

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 **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

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INSIGHT

ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2019
PRINCIPLES AND PRACTICE OF FINANCIAL ACCOUNTING

Time Allowed: 3 hours

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

ATTEMPT ALL QUESTIONS

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

1. Which of the following should NOT be disclosed in the statement of changes in equity?
 - A. Finance cost
 - B. Revaluation surplus
 - C. Dividend paid
 - D. Increase in share capital
 - E. Transfer to retained earnings
2. When the Statement of Profit or Loss and Other Comprehensive Income is prepared using nature of expenses method, which of the following is NOT disclosed?
 - A. Changes in inventories of finished goods
 - B. Employee benefit expenses
 - C. Raw materials consumables used
 - D. Distribution cost
 - E. Depreciation and amortisation expenses
3. The excess of total assets over total liabilities is called
 - A. Amortisation fund
 - B. Shareholders fund minus long term liabilities
 - C. Net assets
 - D. Fixed assets plus liabilities
 - E. Shareholders fund plus long term liabilities

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4. Which of the following is NOT a profitability ratio?
 - A. Gross profit margin
 - B. Return on equity
 - C. Net profit margin
 - D. Price earnings ratio
 - E. Return on capital employed

5. Which of the following is NOT a component of statement of profit or loss?
 - A. Revenue
 - B. Finance costs
 - C. Depreciation
 - D. Cost of sales
 - E. Dividend

6. What is the cost of goods sold, given that the sales figure is ₦1,500,000 with a mark-up of 25%?
 - A. ₦300,000
 - B. ₦756,000
 - C. ₦960,000
 - D. ₦1,200,000
 - E. ₦1,500,000

7. Mansa, Diego and Mike are in partnership sharing profits in ratio 5:3:1. Mansa but not Diego guaranteed Mike minimum share of distributable profit of ₦423,000 yearly. Calculate the share of profits of Mansa during the year in which distributable profit is ₦2,800,000.
 - A. ₦1,327,000
 - B. ₦1,425,000
 - C. ₦1,677,000
 - D. ₦1,750,000
 - E. ₦1,823,000

8. Which of the following would be debited in the statement of distribution of income?
 - A. Share of profits
 - B. Share of losses
 - C. Interest on drawings
 - D. Interest on debit balance in current account
 - E. Profit transferred from the statement of profit or loss

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9. Identify the order in which the liabilities of partnership in dissolution are settled with cash proceeds from assets sold
- I. Creditors
 - II. Dissolution expenses
 - III. Advances by partners
 - IV. Partners' capital credit balances
- A. II, I, III & IV
 - B. IV, I, II & III
 - C. I, II, III & IV
 - D. IV, II, I & III
 - E. II, V, III & I
10. A partner takes over the plant of the firm, with a carrying amount of ₦890,000 at ₦840,000. The double entry to record the transaction is

	Debit ₦	Credit ₦
A. Revaluation	50,000	
Partners capital		50,000
B. Revaluation	840,000	
Partners capital		840,000
C. Partners capital	890,000	
Revaluation		50,000
Plant		840,000
D. Revaluation	890,000	
Partners capital		840,000
Plant		50,000
E. Partners capital	840,000	
Revaluation	50,000	
Plant		890,000

Use the following information to answer questions 11 and 12

Ade and Weah are in partnership sharing profits in ratio 3:2. Their capital are Le4,000,000 and Le2,000,000 respectively and their drawings were Le1,800,000 and Le1,200,000. The profit for the year before taking into consideration the following transactions was Le5,400,000

- i. Repair of partnership vehicle paid personally by Weah was Le20,000
- ii. Interest on loan advanced by Ade was Le25,000
- iii. Interest on drawings to be provided at 5%

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11. Calculate the amount of profits available for distribution
- A. Le5,255,000
 - B. Le5,505,000
 - C. Le5,525,000
 - D. Le5,545,000
 - E. Le5,550,000
12. By how much would Ade current account balance increase?
- A. Le1,388,000
 - B. Le1,412,000
 - C. Le1,413,000
 - D. Le1,418,000
 - E. Le1,437,000

Use the following information to answer questions 13-15

Yankari Social Club has a membership of 230 persons. Each member pays an annual subscription of GH 2,000. During the year ended 31 December 2017,

16 members had not paid their subscriptions for the year while 12 members had paid subscriptions for 2018.

13. The subscriptions that should be recorded in the receipts and payments account for 2017 is
- A. GH 400,000
 - B. GH 420,000
 - C. GH 428,000
 - D. GH 452,000
 - E. GH 460,000
14. The subscriptions to be recorded in the income and expenditure account for the year ended 31 December 2017 is
- A. GH 400,000
 - B. GH 420,000
 - C. GH 428,000
 - D. GH 452,000
 - E. GH 460,000

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15. The subscriptions shown in the statement of financial position as at 31 December 2017 is
- A. GH 24,000 current asset and GH 32,000 current liability
 - B. GH 24,000 current liability and GH 32,000 non-current asset
 - C. GH 32,000 non-current asset and GH 24,000 prepayment
 - D. GH 24,000 current liability and GH 32,000 current asset
 - E. GH 56,000 current liability and GH 32,000 current asset
16. The accumulated fund of not-for-profit organisation can equally be referred to as
- A. Members' equity
 - B. Share capital
 - C. General fund
 - D. Surplus fund
 - E. Equity fund
17. The objective of the purchases ledger control account is to determine the
- A. Trade payables
 - B. Net profit
 - C. Total purchases
 - D. Gross profit
 - E. Credit sales
18. A statement of affairs may include only
- A. Accrued expenses, assets, liabilities and prepayments
 - B. Accrued expenses, assets, liabilities and revenue
 - C. Assets, liabilities and expenses
 - D. Expenses, profits, assets and liabilities
 - E. Accumulated fund, donation, subscriptions

Use the data below to answer questions 19 and 20

	31/12/17	31/12/18
	L\$	L\$
Non-current assets (cost)	960,000	858,000
Current assets	2,250,000	2,760,000
Current liabilities	450,000	390,000
Provision for depreciation	210,000	222,000

During 2018, a non-current asset costing L\$162,000 with a book value of L\$60,000 was sold for L\$45,000

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19. What was the capital of the business as at 31 December 2017?
- A. L\$2,520,000
 - B. L\$2,550,000
 - C. L\$2,580,000
 - D. L\$2,760,000
 - E. L\$9,630,000
20. What was the depreciation charged for the year ended 31 December 2018?
- A. L\$12,000
 - B. L\$45,000
 - C. L\$114,000
 - D. L\$222,000
 - E. L\$432,000
21. What is the cost of goods sold, given the sales figure as N800,000 with a mark-up of 25%
- A. ~~N~~200,000
 - B. ~~N~~600,000
 - C. ~~N~~604,000
 - D. ~~N~~640,000
 - E. ~~N~~1,000,000
22. Which of the following should NOT be included in the cost of an item of plant?
- A. Cost of site preparation
 - B. Cost of delivery and handling cost
 - C. Estimated discounting cost to be incurred after 5 days
 - D. Interest charges paid to supplier of plant for deferred credit
 - E. Cost of plant per suppliers invoice

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23. Which of the following should appear in a company's statement of changes in equity?
- I. Total comprehensive income for the year
 - II. Share premium
 - III. Depreciation and Amortisation
- A. I, II and III
 - B. II and III
 - C. I and II
 - D. I
 - E. I and III
24. Other non-cash items adjusted for in the statement of cash flow, in order to arrive at cash flows before adjustment for working capital is
- A. Profit on disposal of non-current assets
 - B. Proceed from bank borrowing
 - C. Proceed from disposal of non-current assets
 - D. Cash payment or refunds of income taxes
 - E. Payment of dividend to shareholders

Use the following information to answer questions 25 and 26

A head office sent goods at cost plus mark-up of 25% to the branch. The invoice price of the goods was GMD244,600. During the period, the branch returned GMD6,000 worth of these goods to the head office.

