by the commission under the Pension Reform Act.

Functions:-

- a. Shall receive total contribution remitted by the employer and credit the account of Pension Fund Administrator
- b. Notify the Pension Fund Administrator within 24 hours
- c. Hold pension fund and assets in a safe custody
- d. Settle transaction and undertake activities relating to administration of pension fund
- e. Report to the commission on matters relating to asset being threaten at a reasonable interval.
- f. Undertake investment Analysis and other data relating investment
- g. Execute the policy that favour the Pension Fund Administrator in investment matters.

Examiner's Report

The question tested candidates understanding of 'Zero-Base' Budgeting. It requested the candidates' knowledge on stages merits and short-comings of Zero Base budgeting. Part 'b' tested functions of the National Pension Commission and Pension Fund Custodian. About 95% of the candidates attempted the question, but less than 10% of them scored about 40% of marks obtainable.

INSIGHT

SOLUTION 5

- a i. Value -for- Money Audit is the idea which seeks to confirm whether or not an organization has committed its resources economically, efficiently and effectively.
- ii. The drive of this technique is to eliminate or drastically reduce;
- (a) Waste
 - (b) Extravagance and
 - (c) Fraud
- iii. Effectiveness Audit is an assessment of whether programs executed to fulfil laid out policy goals have indeed achieved the set objectives

b. MAYOR STATE OF NIGERIA
CASHFLOW STATEMENT FOR THE YEAR ENDED December, 31 2016

	2016	2015
	N'000	N'000
Cash flow from operating activities		
Receipts:		
Tax collected	656,500	575,000
Revenue from services	493,500	375,000
Grant from Canada	437,500	337,500
Interest from lag lagan	491,000	379,500
Accrued operating surplus	<u>410,500</u>	<u>262,500</u>
	2,489,000	1,929,500
Less:		
Payments		
Pension	(175,000)	(145,000)
Contract supplies	(75,000)	(60,000)
Other administrative expenses	(150,500)	(103,500)
Employee cost	<u>(725,000)</u>	<u>(605,000)</u>
	(1,125,500)	(913,500)

INSIGHT

Net cash inflow from operating activities (a)	1,363,500	1,016,000
<u>Investing activities</u>		
Proceeds from sale of equipment	57,500	50,000
Proceeds from sale of Treasury Bills	319,500	247,500
Proceeds from sale of bonds	394,500	326,500
Purchase of equipment	<u>(350,000)</u>	<u>(325,000)</u>
Net cash inflow from investing activities (b)	421,500	299,000
<u>Financing activities</u>		
Interest paid on loans	(50,500)	(44,500)
Loans	170,000	120,000
Purchase of foreign currency	(157,500)	150,500
Repayment of Loan	<u>(70,000)</u>	<u>(60,000)</u>
Net cash outflow from financing activities (c)	(108,000)	(135,000)
Cash and cash equivalent (a+b+c)	1,677,000	1,180,000
Cash and cash equivalent at 1 st January	<u>2,187,500</u>	<u>1,007,500</u>
Cash and cash equivalent at 31 st December	<u>3,864,500</u>	<u>2,187,500</u>

Examiner's Report

Part 'a' of this question tested candidate's understanding of 'Value – for-Money Audit'. The reasons for its operation as well as on effective Audit. Part 'b' requested the candidates to prepare the statement of cash flows using the direct method. About 85% of the candidates attempted this question and about 60% of them scored above 40% of marks obtainable.

SOLUTION 6

a. THE FINANCE (CONTROL AND MANAGEMENT) ACT OF 1958

(i) This is the major law on which the foundation of government accounting depends. It is the basic law governing the procedure and control of all government financial transactions. The Act governs the management and operation of all government funds.

(ii) Some of the provisions of the Act are:

- a. It placed the management of public finance under the control of the Minister of Finance
- b. It established the Development Fund and states its operation

INSIGHT

- c. It specifies the format for the preparation of government financial statements.
 - d. It recommends the adoption of cash basis of accounting
 - e. It adopts the preparation of government account on Fund Accounting basis
 - f. It mandates the Accountant-General of the Federation to submit his account for audit not later than 90 days after the end of the fiscal year
 - g. It states the government investment portfolios and those areas where government should invest on.
- b i. **Functions of Pension Fund Administrator**
- 1. Open Retirement Savings Account to all employees with Personal Identification Number
 - 2. Invest and manage pension fund assets in accordance with provision of Pension Reform Act
 - 3. Maintain book of account on all transaction relating to pension funds management
 - 4. Provide Investment Analysis
 - 5. Provide customer service support to employee including access to employee accounts
 - 6. Pays retirement benefit to holders of retirement saving account
 - 7. Responsible for all calculation in relation to retirement benefit
- ii. The controls are:
- 1. Supervision and Examination of PFA records
 - 2. Restriction on investments
 - 3. Approve and revoke license of Pension Administrator
 - 4. Sanction and penalties of PFA for breach of control
 - 5. Establish standards, bench mark and guidelines.

INSIGHT

Examiner's report

Part 'a' of the question tested on the purpose and provisions of the Finance (Control and Management) Act, 1958 as amended. Part 'b' tested on the functions of a Pension Fund Administrator and Controls over its operations. About 95% of the candidates attempted the question and about 35% of them scoring above 40% of marks allocated.

INSIGHT

AT/172/PII.8

**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2017
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. The step of taking data from main storage into Central Processing Unit (CPU) for processing is known as
 - A. Data transmission
 - B. Data transfer
 - C. Data movement
 - D. Data loading
 - E. Data retrieval

2. Which of the following is **NOT** an advantage of using computer?
 - A. It reduces errors
 - B. It enhances accessibility
 - C. It requires large sum of money
 - D. It arranges data according to a specific order
 - E. It saves time of recall especially when information is needed urgently

3. The first generation computers used one of the following as their main component
 - A. Integrated circuit
 - B. Large integrated circuit
 - C. Micro processor
 - D. Transistor
 - E. Vacuum tubes

4. Which of the following is **NOT** a way to process data?
 - A. Calculating
 - B. Storing
 - C. Sorting
 - D. Classifying
 - E. Summarising

INSIGHT

5. 10^9 bytes is known as
 - A. File
 - B. Megabyte
 - C. Record
 - D. Gigabyte
 - E. Kilobyte

6. Which of the following is **NOT** an output device?
 - A. Printer
 - B. Plotter
 - C. Monitor
 - D. Microphone
 - E. Loudspeaker

7. Which of the following is NOT a type of impact printer?
 - A. Dot-matrix printer
 - B. Daisy-wheel printer
 - C. Line printer
 - D. LaserJet printer
 - E. Drum printer

8. Which of the following is **NOT** a type of secondary storage device?
 - A. Hard disk drive
 - B. Soft disk drive
 - C. Optical disk drive
 - D. Floppy disk drive
 - E. Zip drive

9. MICR is an acronym for
 - A. Magnetic Ink Character Recognition
 - B. Magnetic Input Character Reader
 - C. Magnetic Ink Computer Reader
 - D. Magnetic Ink Computer Recognition
 - E. Magnetic Input Computer Recognition

10. A keypad on the keyboard that creates blank spaces when it is pressed is called
 - A. Control Key
 - B. Shift Key
 - C. Space bar Key
 - D. Back space Key
 - E. Navigation Key

INSIGHT

11. Name the peripheral that is used to move or drag objects in a Graphical User Interface environment
 - A. Operating system
 - B. Windows
 - C. Mouse
 - D. Desktop
 - E. Icon

12. Task bar is a component of in windows operating system
 - A. Background display
 - B. Graphical user interface
 - C. User display interface
 - D. Human computer interaction interface
 - E. Desktop

13. A suite of computer application programs that can perform multiple functions are generally referred to as
 - A. Application packages
 - B. Off-the-shelf packages
 - C. Custom-tailored packages
 - D. Altered-off-the shelf packages
 - E. Integrated packages

14. Which of the following is **NOT** a component of the menu display of Microsoft Word package?
 - A. View
 - B. File
 - C. Help
 - D. Data
 - E. Insert

15. The intersection of a row and a column in a spreadsheet package is called
 - A. Grid
 - B. Row-column intersect
 - C. Cell
 - D. Data area
 - E. Formula

16. Which of the following is **TRUE** of centralized processing technique?
 - A. All data processing are handled by a central computer
 - B. Data processing is spread across all the computer systems in

INSIGHT

- the network
 - C. Computer security is handled by all the computers
 - D. A problem is divided into many tasks which are handled by different computer systems
 - E. Computation/calculations are done in all the available computers
17. Pre-emptive multi-tasking is utilized when
- A. Operating system never initiates a context switch from a running process to another process
 - B. User switches back and forth between programs
 - C. Operating system switches programs based on allocated amount of time and priority
 - D. Process concurrently and controlling the CPU to give offer to other processes
 - E. Multiple tasks are performed over a certain period of time by executing them concurrently
18. Which of the following is **NOT** a benefit of multi-tasking processing?
- A. Search engine optimization
 - B. Increased throughput
 - C. Reliable and error-free output
 - D. Economy of scale of the resources
 - E. Inability to run multiple-processes in parallel
19. Which of the following is **NOT** a way of accomplishing multi-tasking?
- A. Switching back and forth between programs
 - B. Switching based on capacity of users
 - C. Cooperative multi-tasking
 - D. Pre-emptive multi-tasking
 - E. Switching based on allocation of time and priority
20. An office that offers computer services for individual companies which do NOT own computing capability is called
- A. Business centre
 - B. Photocopying centre
 - C. Computer bureau/Internet cafe
 - D. Viewing centre
 - E. General office
21. The Open System Interconnectivity (OSI) Layer responsible for providing the addressing services and error handling is known as
- A. Network Layer
 - B. Data Link Layer

INSIGHT

- C. Transport Layer
 - D. Presentation Layer
 - E. Application Layer
22. The combination of two or more signals from several devices at low speeds into a signal stream at high speed and transmitted over a communication channel is achieved by the use of which of the following devices?
- A. Modem
 - B. Acoustic coupler
 - C. Front-End Processor
 - D. Router
 - E. Multiplexer
23. Which of the following is an intelligent terminal equipment on a network connecting devices that send communication traffic directly to appropriate networks by selecting the best path based on destination address?
- A. Router
 - B. Gateway
 - C. Modem
 - D. Bridge
 - E. Repeater
24. Which of the following is a likely limitation of using electronic mail (e-mail) for sending and receiving messages on the Internet?
- A. It is electronic and almost instantaneous
 - B. It is several times cheaper than fax or post
 - C. It is not suitable to mail physical products
 - D. Messages can be prepared once but can be sent to several people at different locations
 - E. Access can be restricted by the use of passwords
25. Which of the following network hardware component is **NOT** necessary for a cabled LAN built on Client/Server Model?
- A. Patch panel
 - B. Bridges
 - C. Network Interface Cards
 - D. T-connector
 - E. Switches
26. Which of the following is **NOT** a property of computer evidence?
- A. Authentic and accurate
 - B. Complete and convincing
 - C. Duplicated and preserved
 - D. Conform and human readable

INSIGHT

- E. Unambiguous
27. Which of the following is **NOT** a health issue associated with the use of computers?
- A. Eye strain
 - B. Headache
 - C. Stomach ache
 - D. Neck pain
 - E. Back pain
28. The costs of an Information System project may be considered under one-off costs and running/operating costs. Which of the following is **NOT** an operating cost?
- A. Staff salaries
 - B. Maintenance costs
 - C. Cost of installation of the system
 - D. Utilities and consumables
 - E. Overhead costs
29. In system development, systems objectives are formulated in which of the following stages?
- A. Feasibility study
 - B. System analysis
 - C. Systems design
 - D. Systems implementation
 - E. System control
30. Which of the following is **NOT** a good way to secure computer systems?
- A. Encrypting messages
 - B. Data backup
 - C. Restricting access
 - D. Anticipating disasters
 - E. Non-installation of firewall

INSIGHT

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

ATTEMPT ALL QUESTIONS IN THIS SECTION

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

1. A type of micro computer that contains several built-in interchangeable personal information, and management functions such as a calendar to keep track of events, an address and phone number is called
2. A data item or value that contains one or more characters is referred to as
3. The use of computers in conjunction with other electronic equipment to execute basic secretarial and clerical tasks of the office is called
4. The method by which a computer sends and stores messages through electronic system in matters of seconds is called
5. A support equipment that is connected to the CPU is known as
6. Central Processing Unit (CPU) consists of memory, control unit and
7. Data input which is in the form suitable for processing without the need for data conversion is called.....
8. Printers that work by striking a head or needle against an ink ribbon to make a mark on the paper is called
9. In windows-based environmentbutton is used to launch application programs
10. In a program flowchart diagram, the diamond shaped box depicts
11. Give the name of the part of a decision table that consists of Boolean values which are responses to contents of the condition stub

INSIGHT

12. Computer forensic analyst is concerned with three types of data which are active data, archival data and data
13. An illegal act being carried out by the use of computer is called
14. The technique of disguising information in order to preserve its confidentiality during transmission and when stored is called
15. A processing technique whereby a number of transactions are accumulated together and processed at a pre-determined time as a single unit is called
16. Data processing technique performed in one computer where all terminals and other devices are connected to a computer server is called
17. The conceptual model that characterises and standardises the communication function of telecommunication with no regard to their underlying internal structure and technology is known as
18. The circuit card in an expansion slot of a computer or other devices such that the device can be connected to a network is called
19. The term that best describes the act of browsing the internet by moving from one page to another using hyperlinks is called
20. The technology that enables employees to do office work from their homes or other locations outside the office is referred to as

INSIGHT

SECTION B: ATTEMPT ANY FOUR QUESTIONS (50 Marks)

QUESTION 1

- a. Define the terms
- Qualitative Information
 - Quantitative Information and give **TWO** examples in each case (6 Marks)
- b. State **THREE** important functions perform by Artificial Intelligent System (AIS) in an organization. (3 Marks)
- c. Calculate the numbers of bytes in:
- 3 Gigabytes
 - 2 Megabytes
- (Let 1 Kilobyte = 10^3 bytes. Show your workings) (3½ Marks)
- (Total 12½ Marks)**

QUESTION 2

- a. What is an output device? (2½ Marks)
- b. State **THREE** characteristics of Impact Printers (3 Marks)
- c. State **THREE** characteristics of Non Impact Printers (3 Marks)
- d. Give **TWO** examples each of Impact and Non Impact Printers (4 Marks)
- (Total 12½ Marks)**

QUESTION 3

- a. i. State the reason why computer low-level language is machine-dependent. (2 Marks)
- ii. State **THREE** features of a machine language. (3 Marks)
- b. i. Give **TWO** basic differences between the Third Generation Programming languages (3 GLS) and the Fourth Generation Programming Languages (4GLS) (2 Marks)
- ii. State **ONE** example each of 3 GLS and 4 GLS (2 Marks)
- c. i. Define the concept “Object-Oriented Programming (OOP)” (2 Marks)
- ii. State **THREE** advantages of OOP over the traditional programming languages. (1½ Marks)
- (Total 12½ Marks)**

INSIGHT

QUESTION 4

- a. i. Give **TWO** differences between decentralised data processing technique and distributed data processing technique. (2 Marks)
- ii. List **TWO** advantages of decentralised data processing technique over distributed data processing technique (2 Marks)
- b. Define the following processing techniques
- i. Multi-processing (1½ Marks)
- ii. Multi-tasking (1½ Marks)
- iii. Multi-programming (1½ Marks)
- c. i. Give **TWO** distinctions between an Information Centre (IC) and Information System (IS) (2 Marks)
- ii. List **FOUR** categories of staff that are available in the IT department of an organization (2 Marks)
- (Total 12½ Marks)**

QUESTION 5

- a. Define the following terms:
- i. Smart Card (2 Marks)
- ii. Optical Card (1½ Marks)
- b. Enumerate **FOUR** advantages and **TWO** disadvantages of social media to business organisations. (6 Marks)
- c. Enumerate **THREE** lapses of Telecommuting to the employer of an organisation. (3 Marks)
- (Total 12½ Marks)**

QUESTION 6

- a. i. System specification is a detailed documentation of a proposed new system.
- You are required to:
- State **TWO** purposes of system specification. (2½ Marks)
- ii. Enumerate **TWO** potential benefits of Joint Applications Development (JAD). (2 Marks)
- b. i. Define Disaster Recovery Plan. (2 Marks)
- ii. Give **TWO** ways to restore information processing operations that have been halted. (2 Marks)
- c. i. What is Computer Forensics? (2 Marks)
- ii. State **TWO** features of a digital evidence. (2 Marks)
- (Total 12½ Marks)**

INSIGHT

SOLUTIONS TO MUTIPLE CHOICE QUESTIONS

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

INSIGHT

30. E

Examiner's report

The 30 MCQ were standard and the candidates performed well. All the questions were within the syllabus.