25. How much should be credited to goods sent to branch account during the period?
- A. GMD183,450
 - B. GMD183,800
 - C. GMD190,680
 - D. GMD190,880
 - E. GMD195,680
26. In which account should the goods returned to head office by branch be credited and at what amount?
- A. Goods sent to Branch Account - GMD6,000
 - B. Branch inventory control account - GMD5,000
 - C. Branch inventory control account - GMD6,000
 - D. Goods sent to branch account - GMD4,800
 - E. Branch inventory control account - GMD4,800

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

ATTEMPT ALL QUESTIONS

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

1. An invoice for ₦13,160 received from a supplier was entered correctly in the purchases day book but was posted to the debit side of the supplier's account. State the journal entries required to correct the above error in the books of account.
2. A motor vehicle was bought for GH 3,000,000 by cheque. This transaction was only recorded in the cash book. State the journal entries to correct the above omission from the ledger account
3. Rent accrued in 2017 was Le42,000. In 2018, Le270,000 was paid while Le48,000 was outstanding. Therefore Rent charged in profit or loss for year 2018 is.....
4. Unpaid subscriptions by members of a not-for-profit organisation is classified in the statement of financial position as a.....
5. In inventory valuation, a set of accounting steps common with establishing the appropriate amount for inventory balance at the end of a particular period is called.....
6. The aggregate of ordinary share capital and reserves of a company is also referred to as.....
7. In manufacturing account, the direct cost of materials plus cost of direct labour and direct factory overhead is called.....
8. The two methods of preparing cash flows statements as stipulated by IAS 7 are.....and.....
9. In Branch Account, what is the basic method of invoicing goods to branches when the inventory is of perishable nature or there are fluctuations in selling prices?
10. The formula for calculating the unrealised profit in hire purchase account is.....
11. The excess of expenditure over income in a statement of income and expenditure is called.....

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12. The computation for gross output used in preparing the farm account is.....
13. The benchmark standard of IAS 16 requires that property, plant and equipment should be initially measured at.....
14. Assets held for sale in the ordinary course of business are.....
15. A “statement of affairs” is similar to.....in a company’s financial statements
16. The subject matter that IAS2 addresses is.....
17. A partnership is being converted into a limited liability company. The purchase consideration was settled by issue of shares to the partners. State **ONE** account to be opened in the books of the company.
18. The partners’ capital are Makee L\$600,000 and Jackee L\$900,000. The partners have no partnership agreement. Profits available for distribution in the year amounted to L\$120,000. Calculate the share of profit of Jackee.
19. Where a partnership is converted to limited liability company, the partners’ current account balance are transferred to..... account.
20. Partners’ drawing are debited to..... account but interest on drawings are credited toaccount.

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SECTION B: ATTEMPT ANY FOUR QUESTIONS
(50 Marks)

QUESTION 1

Below are the list of balances extracted from the books of Young Millionaire Social Club for the year ended 31 December 2018.

	N'000
Bank balance 1 January 2018	14,493
Proceeds from dance	10,845
Transfer to bank deposit	36,000
Rates paid by cheque	3,000
Entrance fees received	1,500
Salaries & Wages paid	21,690
Subscriptions received	90,000
Equipment bought by cheque	12,000
Repairs to building	4,852
General expenses paid by cheque	14,669
Stationery bought by cheque	2,937
Interest received on bank deposit	3,600
Donation received	1,260

Additional information:

- (i) Accrued salaries & wages at 31/12/2018 N1,440,000
- (ii) Rates prepaid amounted to N600,000
- (iii) General expenses included N900,000 owed since the previous year
- (iv) Out of the subscriptions received in 2018, N2,400,000 was in arrears for the previous year; N6,000,000 was paid in advance for the coming year, while N3,600,000 was still owing for 2018 as at 31 December 2018.
- (v) Assets of the Club as at 1 January 2018 were
- | | N'000 |
|--------------|---------|
| Club house | 288,000 |
| Equipment | 180,000 |
| Bank deposit | 120,000 |
- (vi) Depreciation:
Club house 5%

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Equipment

10%

You are required to prepare:

- a. Statement of Affairs as at 1 January 2018.
- b. Receipts and Payments Account for the year ended 31 December 2018.
- c. Subscriptions Account.
- d. Income and Expenditure Account for the year ended 31 December 2018.

Note: Solution must be prepared using vertical format.

(Total 12½ Marks)

QUESTION 2

- a. IFRS allows an entity to change its accounting policies if it so desires.
 - i. State the accounting treatment in the records of the entity when such change is made. (4 Marks)
 - ii. What are the disclosure requirements to be made for such a change? (3½ Marks)
- b. The Financial Accountant of BENJUL Limited encountered the following during the process of preparing the financial statements of the company.
 - (i) In preparing the financial statements for the year ended 31 December 2016, the Accountant discovers an error affecting the 31 December 2015 financial statements.
 - (ii) During the year to 31 December 2017, the company change its accounting policies.

You are required to:

State how the Accountant should treat the above situation while complying with the provisions of IAS 8 on Accounting Policies, Changes in Accounting Estimates and Errors. (5 Marks)

(Total 12½ Marks)

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QUESTION 3

- a. Explain the cash operating cycle. (2 Marks)
- b. Krapeh Plc purchases and sells goods on credit basis. The following information is provided relating to the year ended 30 April, 2019.

Transactions during the year ended 30 April, 2019

	GH ₵
Revenue	4,800
Costs of goods sold	<u>(2,625)</u>
Gross profit	2,175
Operating expenses	<u>(1,000)</u>
Profit before tax	<u>1,175</u>

Balances as at 30 April 2019

	GH ₵
Trade receivables	600
Trade payables	300
Inventory	375

The opening inventory at 1 May, 2018 was GH 300

Required:

- i. Calculate the cash operating cycle. (6½ Marks)
- ii. Explain the significance of the cash operating cycle. (4 Marks)
- (Total 12½ Marks)**

QUESTION 4

On 31 December 2015, Abule Egba Microfinance Bank Limited acquired a Lathe machine from Industrial Tools Manufacturing Limited at a cash price of GMD2,400,000 and leased it out to Kabiru Technical Enterprises at a lease payment of GMD720,000 per annum for a period of 4 years.

Required:

In the books of the Lessee, using the straight line method, prepare

- a. The lease payable accounts
- b. The finance charge accounts up to the year ended 31 December 2018.

Show your calculation of the finance charge per annum.

(Total 12½ Marks)

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QUESTION 5

Mazi and Joe are partners in the firm of Major & Co., sharing profits equally. Ruka and Yat are partners in the firm of Rukayat & Co and share profits in ratio 3:1 respectively.

The partners of each firm agreed to amalgamate under the new name Mayoral & Co. The profit sharing ratio would now be as follows:

	Mazi	Joe	Ruka	Yat
Profit ratio	3	3	2	2

The statements of financial position of the two firms just before the amalgamation on 30 April, 2018 are as follows:

	Major & Co Le'000	Rukayat & Co Le'000
Non-current assets	324,000	288,000
Inventory	14,400	43,200
Cash	18,000	9,000
	<u>356,400</u>	<u>340,200</u>
Capital & Liabilities		
Capital - Mazi	180,000	-
- Joe	98,400	-
- Ruka	-	142,560
- Yat	-	129,600
Liabilities	78,000	68,040
	<u>356,400</u>	<u>340,200</u>

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Notes:

(1) For the purpose of the amalgamation, the assets were revalued as follows:

	Major & Co Le'000	Rukayat & Co Le'000
Non-current assets	486,000	376,200
Inventory	21,600	28,800
Goodwill	144,000	230,400

Liabilities were taken over at their face values.

(2) Goodwill should not be retained in the books of the new partnership.

(3) The capital of the parties in the new partnership are to be:

	Le'000
Mazi	180,000
Joe	240,000
Ruka	240,000
Yat	180,000

You are required to prepare:

- The capital accounts of the partners.
- The opening statement of financial position of Mayoral & Co as at May 1, 2018. **(Total 12½ Marks)**

QUESTION 6

- The following information has been extracted from the financial statements of Ajifax Limited for the year ended 31 December 2018.

	L\$'000
Profit before tax	8,000
Depreciation on PPE	4,000
Loss on sales of building	2,000
Interest paid	2,000
Interest expenses	3,000
Income tax paid	1,000
Account receivable year end	17,000
Account receivable beginning of the year	10,000
Account payable year end	10,000
Account payable beginning of the year	4,000
Inventory year end	8,000

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Inventory beginning of the year 10,000

Required:

Prepare the Statement of cash flow from operating activities using the indirect method. (7½ Marks)

- b. Akedam Limited has 120 million ordinary share capital of L\$1 each and 60 million 5% preference shares of L\$1 each. The profits before tax for the year ended 31 December 2018 is L\$43,868,000. The company estimated the tax expense for the year to be L\$8,200,000. The management of the company declares a dividend of 10% per share before the year end and paid the preference dividend at the fixed rate on July 1, 2018, the company had paid interim dividend of L\$2,000,000 to the ordinary shareholders.

Assume that accumulated profit on 1 January 2017 is nil.

Required:

Calculate the amount to be shown in the statement of changes in equity. (5 Marks)

(Total 12½ Marks)

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SOLUTIONS

MULTIPLE-CHOICE ANSWERS

1. A
2. D
3. C
4. D
5. E
6. D
7. B
8. A
9. A
10. E
11. B
12. C
13. D
14. E
15. D
16. D
17. A
18. A
19. B

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20. C

21. D

22. D

23. C

24. A

25. D

26. C

27. A

28. A

29. A

30. B

EXAMINER'S REPORT

The question tests the candidates' knowledge and understanding of accounting terms concepts and principles and spread over the syllabus.