SOLUTION TO SHORT ANSWER QUESTIONS

1. Palm top Computer (Note Book)
2. Field
3. Office Automation
4. Electronic Mail (E-mail)
5. Online equipment/peripherals
6. Arithmetic Logic Unit (ALU)
7. Direct Data Input
8. Impact Printers
9. Start
10. Decision Making (Query)
11. Condition Entry
12. Latent
13. Computer Crime
14. Encryption
15. Batch Processing
16. Centralised Processing
17. Open Systems Interconnection Model (OSI model)
18. Network Interface Card (NIC)
19. Web Surfing (Surfing)
20. Telecommuting

Examiner's Report

All the SAQ were within the syllabus and the candidates performed fairly well.

INSIGHT

SOLUTION TO QUESTION 1

- a.(i) Qualitative Information is related to the attributes of an entity in respect of quality factors. This type of information is not precise in nature but it is very useful for comparative measurement.

Examples:

- Standard of finished product in respect of paint work or electroplating.
- Variation of tolerances of manufactured parts i.e. , deviation from standard dimensions.

- ii. Quantitative information deals with the magnitudes of variable, their variability or absolute value.

Examples:

- Annual sales of a production company
- Variation in the wages of Low-level staff in an organization
- Prices of goods
- Number of hours worked on a production line

- b. Important functions of AIS include:

- Functioning in the security aspect of an organization
- Assists with reduction of human beings errors
- It facilitates or enhances the speed of work to increase productivity
- It provides adequate controls to safeguard the organisation's assets including data.

- c. 3 Gigabytes

$$10^3 \text{ Bytes} = 1 \text{ Kilobyte}$$

$$10^3 \text{ Kilobytes} = 1 \text{ Megabyte}$$

$$10^3 \text{ Megabytes} = 1 \text{ Gigabyte}$$

∴

$$1 \text{ Gigabyte} = 10^3 \times 10^3 \times 10^3 \text{ Bytes}$$

$$1 \text{ Gigabyte} = 10^{3+3+3} = 10^9 \text{ bytes}$$

$$3 \text{ Gigabytes} = \underline{3 \times 10^9}$$

Gigabytes

2 Megabytes

INSIGHT

10^3 bytes = 1 Kilobyte

10^3 kilobytes = 1 Megabyte

1 Megabyte = $10^3 \times 10^3$ Bytes

1 Megabyte = $10^3 + 3 = 10^6$ bytes

2 Megabyte = 2×10^6 bytes

Examiner's report

This question tests the understanding of the candidates on the types of information, the basic functions of Artificial Intelligence and simple calculations in Data structure. Over 75% of the candidates answered this question and the performance was good.

SOLUTION TO QUESTION 2

- a. Output device is a device used to get results/information from the computer. Output devices translate the computer's output into a form understandable by the users.
- b. Characteristics of Impact Printers
 - i. Very low consumable costs
 - ii. Very noisy
 - iii. Useful for bulk printing due to low cost
 - iv. There is physical contact with the paper to produce an image making use of ribbons.
 - v. Generates poor quality output
 - vi. Low speed of operation
- c. Characteristics of Non-Impact Printers
 - i. Faster than impact printers i.e. high speed of operation
 - ii. They are not noisy (low noise)
 - iii. Produce high quality output
 - iv. Supports many fonts and different character size
 - v. More expensive than impact printers

INSIGHT

- vi. Make use of rays to generate required output
- d. Examples of Impact printers
 - i. Line Printers
 - Chain Printer
 - Drum Printer
 - ii. Character Printers
 - Dot Matrix Printer
 - Daisy Wheel Printers

Examples of Non-Impact printers

- i. Laser Printers
- ii. Inkjet Printers
- iii. DeskJet Printers
- iv. Thermal Printers
- v. Electrostatic Printers
- vi. Xerographers

Examiner's Report

This question tests candidates' understanding on output devices. It demanded for types and characteristics of computer printers. Over 70% of the candidates attempted this question and the performance was fair.

SOLUTION TO QUESTION 3

- a.(i) The reason why computer low-level language is machine - dependent is that:

Programs developed in low-level language for one computer cannot be executed on another computer.

- (ii) Features of a machine language

- 1. Codes are written in form of binary digits

INSIGHT

2. It is machine-oriented
3. Technical knowledge of computer architecture is necessary to be able to write programs.
4. It does not need a language translator.
5. It occupies less space in the memory

b.(i) Differences between 3GLs and 4GLs

1. 3GLs are procedural in use while 4GLs are non-procedural.
2. 4GLs use fewer lines of code to achieve a given task compared to a 3GL.

(ii) Examples of 3GLs

1. Fortran
2. Cobol
3. Basic, etc.

Examples of 4GLs

1. RPG
2. SQL
3. QBE

c.(i) Definition of Object-oriented programming (OOP)

Object-oriented programming is defined as type of programming in which programmers define not only the data type of a data structure, but also the types of operations (functions) that can be applied to the data structure. It is organized around objects rather than actions and data rather than logic.

(ii) Advantages of OOP over traditional programming languages

- i. It uses graphical interface
- ii. It provides enhanced programmer productivity
- iii. It enables faster program development
- iv. OOP applications are built as objects which can be inherited by future applications unlike traditional programming languages.
- v. It uses abstraction in form of classes and objects to create models.

Examiner's Report

This question tests candidates' knowledge on both the low level and high level computer languages. About 60% of the candidates attempted this question and the performance was poor.

INSIGHT

The major pitfall was the inability of the candidates to exhibit understanding of the machine dependence of the low level languages. The candidates are advised to be familiar with the ICAN Study Text.

SOLUTION TO QUESTION 4

a.(i).

Decentralized data processing technique	Distributed data processing technique
1. Each department is processing data in its various location i.e. they are independent to each other. The processing is done with the departmental IT staff.	The processing system is an hybrid of the centralized and decentralized system/approaches.
2. There is no connection of terminals and other devices to different departments even the headquarters' computer server.	Each location has its own computers (server) to handle local processing and the computers in the department are all linked together to the corporate server.
3. There is no connection of terminals and other devices to different departments so the central back-up process is not present.	Various departmental computers are linked together, hence the back up process is interwoven.
4. The resources are processing data within the location/department hence the back-up is restricted to the location.	Less catastrophic loss since the resources including the backup are spread across multiple locations.
5. Departmental secrecy is achieved since data is stored locally	Departmental secrecy is not achievable since the computers are linked together and store data globally.

a.(ii) Advantages of decentralized data processing technique over distributed data processing technique:

INSIGHT

- i. Less Communication cost associated with distribution of information as each department does its own processing using its own IT staff within the department, unlike the global nature i.e. linking of various departments in distributed data processing technique.
 - ii. Departmental secrecy is achieved since data is stored locally. This may not be possible with distributed data processing because the departments are all linked together to the corporate server.
 - iii. It allows the departments to meet their needs, so also the user's needs because there is no connection among the departments.
- b.i. Multi-processing:
This is an act of executing several processes simultaneously by a computer with more than one Central Processing Unit (CPU). Computers that have more than one CPU are called multi-processors.
- ii. Multi-tasking:
This is a system that allows the computer to work on more than one job or task at a time.
 - iii. Multi-programming:
This is a technique that enables a number of programs (Jobs) to interleave with each other such that the execution of one program is overlapped with the I/O operation of the other programs. This is often done by a mainframe computer.
- c.i

Information Centre

- 1. It is a centre designed specifically for storing, processing, and retrieving information for dissemination at regular intervals, on demand or selectively, according to express needs of users.

Information System

It is an organized system for collection, organization, storage and communication of information.

or

It is a group of components that interact to produce information. The components are hard ware and soft ware, networks, procedure.

INSIGHT

- | | | |
|----|--|---|
| 2. | It serves as supporting centre for non-skilled computer user. (i.e. assistance) | It is an organized system managed by skilled worker/staff. |
| 3. | It is manned by technically skilled staff. | It is an integrated system e.g. MIS, CBIS etc. |
| 4. | There may not be any need to manage information centre by any facilities management. | Can be managed by another organization i.e facilities management (FM) |
- ii. Categories of staff in IT department:
- Software engineer (application programmer, software architects, system Programmer/engineer).
 - System analysis (Product specialist, systems engineer, solutions specialist, technical designer).
 - Business analyst (Business architect, enterprise – wide information specialist)
 - Technical support (Helpdesk support, operations analyst)
 - Network engineer (Hardware engineer, network designer)
 - Software tester (Test analyst, software quality assurance tester)

Examiner's Report

This question tests candidates' understanding of data processing techniques. Over 95% of the candidates attempted this question and the performance was poor. Many candidates could not explain the various processing techniques. The candidates are advised to be familiar with ICAN Study texts.

SOLUTION TO QUESTION 5

- a.i. Smart card is a wallet-type card that contains a microprocessor and memory chip that can be used to input data with its usage as bank cards and as medical history cards.

INSIGHT

- ii. Optical card is a plastic, Laser-recordable, wallet-type card used with an optical-card reader with its usage as health card for person's medical history and health-insurance information.
- b. Advantages of social media include:
 - i. Increase exposure/awareness of business or service to new eyes.
 - ii. Organisations can use social media to understand better their target customers/audience
 - iii. Social media provides avenue for businesses to interact with their customers and provide services
 - iv. It is a fast medium for feedback to organizations from customers
 - v. It creates new opportunities to acquire new customers
 - vi. By visiting competitors' social media pages, organizations will understand the edge that their competitors have over them.

The disadvantages of social media include:

- i. If not properly monitored, employees may waste workplace time using social media to chat with friends during office hours.
 - ii. Social media exposes organization's activities to their competitors
 - iii. Fraudsters can attack organisation's network through their social media pages.
- c. Lapses of Telecommuting include:
 - i. There is difficulty in controlling employees
 - ii. There is less security of data and confidential information
 - iii. There is higher communications costs
 - iv. Less physical relationship among co-workers
 - v. Lack of technical support when out of office

Examiner's Report

This question tests candidates' knowledge on the modern idea of electronic financial data storage system: Smart Card and Optizal Cards. It also demanded for the advantages and disadvantages of the social media. Over 95% of the candidates attempted this question and the performance was poor.

INSIGHT

SOLUTION TO QUESTION 6

a (i) The two purposes of system specification are:

1. It serves as a means of communicating all that is required to be known to interested parties such as
 - management for final approval
 - programmers for writing programs
 - operators for operating procedures
 - users for running the system

2. For record/reference purpose which can be used for control, evaluation, modification and training.

(ii) The potential benefits of JAD include:

1. It creates a pool of expertise made up of interested parties from all relevant functions.
2. Reduces risk of systems being imposed on users
3. Increases user ownership and responsibility for systems solution
4. Emphasises the information needs of users and their relationship to business needs and decision making

bi. Disaster Recovery Plan

It is a method used to restore information processing operations that have been halted by destruction or accident.

- ii. Two ways to restore information processing operations that have been halted are:
- Hot site location arrangement
 - Cold site location
 - Warm site

c(i) Definition of computer forensics is:

INSIGHT

Computer forensics is the practice of collecting, analyzing and reporting on digital data in a way that is legally admissible.

- (ii) Features of digital evidence
1. It tends to be voluminous
 2. It is difficult to destroy
 3. It is easily modified
 4. It is easily duplicated
 5. It is potentially more expressive
 6. It is readily available

Examiner's Report

This question tests candidates knowledge on system specification, data recovery plan and computer forensics. Less than 40% of the candidates attempted the question and the performance was very poor.

The major pitfall was the inability of the candidates to exhibit enough understanding of system specification and computer forensics.

Candidates are advised to get more familiar with the ICAN Study Text.

INSIGHT

AT/172/PII.7

ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA

ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA

PART II EXAMINATIONS –SEPTEMBER 2017

QUANTITATIVE ANALYSIS

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. If the coefficient of variation and the mean of a data set are 45.27% and 34.9, respectively, find the variance of the data set
 - A. 296.42
 - B. 244.62
 - C. 269.42
 - D. 249.62
 - E. 246.92

2. The degree of correlation (r) between two variables x and y is expressed by a real number that lies between
 - A. 1.21 and 1.21
 - B. 1.20 and 1.20
 - C. 1.10 and 1.10
 - D. 1.11 and 1.11
 - E. 1.00 and 1.00

3. Which of the following problem is **NOT** associated with construction of index numbers?
 - A. Selection of sources of data
 - B. Selection of items to include in the index
 - C. Unweighted average quantity index
 - D. Method of collecting data
 - E. Choice of weight

4. Which of the following is **NOT** a disadvantage of the Moving Average Method for estimating trend in Time Series Analysis?
 - A. The method is simple compared with Least Squares Method
 - B. The extreme values are always lost by the Moving Average Method
 - C. The method is **NOT** suitable for forecasting
 - D. It is **NOT** good for non-Linear trend
 - E. It is **NOT** good for prediction into the future

INSIGHT

5. If a fair coin and an unbiased die are tossed together, find the probability of getting a Head and a prime number
- A. $\frac{5}{6}$
 - B. $\frac{3}{4}$
 - C. $\frac{1}{2}$
 - D. $\frac{1}{4}$
 - E. $\frac{1}{6}$
6. Given that the critical value for a tail test is 1.812, find the level of significance if the sample size is 11
- A. 0.500
 - B. 0.050
 - C. 0.025
 - D. 0.010
 - E. 0.005
7. Compute the Geometric mean of the following data set: 8, 4, 2, 6, 13, 17, 14
- A. 169,728.00
 - B. 1,090.00
 - C. 155.71
 - D. 9.14
 - E. 7.38
8. Which of the following hypothesis does **NOT** represent a two-tailed test?
- A. $H_0: \mu_1 = \mu_2$ vs $H_1: \mu_1 - \mu_2 \neq 0$
 - B. $H_0: \mu_1 = \mu_2$ vs $H_1: \mu_1 \neq \mu_2$
 - C. $H_0: \mu_1 = \mu_2$ vs $H_1: \mu_1 > \mu_2$
 - D. $H_0: \mu_1 = N60m$ vs $H_1: \mu_1 \neq N60m$
 - E. $H_0: \mu_1 = Le75,000$ vs $H_1: \mu_1 \neq Le75,000$
9. For monthly Time Series and a Semi-annual Time Series data, the orders of the moving average are, respectively, given as
- A. 2 and 6
 - B. 4 and 2
 - C. 6 and 3
 - D. 10 and 4
 - E. 12 and 2

INSIGHT

10. Which of the following is **NOT** a demerit of Secondary data?
- A. It is **NOT** time consuming
 - B. It may **NOT** be reliable
 - C. It is readily misleading
 - D. It may **NOT** be accurate
 - E. It may give error during computation
11. Given 2005 as the origin in the table below with trend line $Y = 2.85x + 23$, find the forecast sales for 2010

Year	2003	2004	2005	2006	2007
Sales ₦	12.5	16.5	17.5	21.0	24.5

- A. ₦15.80
 - B. ₦42.95
 - C. ₦37.25
 - D. ₦40.10
 - E. ₦42.95
12. Essential features of a statistical table in data presentation are the following **EXCEPT**
- A. A title to give adequate information
 - B. Heading for identification of rows and columns
 - C. Frequency of the number of times a value or group of values occurred in the given data
 - D. Footnote to give some detailed information on some figures in the table
 - E. Source and destination i.e. the origin of figures
13. The revenue function (₦) of an item is given by $f(x) = x^3 + 15x^2 + 20x$, where x is the number of items produced and sold. If 8 items are sold, obtain the corresponding revenue to the nearest hundred Naira
- A. ₦1,600
 - B. ₦1,610
 - C. ₦1,612
 - D. ₦1,620
 - E. ₦1,622
14. A profit function (GH¢) of a production company has been estimated to be, $5q^2 + 15q - 200$, where q is the quantity of the product produced and sold. If the revenue function is four times the cost function, determine the cost of producing 30 units of the product
- A. GH¢1,433.30
 - B. GH¢1,433.33

INSIGHT

- C. GH¢1,583.30
 D. GH¢1,583.33
 E. GH¢1,583.34
15. Find the amount of an annuity of Le60,000 per annum at 6% interest per annum for 8 years
 A. Le593,480.07
 B. Le593,484.07
 C. Le593,488.07
 D. Le593,840.07
 E. Le93,848.07
16. Which of the following is **NOT** true about the gradient of a line?
 A. It is the increase in y divided by the increase in x
 B. It is constant at any point on the line
 C. It is a rate of change
 D. Its value must always be an integer
 E. It is also called a slope
17. If $p(q) = 3q^2 + 4q + 60$, determine the rate of change of p when $q = 4$
 A. 160
 B. 140
 C. 28
 D. 20
 E. 16
18. Integration can be used for all of the following **EXCEPT** to
 A. Find the area under a curve
 B. Determine the totals from marginal
 C. Find the rate of change
 D. Reverse differentiation
 E. Determine consumer's surplus
19. Operations Research is very important to decision-making in business because it
 A. Has a wide area of coverage
 B. Allocates scarce resources as necessary
 C. Assists in cost benefit analysis
 D. Allocates scarce resources optimally
 E. Allocates resources according to the needs
20. A Company produces **TWO** types of items X and Y by using labour hours and materials (kg). The table below gives information on the requirements and availability:

	X	Y	Available
Item			
Requirements			

INSIGHT

Labour	10	8	60
Materials	200	150	500

The two relevant constraints for the problem are

- A. $10x + 8y \leq 60$ and $200x + 150y \geq 500$
 - B. $10x + 8y \geq 60$ and $200x + 150y \geq 500$
 - C. $10x + 8y = 60$ and $200x + 150y \geq 500$
 - D. $10x + 8y \leq 60$ and $200x + 150y = 500$
 - E. $10x + 8y \leq 60$ and $200x + 150y \leq 500$
21. In a Linear Programming problem, when the labour hours are increased by 1 hour, the values of the decision variables become $x = 28$ and $y = 47$ where x and y denote the labour hours and materials in kilograms respectively. If the objective function is $700x + 800y$ and the original contribution was ₦48,500.00, determine the shadow cost
- A. ~~₦8,600~~
 - B. ~~₦8,620~~
 - C. ~~₦8,700~~
 - D. ~~₦8,720~~
 - E. ~~₦9,000~~
22. In inventory control, transaction motive for holding stocks is to
- A. Avoid loss of sales due to uncertainties
 - B. Guide against shortage from suppliers
 - C. Prevent price increase by the suppliers
 - D. Have buffer stock
 - E. Meet demand at any given time
23. Which of the following is **NOT** an advantage of a Periodic Review System in inventory control?
- A. Obsolete items are discarded from time to time
 - B. It improves production planning
 - C. It allows for continuous ordering of items
 - D. Re-order quantities are not economical
 - E. It reduces the “Load” of the purchasing
24. In Network Analysis, the critical path is the path for which the following are true **EXCEPT** that it
- A. Cannot be elongated
 - B. Contains the critical activities
 - C. Has the shortest duration
 - D. Has the longest duration
 - E. Cannot be delayed

INSIGHT

25. The following must be satisfied in drawing a network diagram **EXCEPT** that
- A. Arrows must be shown to indicate directions
 - B. All activities must be identified with their duration
 - C. All activities must contribute to the progression of the project
 - D. There must be a starting event and a finishing event
 - E. Two activities may start on the same node and end on the same node
26. The Earliest Finish Time (EFT), Latest Finish Time (LFT), Earliest Start Time (EST), Latest Start Time (LST) and the Duration (D) of an activity are respectively given as 23, 23, 15, 16, 4 (in weeks). Determine the Total Float of the activity
- A. 5
 - B. 4
 - C. 3
 - D. 2
 - E. 1
27. The resistors in an equipment have a life span of 3 months. The table below gives the cumulative failure rates in percentages

Month	Cumulative percentage failure
1	40
2	75
3	100

- You are required to determine the average life span of the resistors
- A. 1.85
 - B. 1.86
 - C. 1.80
 - D. 1.81
 - E. 1.84
28. A production company has three plants located at A, B and C, with the production capacities of 60, 70, and 40 units per month respectively. The company wants to distribute these products to its customers located at P, Q, R and S with demands of 30, 25, 45 and 38 units per month respectively. In order to balance this transportation problem, a dummy customer has to be created with a demand of
- A. 36 horizontal
 - B. 36 vertical
 - C. 38 horizontal
 - D. 32 vertical
 - E. 39 vertical

INSIGHT

29. Which of the following methods can be used to initiate a basic solution in an Assignment Problem?
- A. Northwest Corner Method
 - B. Vogel's Approximation Method
 - C. Least Cost Method
 - D. Stepping Stone Method
 - E. Hungarian Method

30. The daily demands of an item of stock for four days with its probabilities are given in the following table:

Daily Demand	Probability
20	0.20
30	0.40
40	0.25
50	0.15

Obtain the random number interval that will be allocated to a daily demand of 40

- A. 60 - 85
- B. 60 - 83
- C. 61 - 85
- D. 60 - 84
- E. 61 - 84

**SECTION A:
(20 Marks)**

PART II SHORT-ANSWER QUESTIONS

ATTEMPT ALL QUESTIONS IN THIS SECTION

Write the correct answer that best completes each of the following questions

/statements:

1. Sampling can be broadly classified into **TWO** types: namely and
2. The graph of frequencies against class marks is known as
3. If the 25th percentile and 75th percentile of a data set are 11.3 and 57.7 respectively, the Quartile deviation of the data set is.....

INSIGHT

4. The type of correlation that exists between the demand and price of a normal commodity is called
5. Additive and multiplicative models are **TWO** models of a
6. The trend line of a time series data is given as $T = 20.75 + 0.25x$. If the seasonal adjustment obtained for $x = 10$ and using the multiplication model is 1.4, then the adjusted forecast will be.....
7. The table below shows the price per unit of **FOUR** household items (in L\$) for years 2016 and 2017

	Household items			
Year	P	Q	R	S
2016	150	200	170	180
2017	190	240	160	260

- The corresponding simple aggregative price index for the table using 2016 as base year is.....
8. Suppose the chances that **TWO** friends A and B will be successful in a particular business venture are 0.7 and 0.6, respectively. If the **TWO** events are independent, then the probability that neither of them will be successful is.....
 9. A function where the direction of relationship between variables **CANNOT** be clearly expressed is referred to as anfunction
 10. A sales level which is above the break-even quantity of a firm yields a
 11. Calculate the quarterly amount to be paid over 6 years for a sinking fund of Le6,331,222 if the compound interest rate is 8% per quarter?
 12. The slope of a curve because different points result in different gradients.
 13. The main objective of Linear Programming problem is to allocateresources in anway
 14. If a Linear Programming problem is solved graphically, the solution is at **ONE** of the.....points of the..... region
 15. **ONE** of the functions of inventory is to ensure that stock items are..... when..... is made.

INSIGHT

16. **ONE** of the main assumptions for deterministic model in Inventory Control is that **ALL** the are known and are.....
17. Another name for Network Analysis is
18. When machines wear out gradually, it leads to in the of the machine.
19. For items which fail suddenly,..... replacement is preferred.
20. In an Assignment Problem, the optimal solution is reached when the number of lines used to cross out the..... is equal to the number of to be made.

SECTION B:

ATTEMPT ANY FOUR QUESTIONS

QUESTION 1

- a. The following table shows the monthly salaries of some members of staff in a bank:

Salary (L\$'000)	Number of Employees
31-40	8
41-50	25
51-60	36
61-70	22
71-80	9

You are required to calculate the

- i. Tenth percentile (2½ Marks)
 - ii. Ninetieth percentile (2 Marks)
 - iii. Interpercentile range (1½ Marks)
- b. There is 60% chance that Mr. Butadot will supply stationery items to TOTAL Ventures while there is a 25% chance that Mr. Dupo will not supply stationery items to TOTAL Ventures. If the supply and non-supply of the two of them are independent, what is the chance that TOTAL Ventures will always have a supply of stationery items?

(6½ Marks)

(Total 12½ Marks)

INSIGHT

QUESTION 2

- a. The unit prices (Le) of four items A, B, C and D and their respective quantities purchased for 2014 and 2016 are given in the table below:

Item	2014		2016	
	Price (Le)	Quantity	Price (Le)	Quantity
A	35	40	59	32
B	20	21	44	18
C	12	12	22	14
D	8	10	20	5

Use 2014 as the base year to determine the Laspeyre's Price Index for 2016.

(6 Marks)

- b. A production company has claimed that the mean weight of its products is 2.79gms with a standard deviation of 0.80gm.

In order to monitor the weight of the products being supplied to customers, the quality control unit of the company took a random sample of 400 items and computed the mean weight to be 2.85gms.

- i. Would you say that this is significantly different from the Company's target at 5% level of significance?
(5½ Marks)
- ii. Hence, state the Type I error of your decision in (i) above

(1 Mark)

(Hint: $Z_{\text{tab}} = 1.96$)

(TOTAL 12½ Marks)

QUESTION 3

- a. A gambler plays a game of chance by rolling a fair die.

The table below shows his winnings based on the number which shows up on the face of the die:

Number showing	Winnings (₦)
Up	
2	3,000
3 or 5	2,000
4 or 5	5,000
1	1,500
6	7,500

If the gambler is to stake ₦5,000, use the expectation method to advise him on whether to play the game or not. (5 Marks)

INSIGHT

- b. i. A foreign Investor intends to make an investment worth ₦70million now and expect to receive ₦85million in 3 years' time. Find the discount rate at which the Net Present Value (NPV) is zero. (6½ Marks)
- ii What is the actual name used to describe the discount rate in b(i) above? (1 Mark)
- (TOTAL 12½ Marks)**

QUESTION 4

- a. Use graphical method to solve the following Linear Programming problem:

$$\text{Minimise } Z = 40x + 50y$$

Subject to

$$5x + 2y \geq 500$$

$$4x + 3y \geq 600$$

$$x \geq 0$$

$$y \geq 0$$

(6 Marks)

- b. The demand for an item of stock is 1,000 units per month for the first five months of the year, 1,500 units per month for the next four months and 800 units per month for the rest of the year. If the cost of an order is ₦250 and holding cost is ₦25 per item per annum, calculate the Economic Order Quantity to the nearest whole number.