The performance was good as most of the candidates scored above 55% of the mark allocated.

SHORT-ANSWER SOLUTIONS

- | | | | |
|----|-----|------------------------|------------|
| 1. | Dr. | Suspense Account | ₦26,320 |
| | Cr. | Trade Payables Account | ₦26,320 |
| 2. | Dr. | Motor Vehicle Account | ₦3,000,000 |
| | Cr. | Suspense Account | ₦3,000,000 |
| 3. | | | ₦276,000 |
| 4. | | Current Asset | |

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5. Cut off point or procedures
6. Shareholders' Fund, Equity or Net Assets
7. Prime Cost
8. (i) The direct method and (ii) The indirect method
9. Cost Price Method
10. Unrealized Profit =
$$\frac{\text{Balance of cash price outstanding} \times (\text{cash price} - \text{cost})}{\text{Cash Price}}$$
11. Deficit
12. (Sales + Subsidies + Own Consumption + Closing Stock) Less
(Opening Stock + Purchases)
13. Cost
14. Inventories
15. Statement of Financial Position
16. Inventories
17. (i) A business purchase account or
(ii) Ordinary share capital account or
(iii) Vendor's account
18. ₦60,000
19. Capital account
20. (i) Current account
(ii) Statement of distribution of profit

EXAMINER'S REPORT

The question tests the candidates' application of accounting concepts and principles and spread over the syllabus.

The performance was good as above 55% of those that attempted the question scored above 50% on the average of the mark allocated.

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SECTION B: SOLUTIONS

SOLUTION 1

Young Millionaire Social Club Statement of Affairs as at 1 January 2018

	N'000	N'000
Non-Current Assets		
Club house		288,000
Equipment		<u>180,000</u>
		468,000
Current Assets		
Subscription in arrears	2,400	
Bank deposits	120,000	
Bank balance	<u>14,493</u>	
		<u>136,893</u>
		604,893
Less: Liabilities		
General expenses accrued		<u>900</u>
Accumulated fund		<u>603,993</u>

Receipts and Payments for the year ended 31 December 2018

	N'000	N'000
Receipts:		
Balance b/d	14,493	
Proceeds from dance	10,845	
Entrance fees	1,500	
Subscriptions	90,000	
Interest received	3,600	
Donations	<u>1,260</u>	
		<u>121,698</u>
Payments:		
Rates	3,000	
Salaries & Wages	21,690	
Equipment	12,000	
Repairs to building	4,852	
General Expenses	14,669	
Stationery	2,937	
Bank deposit	<u>36,000</u>	
		<u>95,148</u>

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Bank balance	<u>26,550</u>
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Subscriptions Account

	N'000	N'000
Receipts & Payments (Bank)		90,000
Outstanding for 2018		<u>3,600</u>
		93,600
Arrears: 1 January 2018	2,400	
Amount paid for 2019 (advance)	<u>6,000</u>	
		<u>8,400</u>
Income & Expenditure (Income for 2018)		<u>85,200</u>

Income and Expenditure for the year ended 31 December 2018

	N'000	N'000
Income:		
Proceeds from dance	10,845	
Entrance fees	1,500	
Interest received	3,600	
Donations received	1,260	
Subscriptions	<u>85,200</u>	
		102,405
Expenditures:		
Rates	2,400	
Salaries & Wages	23,130	
Repairs to building	4,852	
General expenses	13,769	
Stationery	2,937	
Depreciation:		
Club house	14,400	
Equipment	<u>19,200</u>	
		<u>80,688</u>
Excess of income over expenditure		<u>21,717</u>

Workings

(i) Rates: N3,000,000 - N600,000 = N2,400,000

(ii) Salaries & Wages: N21,690,000 + N1,440,000 = N23,130,000

(iii) General Expenses: N14,669,000 - N900,000 = N13,769,000

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(iv) Depreciation:

Club House $5\% \times \text{N}288,000,000 = \text{N}14,400,000$

Equipment $(\text{N}180,000,000 + \text{N}12,000,000) \times 10\% = \text{N}19,200,000$

EXAMINER'S REPORT

The question tests the candidates' knowledge and understanding of principles underlying the preparation of partnership final accounts in vertical format from incomplete records. About 90% of the candidates attempted the question. The performance was good as about 60% of those that attempted the question scored above 50% of the mark.

The commonest pitfall was the inability of the candidates to prepare the solution in the correct format required by the question. Candidates are advised to always take to instruction and understand the requirements of the question when preparing for future examination.

SOLUTION 2

- a. i. When an entity changes an accounting policy voluntarily, it must account for it retrospectively (i.e as if the policy has always been applied) unless there is a transitional provision when the policy shall be applied according to the provision.

The impact of the new policy on the retained earnings prior to the earlier period should be adjusted against the opening balance of retained earnings.

If it is impracticable to determine the effects of the change, the entity shall apply the change prospectively from the start of the earliest period.

- ii. **Disclosures**

The change and the reason for the change must be disclosed:

- If the change in accounting policy is due to the initial application of standard, the entity must disclose the change when it has an effect on current and prior periods or it would have an effect in future periods.

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- If it is impracticable to determine the impact, the entity must disclose the title of the standard and the nature of the change.
 - When the change is voluntary and the entity would be unable to determine the future or past impact, the entity shall also disclose the nature of the change and the reason for the new policy providing reliable and more relevant information.
- b. i. The error should be corrected in the 31 December, 2016 financial statement by restating the comparative figures for 31 December, 2015 at their correct amount.
- ii. Since there is a change in accounting policy, the company must also present a statement of financial position as at 1 January 2016, the beginning of the earliest comparative period.

This means that the change should be applied to the balance as at 1 January, 2016 as if the new policy had always been applied.

EXAMINER'S REPORT

The question tests the candidates' knowledge and understanding of International Financial Reporting Standards (IFRS 8) principle applicable to change in Accounting Policies and the treatment of such in accounting records.

About 50% of the candidates attempted the question and scored below 50% of the mark allocated; hence, the performance was poor.

The candidates showed little knowledge of the requirement of the standard. Candidates are advised to pay more attention in studying relevant accounting standards when preparing for future examination.

SOLUTION 3

- a The cash operating cycle is the average period of time required for business to make initial outlay of cash and to produce or acquire goods for sale, sell the goods and receive cash from customers in exchange for the goods.

INSIGHT

bi. Krapeh Limited – Working Capital Cycle

$$\text{Inventory days} = \frac{\text{Average inventory} \times 365 \text{ days}}{\text{cost of goods sold}}$$

$$= \frac{(300 + 375)}{2} \times 365 \text{ days} = 47 \text{ days}$$

$$\text{Receivables days} = \frac{\text{Receivables} \times 365 \text{ days}}{\text{Credit sales}}$$

$$\frac{600 \times 365 \text{ days}}{4,800} = 46 \text{ days}$$

$$\text{Payables days} = \frac{\text{Payables} \times 365 \text{ days}}{\text{Purchases}}$$

$$\frac{300 \times 365 \text{ days}}{2,700} = 41 \text{ days}$$

$$\text{Cash operating cycle} = 52 \text{ days}$$

Working for purchases	₹
Cost of goods sold	2,625
Closing Inventory	375
Opening Inventory	(300)
Purchases	<u>2,700</u>

ii. The cash operating cycle is useful for estimating the working capital that a company will need in order to maintain or grow its business.

A short cash operating cycle requires less cash to maintain its operating while a company with long cash operating cycle may require additional financing to grow at a modest rate.

EXAMINER'S REPORT

The question tests the candidates' knowledge and understanding of cash operating cycle and its significance. About 30% of the candidates attempted the question and 60% of those that attempted the question scored above average, hence the performance was fair.

The commonest pitfalls of the candidates were their inability to correctly interpret the requirement of the question thus resulting into loss of marks.

The candidates are advised to read wide and not leave any aspect of the syllabus untouched when preparing for future examinations.