(6½ Marks)

(Total 12½ Marks)

QUESTION 5

- a. The activities needed to complete a project with their durations (in weeks) and preceding activities are as shown below:

Activity	Preceding Activity	Duration (Weeks)
A	-	5
B	-	7
C	A and B	6
D	B	4
E	D	2

You are required to:

INSIGHT

- i. Draw the A- O- A network diagram and identify all the paths with their durations
 - ii. Identify the critical path and calculate its duration (6 Marks)
- b. The cost of an equipment is Le60,000 and the estimated annual cost with the resale value at the end of every year for four years are as follows:

Year	Annual Maintenance Cost (Le)	Resale value at the end of the year (Le)
1	12,000	46,000
2	16,000	38,000
3	18,000	34,000
4	30,000	19,000

You are required to:

Determine the optimum replacement year using the average annual cost. (6½ Marks)

(Total 12½ Marks)

QUESTION 6

- a. DUPAB Ghana Limited has estimated the probabilities of the daily demand for her products as follows:

Demand	Probability
10	0.25
20	0.30
30	0.26
40	0.19

Use the following random numbers 00, 30, 64, 55, 48 to simulate the demand for the next 5 days. (5 Marks)

- b. A Firm incurs a fixed production cost of GH¢72,000 and a variable cost of GH¢3,600 per unit of the output. If the company's demand function is $P = 4000 - \frac{q}{50}$, where P and q are respectively, the unit price and number of units demanded.

Calculate:

- i. The Marginal Revenue (2½ Marks)
- ii. The Marginal Cost (2½ Marks)
- iii. The number of units to be produced to maximize the profit of the firm using the results of (i) and (ii) above. (2½ Marks)

(Total 12½ Marks)

INSIGHT

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 μ

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

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

$$b = \frac{\sum ty}{\sum t^2}$$

$$a = \bar{y} - bx_m,$$

$x_m =$ median of x

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

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

INSIGHT

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

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

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

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

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

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 + Holding cost

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

INSIGHT

SOLUTION MULTIPLE CHOICE QUESTIONS

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

INSIGHT

28. D

29. E

30. D

Examiner's Report

The general performance of candidates in MCQ were quite encouraging in. About 70 percent of the candidates scored above average mark.

WORKINGS

$$\begin{aligned}
 1. \quad \text{COV} &= \frac{S.D}{M} \times 100\% \\
 45.27 &= \frac{\sigma}{34.9} \times 100 \\
 \frac{45.27 \times 34.9}{100} &= \sigma \\
 15.79923 &= \sigma \\
 \text{Variance} &= \sigma^2 \\
 &= 15.79923^2 \\
 &= 249.615669 \\
 &= 249.62 \quad \text{(D)}
 \end{aligned}$$

5.		1	2	3	4	5	6
	H	1 H	2 H	3 H	4 H	5H	6 H
	T	1T	2T	3T	4T	5T	6T

$$\begin{aligned}
 \text{Pr (H)} &= \frac{1}{2} \quad 4 \\
 \text{Pr (Prime)} &= \frac{3}{6} = \frac{1}{2} \\
 \text{Pr (H and Prime number)} &= \text{pr (2H or 3H or 5H)} \\
 &= \left(\frac{1}{2} \times \frac{1}{6}\right) + \left(\frac{1}{2} \times \frac{1}{6}\right) + \left(\frac{1}{2} \times \frac{1}{6}\right) \\
 &= \frac{1}{12} + \frac{1}{12} + \frac{1}{12} \\
 &= \frac{3}{12} \\
 &= \frac{1}{4} \quad \text{(D)}
 \end{aligned}$$

$$\begin{aligned}
 6. \quad t_{\alpha, n-1} &= 1.812 \quad \text{from table} \\
 \text{df} &= 11-1 = 10 \\
 t(\alpha, 10) &= 1.812 \\
 \alpha &= 0.05 \quad \text{(B)}
 \end{aligned}$$

$$\begin{aligned}
 7. \quad \text{G.M} &= \sqrt[7]{8 \times 4 \times 2 \times 6 \times 13 \times 17 \times 14} \\
 &= \sqrt[7]{1,188,096} \\
 &= 7.38 \quad \text{(E)}
 \end{aligned}$$

INSIGHT

11. Year	x	y	x^2	xy
2003	-2	12.5	4	-25
2004	-1	16.5	1	-16.5
2005	0	17.5	0	0
2006	1	21.0	1	21
2007	2	<u>24.5</u>	<u>4</u>	<u>49</u>
		<u>92</u>	<u>10</u>	<u>28.5</u>

$$y = mx + c$$

$$m = \frac{\sum xy}{\sum x^2} = \frac{28.5}{10}$$

$$m = 2.85$$

$$c = \frac{\sum y}{n} = \frac{92}{4}$$

$$c = 23$$

$$\therefore y = 2.85x + 23$$

$$\text{For } 2010, \quad x = 5$$

$$y = 2.85(5) + 23$$

$$= \text{N}37.25 \quad \text{(C)}$$

$$\begin{aligned}
 13. \quad f(x) &= x^3 + 15x^2 + 20x \\
 f(8) &= (8)^3 + 15(8)^2 + 20(8) \\
 &= 512 + 960 + 160 \\
 &= 1612 \\
 &= \text{i.e. } \text{N}1600 \quad \text{(A)}
 \end{aligned}$$

$$\begin{aligned}
 14. \quad P(q) &= 5q^2 + 15q - 200 \\
 4c(q) - 4q &= 3(q) = 3(q) = 15q^2 + 15q - 200 \\
 C(q) &= \frac{5q^2}{3} + 5q - \frac{200}{3} \\
 C(30) &= \frac{4500}{3} + 150 - 66.67 \\
 &= \text{GH}¢1583.33 \quad \text{(D)}
 \end{aligned}$$

$$15. \quad S = \frac{A [(1+r)^n - 1]}{r}$$

$$S = \frac{60,000[(1.06)^8 - 1]}{0.06}$$

$$S = \text{Le } 593,848.07 \quad \text{(E)}$$

INSIGHT

17. If $P(q) = 3q^2 + 4q + 60$, determine the rate of change when $q = 4$

$$P(q) = 3q^2 + 4q + 60$$

$$\frac{dp(q)}{dq} = 6q + 4$$

$$\text{When } q = 4$$

$$\frac{dp(q)}{dq} = 24 + 4 = 28 \quad (\text{C})$$

21. New contribution is $700(28) + 800(47) = \text{N}57,200$
 \therefore shadow cost is $\text{N}57,200 - \text{N}48,500 = \text{N}8,700 \quad (\text{C})$

26. Total Float = LFT - EST - D
 $= 23 - 15 - 4$
 $= 4 \text{ weeks} \quad (\text{B})$

27. Month (x_i)	Cumulative percentage failure	Probability (P_i)	$P_i x_i$
1	40	0.40	0.40
2	75	0.35	0.70
3	100	<u>0.25</u>	<u>0.75</u>
			<u>1.85</u> (A)

28. Total production = 170
 Demand = 138
 Dummy Customer = $170 - 138$
 $= 32 \text{ products} \quad (\text{D})$

30. Daily demand	probability	Cumulative probability	Random number interval
20	0.20	0.20	00 - 19
30	0.40	0.60	20 - 59
40	0.25	0.85	60 - 84
50	0.15	1.00	85 - 99

\therefore random number interval allocated to daily demand of 40 is 60 - 84
 (D)

INSIGHT

SOLUTION TO SHORT -ANSWER QUESTIONS

1. Probability sampling/Random sampling, Non-probability or Non-random sampling
2. Frequency polygon
3. 23.2 or 23
4. Negative Correlation
5. Time series
6. 32.55 or 32.6 or 33
7. 121.4% or 121.43% or 121%
8. 0.12 or 0.1
9. Implicit
10. Profit
11. Le 94,828.81
12. Varies or changes or is not a constant
13. Limited or scarce, optimum or optimal (in that order)
14. Corners, feasible (in that order)
15. Available, demand or order (in that order)
16. Factors, constant or unchanged (in that order)
17. Critical Path Analysis or Project Evaluation and Review Technique
18. Decrease or depreciation or reduction, efficiency or value (in that order)
19. Group or Mass
20. Zeros, allocations (in that order)

WORKINGS

$$\begin{aligned} 3. \quad P_{25} &= 11.3, & P_{75} &= 57.7 \\ P_{25} &= Q_1 \quad \text{and} & P_{75} &= Q_3 \\ \text{Quartile deviation} & & &= \frac{Q_3 - Q_1}{2} \end{aligned}$$