INSIGHT

SOLUTION 4

Kabiru Fabrication Working Limited The Lease Payable Account

		N'000			N'000
31/12/2015	Balance c/d	2,400	30/12/2015	Machine	<u>2,400</u>
31/12/2016	Micro Finance Bank (1 st Instalment)	720	1/1/2016	Balance b/d	2,400
31/12/2016	Balance c/d	<u>1,800</u>	31/12/2016	Finance charge	<u>120</u>
		<u>2,520</u>			<u>2,520</u>
31/12/2017	Bank (2 nd Instalment)	720	1/1/2017	Balance b/d	1,800
31/12/2017	Balance c/d	<u>1,200</u>	31/12/2017	Finance charge	<u>120</u>
		<u>1,920</u>			<u>1,920</u>
31/12/2018	Bank (3 rd Instalment)	720	1/1/2018	Balance b/d	1,200
31/12/2018	Balance c/d	<u>600</u>	31/12/2018	Finance charge	<u>120</u>
		<u>1,320</u>			<u>1,320</u>
31/12/2019	Bank (4 th Instalment)	720	1/1/2019	Balance b/d	600
		—	31/12/2019	Finance charge	<u>120</u>
		<u>720</u>			<u>720</u>

The Finance Charge Account

		N'000			N'000
31/12/2016	Lease Payable	<u>120</u>	31/12/2016	Income Statement	<u>120</u>
31/12/2017	Lease Payable)	<u>120</u>	31/12/2017	Income Statement	<u>120</u>
31/12/2018	Lease Payable	<u>120</u>	31/12/2018	Income Statement	<u>120</u>
31/12/2019	Lease Payable	<u>120</u>	31/12/2019	Income Statement	<u>120</u>

INSIGHT

Calculation of Finance Charge

Leased Price = $\text{N}720,000 \times 4 = \text{N}2,880,000$

Cash Price = $\text{N}2,400,000$

Finance charge = $\text{N}480,000$

❖ Finance charge per annum = $\frac{480,000}{4}$
= $\text{N}120,000$

EXAMINER'S REPORT

The question tests candidates' understanding of necessary accounting entries for instalmental payments under the lease agreement and the calculation of finance charges in the books of the lessee. About 40% of the candidates attempted the question and the performance was poor as less than 30% of those that attempted the question scored above average.

Candidates' commonest pitfall was their inability to separate the instalment finance charge amount from total instalment paid to the lessor.

Candidates are advised to read more about various types of leases and the relevant accounting entries required.

INSIGHT

SOLUTION 5

a. Capital Account

	Mazi	Joe	Ruka	Yat		Mazi	Joe	Ruka	Yat
	N'000	N'000	N'000	N'000		N'000	N'000	N'000	N'000
Goodwill	112,320	112,320	774,880	774,880	Bal b/d	180,000	98,400	142,560	129,600
Balance c/d	180,000	240,000	240,000	180,000	Revaluation	156,600	156,600	228,150	76,050
Cash	44,280	-	55,830	-	Cash	-	97,320	-	49,230
	<u>336,600</u>	<u>352,320</u>	<u>370,710</u>	<u>254,880</u>		<u>336,600</u>	<u>352,320</u>	<u>370,710</u>	<u>254,880</u>

b. Mayoral & Co. Statement of financial position as at May 1, 2018

	N'000	N'000
Non-current assets		862,200
<u>Current assets</u>		
Inventory	50,400	
Cash	73,440	
		<u>123,840</u>
		<u>986,040</u>
<u>Capital & Liabilities</u>		
Capital - Mazi		180,000
Joe		240,000
Ruka		240,000
Yat		180,000
		840,000
Liabilities		<u>146,040</u>
		<u>986,040</u>

Workings

Revaluation Account

	Major & Co.	Rukayat & Co.		Major & Co.	Rukayat & Co.
	N'000	N'000		N'000	N'000
			Non-current assets	162,000	88,200
Inventory		14,400	Inventory	7,200	
Capital:			Goodwill	144,000	230,400
Mazi	156,600				
Joe	156,600				
Ruka		228,150			
Yat		<u>76,050</u>			
	<u>313,200</u>	<u>318,600</u>		<u>313,200</u>	<u>318,600</u>

INSIGHT

ALTERNATIVE WORKING FOR QUESTION 5

Revaluation Account

	Major & Co.	Rukayat & Co.		Major & Co.	Rukayat & Co.
	Le'000	Le'000		Le'000	Le'000
Non-current assets	324,000	288,000	Non-current assets	486,000	376,200
Inventory	14,400	43,200	Inventory	21,600	28,800
Capital Account:			Goodwill	144,000	230,400
Mazi = $\frac{1}{2}$ x 313,200	156,600	-			
Joe = $\frac{1}{2}$ x 313,200	156,600	-			
Ruka = $\frac{3}{4}$ x 304,200	-	228,150			
Yat = $\frac{1}{4}$ x 304,200	-	<u>76,050</u>			
	<u>651,600</u>	<u>635,400</u>		<u>651,600</u>	<u>635,400</u>

EXAMINER'S REPORT

The question tests the candidates' knowledge and understanding in reconciling the accounts of two separate partnerships. Candidates were to calculate the new capital account of each partners after amalgamation and also prepare the opening statement of the financial position of the new partnership firm. Performance was good as about 90% of the candidates attempted the question and scored above average of the marks allocated.

Candidates' commonest pitfall was their inability to prepare the revaluation account and the sharing of profit between partners.

Candidates are advised to pay more attention to this aspect of the syllabus and familiarise themselves with the format of presenting partnership account.

INSIGHT

SOLUTION 6

a. **AJIFAX NIGERIA LIMITED**
Statement of cash flow for the year ended 31 December 2018

Cash flows from operating activities:	₦'000	₦'000
Profit before taxation		8,000
Adjustment for:		
Depreciation on PPE	4,000	
Less on sale of building	2,000	
Interest expenses	<u>3,000</u>	9,000
Movement in working:		
Increase in account receivable	(7,000)	
Increase in account payables	6,000	
Decrease in inventory	<u>2,000</u>	<u>1,000</u>
Cash from operations		18,000
Interest paid	2,000	
Tax paid	<u>1,000</u>	<u>(3,000)</u>
Net cash flows from operating activities		<u>15,000</u>

b. **AKEDAM LIMITED**
Statement of changes in equity for the year ended 31 December 2018

	₦'000
Ordinary share capital	120,000
Preference share capital	60,000
Preference dividend	(3,000)
Interim dividend paid	<u>(2,000)</u>
	175,000
Net profit for the year	<u>35,668</u>
Statement of changes in Equity	<u>210,668</u>

Note:

Interim dividend ₦2,000,000

Preference dividend 5% of ₦60,000,000 = ₦3,000,000

INSIGHT

(ALTERNATIVE)

b.

AKEDAM LIMITED

Statement of changes in equity for the year ended 31 December 2018

	Ord. Shares Capital L\$'000	5% Pref. Shares Capital L\$'000	Retained Earnings L\$'000	Total Equity L\$'000
Balance b/f	120,000	60,000	-	180,000
Profit for the year (43,868- 8,200)	-	-	35,668	35,668
Ordinary Dividend:				
- Interim	-	-	(2,000)	(2,000)
Preference Dividend (5% x 60,000)	<u>120,000</u>	<u>60,000</u>	<u>30,668</u>	<u>210,668</u>

EXAMINER'S REPORT

The question tests candidates' knowledge and understanding of preparing cash flow from operating activities using the indirect method and calculating the amount to be shown in the statement of changes in equity.

About 80% of the candidates attempted the question and scored below 50% of the mark allocated and the performance was very poor.

Candidates' commonest pitfall was their inability to distinguish between indirect and direct method of preparing cash flow statement. Candidates are advised to abreast themselves with the scope of the syllabus and study hard when preparing for future examinations.

INSIGHT

**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2019**

PUBLIC SECTOR 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. Which of the following categories of person is **NOT** exempted from the participation in Pension Reform Act, 2014?
 - A. All Judicial Officers
 - B. Employees with 3years or less to retire
 - C. Fully funded pension scheme participants
 - D. Members of Armed Forces, the Intelligence and Secret Service
 - E. All other Public Officers
2. Where vouchers are not made available to accompany the account, the list of outstanding vouchers will be forwarded along with
 - A. Vouchers extract
 - B. Vouchers substitute (TF 72)
 - C. Cash book extract
 - D. Cash book summary
 - E. A new voucher
3. Which of the following is **NOT** a source of acquisition of stores?
 - A. Purchase through local purchase order or letter of award
 - B. Transfer from other sources e.g. unallocated store
 - C. Conversion from manufacturing factory
 - D. Acquisition directly with cash from market
 - E. Return or surplus store take on charge
4. The accounting codes of parastatals are presented to the Accountant-General and Auditor-General for before the approval is given by the Minister of Finance
 - A. Vetting, review and modification
 - B. Recommendation to National Assembly
 - C. Executive ratification
 - D. Board recommendation
 - E. Accounting Officers scrutiny

INSIGHT

5. The revenue allocation system in Nigeria has been criticised for
 - A. High concentration of revenue in the coffer of the Federal Government
 - B. Stabilisation of prices
 - C. Inadequate revenue generation
 - D. Continuity of government services
 - E. Tax effort

6. The government agency or partially autonomous establishment empowered with control of certain activities of Government is
 - A. Regulatory Agencies
 - B. Enforcement Agencies
 - C. Supervising Agencies
 - D. Civil Society
 - E. Military Establishment

7. Which of the following is **NOT** a document that should accompany transcript?
 - A. Original cash book
 - B. List of outstanding vouchers
 - C. Breakdown of expenditure
 - D. The cash and bank balances certificate
 - E. Cheque books

8. A ministry or extra-ministerial department which has full control over all its accounting record is called
 - A. Sub-Self Accounting Unit
 - B. Limited Self-Accounting Unit
 - C. Self Accounting Unit
 - D. Non-Self Accounting Unit
 - E. Multiple Accounting Unit

9. A memo issued by the variation section to the administration department for the purpose of informing employees of any change in remuneration is called
 - A. Financial advice
 - B. Variation advice
 - C. Variation sheet
 - D. Variation control
 - E. Budget sheet

INSIGHT

10. Which of the following is **NOT** a characteristic of a Non-Self Accounting Unit?
- A. Does not operate central pay system
 - B. Maintains an accounting code
 - C. Renders returns in details
 - D. Does not have a clearance account
 - E. Copies of vouchers are attached to their returns
11. Government Integrated Financial Management Information System (GIFMIS) is a sub-component of
- A. Economic Reformation and Governance Project
 - B. Economic Review and Governance Project
 - C. Economic Reform and Governance Project
 - D. Economic Governance and Reform Project
 - E. Economic Governance and Reformation Project
12. A document indicating the total and composition of government expenditure and the sources from which such expenditure is expected to be financed in the course of the year is known as
- A. Development plan
 - B. Perspective plan
 - C. Budget
 - D. Revenue allocation
 - E. Rolling plan
13. Which of the following is **NOT** a memorandum account?
- A. Statement of assets and liabilities
 - B. List of advances granted
 - C. Cheque summary register
 - D. Bank reconciliation statement
 - E. List of motor vehicles
14. Which of the following is **NOT** a means of control exercised by the Executive?
- A. Determination of monetary fiscal policies in general
 - B. Issuance of budgetary guidelines
 - C. Introduction of due-process guidelines

INSIGHT

- D. Summoning the President to explain details of the budget
 - E. Introduction of the Public Procurement Act, 2007 and Fiscal Responsibility Act 2007
15. Which of the following is **NOT** a role of Central Bank of Nigeria (CBN) towards the administration of e-payment?
- A. Deployment of gateway for use by other stakeholders
 - B. Prompt issuance of receipts for remittances paid through an e-collection
 - C. Issuance of guidelines to deposit money banks on the operation of TSA
 - D. Design the payment and collection process across all banks based on operational standards
 - E. Ensure that Remita platform facilitates the transmission of all instructions
16. The purpose of keeping a vote book is **NOT** to
- A. Have absolute control over expenditure
 - B. Reveal balances available
 - C. Prevent any reckless spending or abuse of vote in an MDA
 - D. Show all commitments and outstanding liabilities
 - E. Ensure that votes not meant for a particular expenditure head are channeled to other expenditure which are provided for in the approved budget
17. Which of the following is **NOT** a revenue control measure?
- A. Provision of a safe with dual control
 - B. Daily banking of all cash takings
 - C. Maintenance of a vote book
 - D. Ensuring that all services rendered are properly charged
 - E. Timely issuance of demand notices
18. The instrument which is employed to re-vote capital expenditure which had lapsed over the years is called Development Fund
- A. Special Warrant
 - B. General Warrant
 - C. Supplementary Warrant
 - D. Reserve Expenditure Warrant
 - E. Virement Warrant

INSIGHT

19. The Officer that convenes the Board of Survey mostly at the end of each financial year is
- A. Auditor-General
 - B. Officer controlling Vote book
 - C. Attorney-General
 - D. Surveyor-General
 - E. Accountant-General
20. Which of the following is **NOT** eligible to receive convening order with full terms of reference from the Officer convening a Board of Enquiry?
- A. Accountant-General
 - B. Accounting Officer
 - C. Chairman, Federal Civil Service Commission
 - D. Surveyor-General
 - E. Auditor-General
21. Which of the following is **NOT** a key information that must be clearly displayed in the Financial Statements?
- A. Presentation currency
 - B. Reporting date and the period covered
 - C. Level of rounding
 - D. Name of the Accountant
 - E. Name of the reporting entity
22. In accordance with IPSAS 2, which of the following is **NOT** an operating activity?
- A. Cash payment to suppliers for goods and services
 - B. Cash receipts in relation to litigation settlements
 - C. Cash payments to and on behalf of employees
 - D. Cash receipts from sale of equity
 - E. Cash receipts from royalties and fees
23. The Accountant-General of the Federation is charged with the responsibility of preparing the annual financial statements. Which of the following are some of the sources of information for preparation of the accounts?
- I. Transcripts from the Ministries and Extra-Ministerial Departments
 - II. Cash flow statement

INSIGHT

- II. Accounts from the Nigeria High Commissions
- A. III
 - B. I and II
 - C. I and III
 - D. II and III
 - E. II
24. Financial Regulation (FR 310) says that an application for a Virement Warrant will **NOT** be approved if the
- A. Request does not apply to queries previously raised by the Auditor-General in respect of improper expenditure
 - B. Total amount to be vired is in respect of an urgent National requirement which cannot be delayed for any reason
 - C. Virement is not used to create a new sub-head within the same head
 - D. Application is made by the accounting officer of the Ministry or Department
 - E. Amount vired exceeds 10% of the approved estimate
25. Section 88 of the Nigerian Constitution, 1999 confers power to investigate misappropriation of funds on the
- A. Auditor-General for the Federation
 - B. National Assembly
 - C. Accountant-General of the Federation
 - D. ICPC
 - E. EFCC
26. A discretionary financial assistance to finance a particular project is known as
- A. A grant
 - B. Non-matching grant
 - C. Specific grant
 - D. General grant
 - E. An Aid
27. The purpose of Provisional General Warrant is to
- A. Enable government incur expenditure before the passage of the appropriation bill
 - B. Transfer money from one account to another
 - C. Re-allocate provisions from one sub-head to another

INSIGHT

- D. Implement and give effect to Supplementary Appropriation
 - E. Move money from one department to another without physical cash changing hands
28. Authority to issue imprest is made by the
- A. Accountant-General
 - B. Auditor-General
 - C. Commissioner for Finance
 - D. Minister of Finance
 - E. Vote Controller
29. Guidelines for preparation and presentation of Financial Statements in the Public Sector is found in
- A. IPSAS 1
 - B. IPSAS 2
 - C. IPSAS 3
 - D. IPSAS 4
 - E. IPSAS 5
30. A procuring entity may **NOT** carry out emergency procurement where
- A. Goods, works or services are only available from a particular supplier or contractor
 - B. There is urgent need for the goods, works and services
 - C. There is a catastrophic event
 - D. There is an alternate source within the system to take care of the emergency
 - E. There is procuring entity on matter concerning national security

INSIGHT

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

ATTEMPT ALL QUESTIONS

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

1. Service rendered after an Officer has served for a period of not less than 5years for gratuity and 10years for gratuity & pension is called.....
2. The Officers appointed by the Accounting Officers for comprehensive confirmation of all stock and purchase of the Ministry, Department and Agencies are called
3. The document used in transmitting inter-governmental transactions is called
4. There are two types of imprest; namely and
5. IPPIS is an acronym for
6. The Automated Accounting Transaction Recording and Reporting Software (ATRRS) is developed by
7. A Ministry or Department which maintains only the incomplete records of the 'above-the-line' receipts and payments is called
8. The book that must be kept in order to ensure all bank transactions contained in the cash book are accurately entered is called.....
9. Items of income and expenditure that are not budgeted for, but listed are called.....
10. The process of ensuring that all revenues of government are paid into the main account of government or Consolidated Revenue Fund is known as
11. The form of direct payments and banking without physical appearance at the MDAs using electronic, interactive communication channels is known as

INSIGHT

12. The body set up by the Ministry of Finance to review the expenditure pattern of the Federal Government with a view to introduce more efficient processes that will ensure that government revenue are deployed in an efficient manner is called
13. The Financial Officer who serves as the Chairman of the National Council on Public Procurement is.....
14. Receipts in a form of assistance from other countries or international organisations and/or within a country are called
15. The responsibility for preparation of medium-term expenditure framework lies with.....
16. Money used to fund terrorism irrespective of how it is obtained will be regarded as
17. The Treasury Form that reports on Survey of unserviceable stores, plant and buildings or equipment is called.....
18. The legislative organ that performs a post-mortem function on the report submitted by the Auditor-General is
19. An accounting basis which records financial transactions even when payment has not been made is known as
20. What is the full meaning of GPFRs?