INSIGHT

$$= \frac{57.7 - 11.3}{2} = \frac{46.4}{2}$$

$$= 23.2$$

6. At $x=10$, $T = 20.75 + 0.25(10) = 23.5$
 Then the adjusted forecast $= 23.25 \times 1.4$
 $= 32.55$

7. Sample aggregate price index = $\frac{\sum P_{2017}}{\sum P_{2016}} \times \frac{100}{1}$

$$\sum P_{2016} = 700$$

$$\sum P_{2017} = 850 = \frac{850}{700} \times \frac{100}{1}$$

$$= 121.4\%$$

8. $P(A) = 0.7$, $P(A') = 1 - 0.7 = 0.3$
 $P(B) = 0.6$, $P(B') = 1 - 0.6 = 0.4$
 $P(\text{neither of them}) = P(A' \cap B') = P(A') \cdot P(B')$
 $= 0.3 \times 0.4$
 $= 0.12$

11. $S = \frac{A[(1+r)^n - 1]}{r}$

$$633122 = \frac{A[(1+0.08)^{24} - 1]}{0.08}$$

$$A = \frac{(633122 \times 0.08)}{(1.08)^{24} - 1}$$

$$A = \frac{6331222 \times 0.08}{5.34118}$$

$$A = \text{Le}94,828.81$$

INSIGHT

Examiner's report

The general performance of the candidates in SAQ was below average. About 25% of the candidates scored above average mark.

SOLUTION 1

Salary (L\$'000)	Number of employees	Cumulative Frequency
31 - 40	8	8
41 - 50	25	33
51 - 60	36	69
61 - 70	22	91
71 - 80	9	100

$$\text{i. } P_{10} = L + \left(\frac{N/10 - f_{10}}{f_{p_{10}}} \right) C$$

$$\frac{N}{10} = \frac{100}{10} = 10 \text{ i.e } P_{10} \text{ class is } 41 - 50, F_{10} = 8$$

$$\therefore P_{10} = 40.5 + \left(\frac{10-8}{25} \right) 10$$

$$\text{L\$ } 41.30$$

$$\text{ii. } P_{90} = L + \left(\frac{90N/100 - f_{90}}{f_{p_{90}}} \right) C$$

$$\frac{90N}{100} = \frac{90(100)}{100} = 90 \text{ i.e } P_{90} \text{ class is } 61 - 70, F_{10} = 69$$

$$\therefore P_{90} = 60.5 + \left(\frac{90-69}{22} \right) 10$$

$$= \text{L\$ } 70.05$$

$$\text{iii. Interpercentile range} = P_{90} - P_{10}$$

$$= 70.05 - 41.30$$

$$= \text{L\$ } 28.75$$

b. Let B represent the event "Butadot supplies"

INSIGHT

and D represent the event “Dupo supplies”

$$\begin{aligned}
 \therefore P(B) &= 0.60, P(B') &= 0.40 \\
 P(D) &= 1 - 0.25 &= 0.75 \\
 \text{Required problem} &= P(B \cup D) \text{ i.e } P(\text{either B or D or both}) \\
 &= P(B) + P(D) - P(B \cap D) \\
 &= 0.6 + 0.75 - (0.6)(0.75) \\
 &= 0.90
 \end{aligned}$$

Examiner’s Report

The question tests candidates’ knowledge of computation of measures of dispersion/variability as well as the concept of probability in business. About 80% of the candidates attempted the question with an average score of 6 out of 12^{1/2} marks allocated to it. This shows that the candidates demonstrated fair knowledge of these two concepts. Candidates preparing for future examinations in this paper are advised to make use of ATSWA study text and other relevant textbooks for improved performance

SOLUTION 2

Items	P_o	q_o	P_1	$P_o q_o$	$P_1 q_o$
A	35	40	59	1400	2360
B	20	21	44	420	924
C	12	12	22	144	264
D	8	10	20	80	200
				<u>2044</u>	<u>3,748</u>

$$\begin{aligned}
 \text{LPI} &= \frac{\sum P_1 q_o}{\sum P_o q_o} \times 100 \\
 &= \frac{3748}{2044} \times 100 \\
 &= 183.37\%
 \end{aligned}$$

b (i) $H_o : \mu = 2.79$

INSIGHT

$$H_1 : \mu \neq 2.79$$

$$\begin{aligned} Z_{\text{cal}} &= \frac{\bar{x} - \mu}{\sigma / \sqrt{n}} \\ &= \frac{2.85 - 2.79}{0.80 / \sqrt{400}} \\ &= 1.50 \end{aligned}$$

Since $1.50 < 1.96$, H_0 is accepted i.e there is no significant difference between the sample mean and the population mean.

(ii) The Type i error is : reject H_0

Examiner's Report

The question tests candidates' understanding of the concepts and application of Index Number as well as hypothesis testing in business.

More

than 95 percent of the candidates attempted the question out of which about 80 percent scored 5 marks and above. The candidates' pitfall is that,

most of the candidates were unable to state the hypotheses correctly leading

to taking wrong decisions and omission of unit. Candidates are advised to prepare well for future examinations by using ATSWA study text and other

recommended text books.

SOLUTION 3

a.

Number Showing up	Probability	Winnings	Expected Winnings(N)
2	$\frac{1}{6}$	3000	500.00
3 or 5	$\frac{2}{6}$	2000	666.67
4 or 6	$\frac{2}{6}$	5000	1666.67
1	$\frac{1}{6}$	1500	250.00

INSIGHT

6	$\frac{1}{6}$	7500	<u>1250.00</u>
---	---------------	------	----------------

4,333.34

Since his total expected winning is less than ₦5,000, he should not play the game.

b. (i) Let i be the discount rate

The NPV of this investment is

$$\text{NPV} = 70,000,000 + \frac{85,000,000}{(1+i)^3}$$

$$\text{Since NPV} = 0$$

$$\therefore -70,000,000 + \frac{85,000,000}{(1+i)^3} = 0$$

$$\frac{85,000,000}{(1+i)^3} = 70,000,000$$

$$(1+i)^3 = \frac{85,000,000}{70,000,000}$$

$$(1+i)^3 = 1.214$$

$$1+i = \sqrt[3]{1.214}$$

$$1+i = 1.067$$

$$i = 1.067 - 1$$

$$i = 0.067$$

The discount rate of which NPV is zero is about 6.7%

(ii) The general term for the discount rate in (i) is Internal Rate of Return (IRR)

Examiner's Report

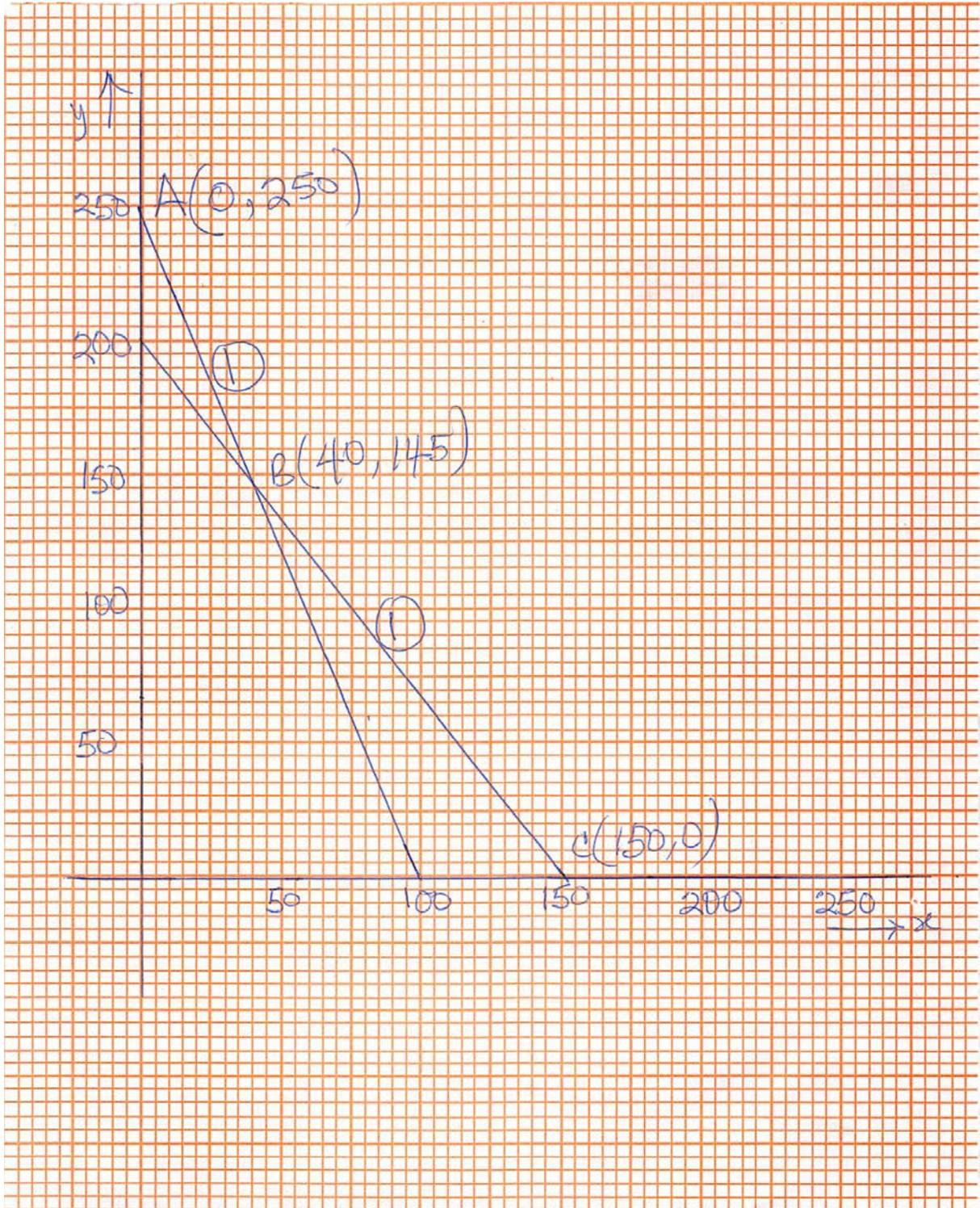
The question tests candidates' knowledge of the concepts of probability