INSIGHT

SECTION B: ATTEMPT ANY FOUR QUESTIONS (50 MARKS)

QUESTION 1

- a. i. State **THREE** constitutional provisions which insulate and ensure the independence of the Auditor-General for the Federation (4½ Marks)
- ii. What are the constitutional provisions for removal of Auditor-General for the Federation? (3 Marks)
- b. The following Trust Funds to be managed by HAZOBIA Trustees were created on January 2, 2018 with amounts stated below:

	₦'000
Chibok Foundation Fund	50,000
Yenagoa Scholarship Fund	120,000

On January 15, 2018, investments were made on these Funds as follows:

- (i) Chibok Foundation Fund - 5,000,000 Eti-Osa shares of ₦1 each were purchased at ₦2.50 each.
- (ii) Yenagoa Scholarship Fund - 1,680,000 Tedango shares of ₦2 each were purchased at ₦5 each.

Other transactions during the year ended 31 December 2018 were as follows:

	₦'000
Expenses on Yenagoa Scholarship Fund	7,900
Scholarship award under Chibok Foundation	9,500

Required:

Prepare the bank account relating to the two Trust Funds for the year.

(5 Marks)

(Total 12½ Marks)

INSIGHT

QUESTION 2

The following information were extracted from the books of GODOWNS State of Nigeria as at 31 December 2018:

	Dr.	Cr.
	₦'000	₦'000
Bank Account	30,000	
Cash Account	5,000	
Consolidated Revenue Fund b/f		34,000
Allocation from Federation A/c		60,000
Licenses and Fines		6,000
Loans from Federal Government		22,000
Fees		9,000
Earnings and Sales		5,000
Loans to Local Government	14,000	
Re-imburement		22,000
Development Fund (Capital Vote)		30,000
Interest on repayment		1,000
Development Fund as at 1, Jan	70,000	
Internal Loans		40,000
External Loans		70,000
Capital Expenditure	84,000	
Advances	27,000	
Fixed Deposit with GTB Plc.	44,000	
Ordinary shares of ₦1 each at SATO Plc.	32,000	
Other income		6,000
Recurrent Expenditure	45,000	
Special Fund	<u> </u>	<u>46,000</u>
	351,000	351,000

The following information are provided:

- (i) Grant amounting to ₦15,000,000 collected from Federal Government for Capital Projects to be executed in the second quarter of the year had not been recorded in the books.
- (ii) Omitted from the books was an expenditure amounting to ₦4,000,000.
- (iii) An amount of ₦51,000,000 should be transferred to Development Fund.

INSIGHT

- (iv) The State received an actual amount of ₦800,000 as interest on repayment.

Required:

Prepare the following for the year ended 31 December, 2018:

- a. Consolidated Revenue Fund Account.
- b. Development Fund Account
- c. Statement of Assets and Liabilities.

Note: Show your workings

(Total 12½ Marks)

QUESTION 3

- a. State **FIVE** statutory functions of the Auditor-General for Local Government (5 Marks)
- b. The Bursar of EYIWUNMI Community School provides you with the following figures extracted from the ledgers and file:

Total numbers of students	300
School fees per annum	₦3,500 per student
P.T.A	₦1,500 per student
Boarding fees per annum	₦15,000 per student
Government subvention	₦120,000 per student
Foundation and trust fund for prizes	₦1,000,000

Salary of teachers are paid by the Local Government Education Authority. P.T.A. takes care of transportation and health.

Laboratory equipment expenses	₦1,790,000
Security expense per annum	₦3,158,000
Teaching equipment & Utility	₦8,158,150
Allowances for extra moral classes	₦5,000 per student

Annual surplus are used for development of the School.

Required:

Prepare Domestic (Independent) Account for the period ended 31 December 2018. Show workings.

(Total 12½ Marks)

INSIGHT

QUESTION 4

- a. Ministry of Works of MUAZU State Government is operating general store and Factory for the production of furniture. When furniture are produced, it is transferred to General Warehouse where MDA take furniture for office. The following information extracted from Orientation Agency Ledger are as follows:

	N
Stores taken on charge at fixed price	17,132,410
Payment as per Abstract	44,327,109
Payment made in respect of last year supplied	20,152,704
Expenditure credit for claim	15,102,107
Transfer to unallocated store	3,152,179
Deficiencies sub-head	5,123,152
Price excess during the year	3,125,107
Total Price Deficiencies	4,152,000

Required:

Prepare Payment Reconciliation Accounts for the unallocated Stores issued by the Orientation Agency. (7½ Marks)

- b. State **FIVE** types of fraud in the Public Sector (5 Marks)
(Total 12½ Marks)

QUESTION 5

- a. i. With the aid of **FOUR** examples, briefly distinguish between Bases of Accounting and Legal Basis of Accounting in the Public Sector. (7 Marks)
- ii. State briefly the usefulness of Appropriation Act. (3 Marks)
- b. Briefly state the underlying conditions guiding the appointment of the Surprise Board of Survey in accordance with FR 1803 (2½ Marks)
(Total 12½ Marks)

QUESTION 6

- a. i. List **FIVE** members of Pension Transitional Arrangement Directorate. (5 Marks)
- ii. List **TWO** transfers to the Pension Protection Fund. (2 Marks)
- iii. List **TWO** uses of Pension Protection Fund. (3 Marks)

INSIGHT

- b. The Board of Enquiry in the discharge of its duties to investigate loss of fund, are expected to meet at its earliest convenient time.

Required:

- i. State **ONE** treatment of the evidence admitted by the Board. (1 Mark)
- ii. State **ONE** procedure of the Board of Enquiry where criminal proceedings are pending in connection with a loss. (1½ Marks)
- (Total 12½ Marks)**

INSIGHT

SOLUTIONS

MULTIPLE - CHOICE SOLUTIONS

1. E
2. B
3. D
4. A
5. A
6. A
7. E
8. C
9. B
10. B
11. C
12. C
13. A
14. D
15. B
16. E
17. C
18. C
19. E

INSIGHT

- 20. D
- 21. D
- 22. D
- 23. C
- 24. E
- 25. B
- 26. C
- 27. A
- 28. A
- 29. A
- 30. D

SHORT-ANSWER SOLUTIONS

- 1. Qualifying pensionable services
- 2. Stock verifiers
- 3. Supplementary transcript
- 4. Standing and Special
- 5. Integrated Personnel and Payroll Information System
- 6. Treasury (office of the Accountant-General of the Federation - OAGF)
- 7. Non-self Accounting Unit
- 8. Cheque summary register

INSIGHT

9. Below-the-line
10. Treasury Single Account
11. e-payment
12. Efficiency Unit
13. The Minister of Finance
14. Grants
15. The Federal Government
16. Money laundering
17. Treasury Form 147
18. Public Accounts Committee (PAC)
19. Accrual basis
20. General Purpose Financial Reports

EXAMINER'S REPORT

Section A: Part 1 consists of 30 multiple-choice questions. These are compulsory questions covering all areas of the syllabus. Attendance was almost 99.9% and performance was high with about 70% scoring about 50% of the total marks obtainable.

SOLUTION 1

(a) INDEPENDENCE OF THE AUDITOR-GENERAL

1. The constitutional provisions which insulate the Auditor-General from being compromised are:
 - i. S. 85 (6): In the exercise of his constitutional functions, the Auditor-General shall not be subject to the direction or control of any other authority or person.
 - ii. S. 87 (2): The Auditor-General shall not be removed from office before his retiring age as may be prescribed by law,

INSIGHT

except for inability to perform the function of his office or for misconduct.

iii. S. 84 (4): The remuneration of the Auditor-General shall be drawn from the Consolidated Revenue Fund of the Federation.

iv. S. 84 (3): His remuneration and salaries as well as conditions of service other than allowances, shall not be altered to his detriment after his appointment.

2. REMOVAL OF AUDITOR-GENERAL FOR THE FEDERATION

S. 87 (1) says that a person holding the office of Auditor-General for the Federation shall be removed from office by the President acting on an address supported by two-thirds majority of the Senate on the ground that:

- He is unable to discharge his constitutional and managerial functions due to illness or insanity.
- He is found to have been involved in a grave act of misconduct.

(b)

In the books of Hazobia Trustees: Trust Fund Bank Account

		N'000	N'00 0
2/1/2017	Chibok Foundation Fund	50,000	
2/2/2017	Yenagoa Scholarship Fund	120,000	
15/1/2017	Chibok Foundation Fund: Investment (5,000,000 x N2.50)		12,500
15/1/2017	Yenagoa Scholarship Fund: Investment (1,680,000 x N5)		8,400
31/12/2017	Yenagoa Scholarship Fund: Expenses		7900
31/12/2017	Scholarship award under Chibok Foundation Fund		9,500
31/12/2017	Balance c/d	<u>170,000</u>	<u>131,700</u>
		<u>170,000</u>	<u>170,000</u>

INSIGHT

EXAMINER'S REPORT

Part 'a' requires the candidates to state constitutional provision which insulate the independent of the Auditor-General for the Federation, while Part 'b' was on preparation of the bank account relating to Trust Fund.