INSIGHT

and Net Present Value (NPV) as well as their application in business environment. Almost 35 percent of the candidates who sat for the paper attempted the question out of which less than 10 percent scored 5 and above. Many of the candidates used wrong formula in solving NPV problems thus implying a poor understanding of this topic. For future examinations, candidates are advised to cover the entire syllabus, make us of ATSWA study text and other relevant text books.

SOLUTION 4

INSIGHT



From the graph, the corner points are

A	(0,250)	:	0 + 12500	=	12500
B	(40, 145)	:	1600 + 7250	=	8850
C	(150,0)	:	6000 + 0	=	6000

INSIGHT

The solutions are $x = 150, y = 0$

$$b. \quad d = (5 \times 1000) + (4 \times 1200) + (3 \times 800)$$

$$d = 5000 + 6000 + 2400 = 13,400$$

$$\begin{aligned} Q &= \sqrt{\frac{2cd}{h}} \\ &= \sqrt{\frac{2 \times 250 \times 13400}{25}} \\ &= 517.69 \\ &= 518 \end{aligned}$$

Examiner's Report

The question tests candidates' knowledge on two concepts vis: application

of Linear Programming (LP) and Inventory Control. 99 percent of the candidates attempted this question. The performance was above average with about 75% of the candidates scoring above average mark.

The performance of the candidates in this question is highly commendable.

The major pitfalls are: inability of some candidates to derive Economic Order

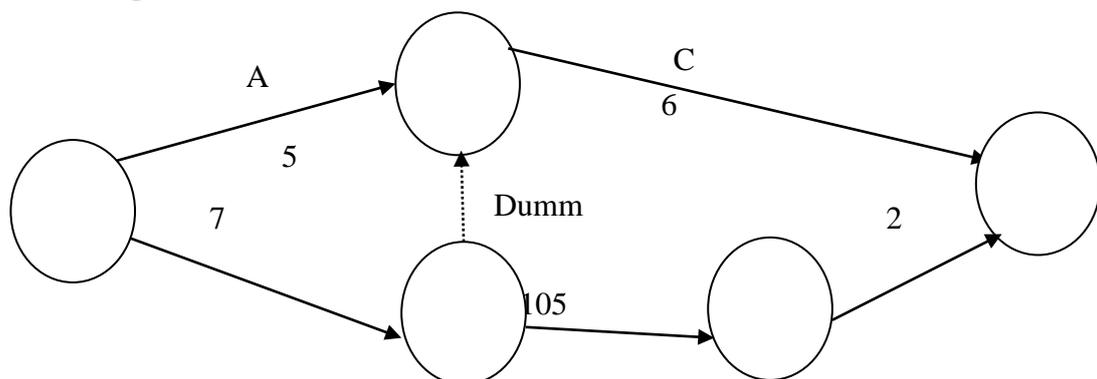
Quantity (EOQ), inability of some candidates to use graph sheets to plot the

relevant variable thus creating difficulty in graph plotting and providing correct interpretations thereof. Above all, candidates are advised to make

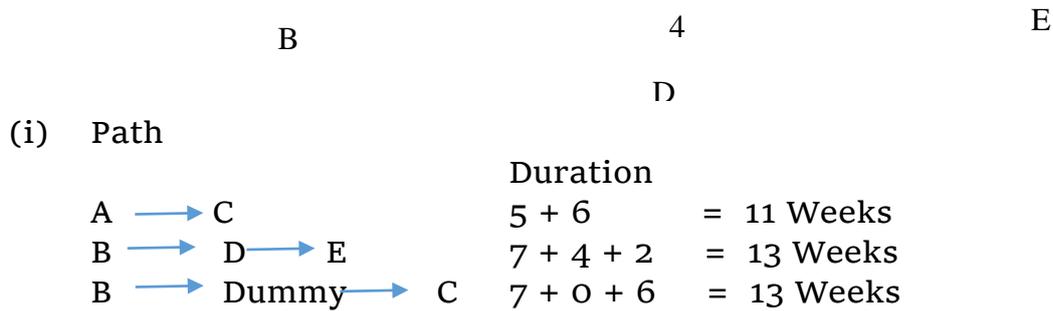
good use of ATSWA study text and other relevant textbooks for future examinations.

SOLUTION 5

(a)



INSIGHT



(ii) Critical path is either B → D → E with 13 weeks duration or
 B → dummy → C with 13 weeks duration.

b.

(Col 1) Year	(Col 2) Resale Value ₦	(Col 3) Annual maintenance	(Col 4) Cumulative maintenance cost	(Col 5) Annual capital cost (60,000 - Col 2)	(Col 6) Total Annual cost (Col 4 + Col 5)	(Col 7) Average annual cost (Col 6 ÷ Col 1)
1	46,000	12000	12000	14000	26000	26,000
2	38,000	16000	28000	22000	50000	25,000
3	34,000	18000	46000	26000	72000	24,000
4	19,000	30000	76000	41000	117000	29,250

The replacement cycle is 3 years because it has the lowest average annual cost of Le24000.

Examiner's Report

The question tests candidates' understanding of the concepts of Network and

Replacement analysis and their applications to business. 99 percent of the

candidates attempted this question out of which about 25 percent scored below average. 70 percent of the candidates that attempted the question could not correctly construct the network diagram and more than 30 percent

of the candidates who attempted the replacement Analysis did not create the

required table for the required analysis. Adequate preparation for an examination of this nature, by way of lectures attendance and the use of ATSWA Study text is highly recommended for future examinations.

INSIGHT

SOLUTION 6

a.

Demands	Probability	Cum. Prob.	Random number interval
10	0.25	0.25	00 - 24
20	0.30	0.55	25 - 54
30	0.26	0.81	55 - 80
40	0.19	1.00	81 - 99

Day	Random number	Simulated demand
1	00	10
2	30	20
3	64	30
4	55	30
5	48	20

b.(i) $TR = pq$

Where TR = Total Revenue

$$TR = \left(4,000 - \frac{q}{50}\right)q$$

$$TR = 4,000q - \frac{q^2}{50}$$

$$MR = \frac{dTR}{dq} = 4,000 - \frac{q}{25}$$

(ii) $TC = FC + TVC$

where TC = Total Cost

FC = Fixed Cost

TVC = Total Variable Cost

$$TC = 72,000 + 3,600q$$

$$MC = \frac{dTC}{dq} = 3,600$$

(iii) By using the results in (i) and (ii) at maximum profit, $MR = MC$

INSIGHT

$$4,000 - \frac{q}{25} = 3,600$$

$$\frac{q}{25} = 4,000 - 3,600$$

$$\frac{q}{25} = -3,200$$

$$q = -80,000 \text{ units}$$

Examiner's Report

The question tests candidate's knowledge of the concepts of Marginal Revenue, Marginal Cost, simulation and their application to business. About 60 percent of the candidates attempted the question however, 35% of those that attempted the question scored above average marks. The major pitfall is that the candidates lack adequate knowledge of simulation and calculus. Candidates' are therefore advised to prepare well for future examinations, make use of ATSWA study text and other relevant materials.