About 95% of the candidates attempted the question, but less than 40% of the candidates scored above 40% of marks obtainable.

INSIGHT

SOLUTION 2

(a) i.

GODOWNS State

Consolidated Revenue fund for the year ended 31 December, 2016

	N'000	N'000
Balance b/f		34,000
Federal allocation		60,000
License and fines		6,000
Fees		9,000
Earnings and sales		5,000
Re-imburement		22,000
Interest on repayment		800
Other income		<u>6,000</u>
		142,800
Less:		
Recurrent expenditure	45,000	
Other expenditure	4,000	
Transfer to Development Fund	<u>51,000</u>	<u>100,000</u>
Balance c/d		<u>42,800</u>

ii. Development Fund Account as at 31 December, 2017

	N'000
Balance b/d	(70,000)
Federal Government grant	15,000
Capital vote	30,000
Internal loans	40,000
External loans	70,000
Transfer from CRF	<u>51,000</u>
	136,000
Capital expenditure	<u>(84,000)</u>
	<u>52,000</u>

iii. Statement of Assets & Liabilities as at 31 December, 2016

Assets:

	N'000
Investment – SATO Plc	32,000
Fixed deposit (GTB)	44,000
Advances	27,000
Loans to Local Government	14,000
Bank Account (Workings 1)	40,800
Cash Account	<u>5,000</u>

INSIGHT

	<u>162,800</u>
Represented by:	
	N'000
Consolidated Revenue Fund (CRF)	42,800
Development Fund	52,000
Special Fund	46,000
Loans from Federal Government	<u>22,000</u>
	<u>162,800</u>

Workings

	Bank Account		
	N'000		N'000
Balance b/d	30,000	Expenditure	4,000
Federal	15,000	Unrealised	200
Government		interest on	
grant		repayment	
		Balance c/d	<u>40,800</u>
	<u>45,000</u>		<u>45,000</u>
Balance b/d	<u>40,800</u>		

(b) POWERS OF EFCC

Under paragraph 6 of the Act, the Commission has power to:

- i. Conduct investigation or cause investigation to be conducted as to whether any person has committed an offence under the Act.
- ii. Cause investigation to be conducted into the property of any person if it appears to the Commission that the person's life style and extent of his properties are not justified by his source of income.
- iii. Power to enforce the provisions of:
 - a. The Bank and Other Financial Institution Act 1991 (as amended)
 - b. The failed banks (recovery of debts) Finance Malpractices in Banks Act 1994 (as amended)
 - c. The Advance Fee Fraud and other Related Offences Act 1994.
 - d. The Money Laundry Act 1995
 - e. The Miscellaneous Offences Act

INSIGHT

EXAMINER'S REPORT

The question requires the candidates to prepare Consolidated Revenue Fund Account, Development Fund Account as well as Statement of Asset and Liability from the information provided.

About 95% of the candidates attempted the question. Performance was average as about 40% of them scoring above 50% of marks obtainable.

SOLUTION 3

- (a) Statutory functions of the Auditor-General for Local Government
- i. He is responsible for the audit of the financial statements of the Local Government.
 - ii. He evaluates the integrity and validity of the financial statements of all local governments and writes reports on them.
 - iii. He approves sanctions/surcharges through the local government Service Commission.
 - iv. Carrying out prepayment audit of gratuity and pension of local Government retirees, teaching and non-teaching staff of primary schools in the state.
 - v. Issuing annual statutory audit reports.
 - vi. Executing pre-payment audit of major projects of local governments.
 - vii. Ensuring that proper and adequate system of accounts is established and maintained.
 - viii. Ensuring that effective and efficient internal control system is established in the local government.
 - ix. Reporting any defect in procedures for revenue collection and expenditure disbursements.
 - x. Heading the losses and audit alarm committee at the local government level.

INSIGHT

(b) **EYIWUNMI COMMUNITY SCHOOL
DOMESTIC ACCOUNT (INDEPENDENT) FOR THE YEAR
ENDED 31 DECEMBER, 2016**

Income	Per student N'000	No of students	N'000	N'000
School fees per annum	3,500	300		1,050,000
P.T.A	1,500	300		450,000
Boarding fee per annum	15,000	300		4,500,000
Government subvention	120,000	300		36,000,000
Foundation & Trust Fund for prizes				<u>1,000,000</u>
				43,000,000
Expenses				
Laboratory equipment			1,790,000	
Security			3,158,000	
Teaching equipment & utility			8,158,150	
Allowances for extra moral classes	5,000	300	<u>1,500,000</u>	<u>(14,606,150)</u>
Excess available for development				<u>28,393,850</u>

WORKINGS

- i. Total school fees: $300 \times \text{N}3,500 = \text{N}1,050,000$
- ii. Allowance for extra moral classes $300 \times \text{N}5,500 = \text{N}1,500,000$
- iii. Government subvention $300 \times \text{N}20,000 = \text{N}36,000,000$
- iv. P.T.A $300 \times \text{N}1,500 = \text{N}450,000$
- v. Boarding fee per annum $300 \times \text{N}15,000 = \text{N}4,500,000$

EXAMINER'S REPORT

Part 'a' requires the candidates to State statutory functions of the Auditor-General for Local Government, while Part 'b' tested candidate's knowledge on Domestic (Independent) account of schools.

About 99% of the candidates attempted the question and only 40% of them scored 40% of the total marks obtainable.

INSIGHT

SOLUTION 4

(a)

MUAZU STATE MINISTRY OF WORKS GENERAL FURNITURE AND PRODUCTION UNALLOCATED STORE PAYMENT RECONCILIATION ACCOUNTS			
	₦'000		₦'000
Payment as per abstract	44,327,109	Stock taken on charge- fixed	17,132,410
Less payments in respect of last year	(20,152,704)	Total price deficiencies	4,152,000
Less: Expenditure credit for claim	(15,102,107)		
Less: transfer to unallocated stores	(3,152,179)		
Less: transfer ula deficiency sub-head	(5,123,152)		
Sub- head price excess	3,125,107		
Sub-total	3,922,074		
Adjustment c/d	<u>17,362,336</u>		
	<u>21,284,410</u>		<u>21,284,410</u>

(b) TYPES OF FRAUD

- a. Recording of transactions without substance, reason or logic
- b. Misapplication of accounting policies
- c. Misappropriation of assets such as cash and goods
- d. Falsification or alteration of records or documents
- e. Omission or suppression of the effects of transactions from documents or records
- f. Tax and revenue defalcations involving some agencies of government. Individual citizens and companies falsify their tax returns to pay less to the Revenue Services
- g. Insider dealings: In some companies, members of Top Management float business which receive goods as wholesalers at or below cost, thereby crippling the economy of the organisations concerned.
- h. Advance fee fraud: Dishonest individuals trick the members of the public into depositing money for goods which are never supplied.
- j. "Round tripping": This is done by using forged documents to buy foreign exchange at the official rate and diverting the

INSIGHT

money to the “black” or parallel market, where it is sold at big illicit profit.

- j. Unauthorised withdrawal or diversion of funds from customers’ accounts and some banks, deposits made by the members of the public and being diverted to the accounts of fraudulent customers with the connivance of bank officials.

EXAMINER’S REPORT

Part ‘a’ requires the candidates to distinguish between Bases of Accounting and Legal Basis of Accounting in the Public Sector as well as on the usefulness of Appropriation Act, while Part ‘b’ tested on conditions guiding the appointment of the Surprise Board of Survey.

About 70% of the candidates attempted the question. Performance was very poor as less than 20% of them scoring 40% of total marks obtainable.

SOLUTION 5

- (a) i. Bases of Accounting refer to how financial transactions of government are recognised and recorded in the accounting books. Such bases of accounting in use in the public sector are:

Cash basis
Accrual basis
Modified cash basis
Commitment basis

Legal Basis of Accounting are rules and regulations that governs the receipts and disbursement of public money. They are the legal framework for public financial managements and they include:

- ✓ The Nigerian Constitution of 1999
- ✓ Finance (Control and Management), Act 1958
- ✓ Fiscal Responsibility Act (FRA) 2007
- ✓ Public Procurement Act (PPA) 2007
- ✓ Freedom of Information Act (FOI): It aims at improving transparency and public accountability
- ✓ The Financial Regulations (2009): This contains the operational rules and guidelines for day-to-day management of financial activities

INSIGHT

- ✓ The Nigerian Extractive Industries Transparency Initiative Act 2007
 - ✓ The Federal Treasury Accounting Manual: This is a policy and procedure companion to the Financial Regulations and extant Treasury circular
 - ✓ Treasury circulars (December 2010): Issued by the office of the Accountant-General over the years and compiled into a single volume.
 - ✓ The Procurement Procedures Manual: Issued by the Bureau of Public Procurement (BPP)
 - ✓ The Public Service Manual 2008: Regulates procedures for conduct of public administration and financial management, including codes of behavior and disciplinary procedures
 - ✓ The Civil Service Handbook: Explains the structure and functioning of government
 - ✓ Audit Act 1856
- ii. Appropriation Act
Usefulness
- i. It regulates financial matters including the payment or withdraws from the Consolidated Revenue Fund (CRF).
 - ii. It is an authority to spend money
 - iii. It can be used to change operation of a fund apart from CRF and Contingency Fund.
 - iv. Serve as a guide for the present and future
 - v. It is used to plan, control and estimate the amount to be received and spent during a specific period.

EXAMINER'S REPORT

Part 'a' requires the candidates to distinguish between Bases of Accounting and Legal Basis of Accounting in the Public Sector as well as on the usefulness of Appropriation Act, while Part 'b' tested on conditions guiding the appointment of the Surprise Board of Survey. About 70% of the candidates attempted the question. Performance was very poor as less than 20% of them scoring 40% of total marks obtainable.

INSIGHT

SOLUTION 6

- a. (i) 1. Headed by Executive Secretary
2. Representative of Civil Service Pension Department
3. Representative of Custom, Immigration and Prison Pension
4. Representative Treasury funded Parastal Pension Department
5. Representative the Pension Service Department
6. Representative Information Technology Department
7. Representative support Services Department
- (ii) The pension protection fund shall consist of
- a. Annual subvention of 1% of the total wage bill
b. Annual pension protection levy paid by commission and all licensed pension operation
c. Income from investment of the pension
- (iii) Pension protection fund shall be utilised for
- a. The funding of minimum guaranteed pension payment of compensation for eligible pension for financial loss from investment
b. Ensure continuous payment of pension even if investment has been exhausted
c. Any other purpose deserving protection with the Pension Protection Fund as the commission may determine.
- (b) i. Evidence admitted by the Board:
- Should be recorded verbatim
 - Where impracticable, the evidence is summarised by the board in such a way as to effectively communicate the facts of the case
- ii. Where criminal proceedings are pending:
- The final recommendations of the Board will take into consideration the outcome of court proceedings or police investigation.
 - The Accountant-General should be placed in possession of all the facts relating to the circumstances of the loss.

INSIGHT

EXAMINER'S REPORT

Part 'a' requires the candidates to list members of Pension Transitional Arrangement Directorate; transfers to the Pension Protection Fund and uses of Pension Protection Fund. Part 'b' was on Board of Enquiry, where a criminal proceeding in connection with a loss was pending.

About 15% of the candidates attempted the question and all of them scored below 2 marks of 12½ total marks allocated.

INSIGHT

**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2019**

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 following are examples of First Generation Computers, **EXCEPT**
 - A. EDSAC
 - B. EDVAC
 - C. LEO
 - D. LSI
 - E. UNIVAC 1

2. A more reliable, powerful and compact computer using simple integrated circuits belongs to the
 - A. First Generation
 - B. Second Generation
 - C. Third Generation
 - D. Fourth Generation
 - E. Fifth Generation

3. Convert the number 125 to a binary code
 - A. 1111101
 - B. 1111110
 - C. 10111110
 - D. 11111101
 - E. 1111001

INSIGHT

4. An extra bit added to codes in order to allow the detection of errors in data recording is known as
- A. Parity check
 - B. Parity bit
 - C. Even Parity
 - D. Odd Parity
 - E. Protocol
5. The main memory of a computer system performs the following functions, **EXCEPT**
- A. Hold data
 - B. Release data
 - C. Manipulate data
 - D. Hold instructions
 - E. House the result of processing
6. Which of the following is **NOT** a pointing device?
- A. Mouse
 - B. Joystick
 - C. Light pen
 - D. Touch screen
 - E. Scanner
7. The following are types of optical disk, **EXCEPT**
- A. CD-ROM
 - B. CD-RW
 - C. ZIP drives
 - D. DVD-R
 - E. DVD-ROM
8. LCD is an acronym for
- A. Light Computer Display
 - B. Liquid Crystal Display
 - C. Liquid Computer Display
 - D. Light Crystal Display
 - E. Low Computer Display

INSIGHT

9. Memory that is volatile is called
 - A. RAM
 - B. ROM
 - C. EPROM
 - D. EEPROM
 - E. Hard disk
10. The keyboard contains the following keys, **EXCEPT**
 - A. Alphabetic Keys
 - B. Numeric Keys
 - C. Function Keys
 - D. Graphic Keys
 - E. Control/Shift Keys
11. The ability of an operating system to execute users' tasks concurrently is referred to as
 - A. Multi tasking
 - B. Multi processing
 - C. Multi purpose
 - D. General purpose
 - E. Networking
12. Assembly language is a generation language
 - A. First
 - B. Second
 - C. Third
 - D. Fourth
 - E. Fifth
13. The purpose of program flowchart is to
 - A. Create graphical illustration of the program logic
 - B. Clarify the logic of an algorithm
 - C. Beautify program logic
 - D. Provide an interface for users
 - E. Provide an interface for computing

INSIGHT

14. Windows Operating System is an example of
- A. Single user operating system only
 - B. Single user and multi tasking operating system
 - C. Multi tasking operating system only
 - D. Multi-user and multi tasking operating system
 - E. Multi-user operating system only
15. Multi-user Operating System that uses time slots to switch between users is called Operating System
- A. Real-time
 - B. Network
 - C. Time-sharing
 - D. Multi programming
 - E. Time-slot
16. Which of the following is **NOT** an example of a system?
- A. Business Systems
 - B. Manufacturing Systems
 - C. Information Systems
 - D. Nomenclature Systems
 - E. Service Systems
17. Computer security will be breached, when
- A. Proper implementation of network is done
 - B. Files download is done from trusted websites
 - C. Company's information is deliberately divulged
 - D. ICT policies are not implemented properly
 - E. Users are negligent and careful
18. A unique identifier of a record in a file is called a
- A. Primary key
 - B. Subsidiary key
 - C. Secondary key
 - D. Tertiary key
 - E. Computer key

INSIGHT

19. A malicious computer coding that copies itself into memory or storage medium until all spaces are occupied is called
- A. Worms
 - B. Virus
 - C. Firewall
 - D. Trojan Horse
 - E. Antivirus
20. Which of the following injuries is **NOT** applicable to computer users as a computer related injury?
- A. Repetitive strain injuries
 - B. Headaches
 - C. Eyestrains
 - D. Back and neck pains
 - E. Diarrhea
21. Which of the following describes how the network is arranged and how the resources are coordinated and shared?
- A. Communication channel
 - B. Sharing system
 - C. Network architecture
 - D. Domain name system
 - E. Topology
22. Which of the following acronyms, controls and coordinates the activities of all computers and devices on a network?
- A. TCP/IP
 - B. NOS
 - C. OSI
 - D. DNS
 - E. DSL
23. The type of network topology where signals from any communication device moves/travels in both directions is called
- A. Star topology
 - B. Mesh topology
 - C. Ring topology
 - D. Bus topology
 - E. Hierarchical topology

INSIGHT

24. Which of the following may **NOT** be considered as a benefit of setting up a computer network?
- A. Duplication of data files on different computers on the network
 - B. Sharing of peripheral devices
 - C. Sharing of data files and programs
 - D. Better communication
 - E. Security of data and information
25. Which of the following computer and network issues determine network topology?
- A. Structure of the connection between nodes
 - B. Network transmission rates
 - C. Distance between communication nodes
 - D. Communication signal types between nodes
 - E. Ease of installation and modification of cables
26. What is the most significant legal issue in computer forensics?
- A. Preserving evidence
 - B. Seizing evidence
 - C. Admissibility of evidence
 - D. Discovery of evidence
 - E. Neglecting evidence
27. The process of designing or arranging workplaces, products and systems so that they fit the people who use them is known as
- A. Human comfort design
 - B. Ergonomics
 - C. Workplace comfort
 - D. Science of human comfort
 - E. Science of work place comfort
28. Which of the following is **NOT** a cybercrime?
- A. Hacking
 - B. Cracking
 - C. Phishing
 - D. Identity theft
 - E. Fraud

INSIGHT

29. Which of the following is **NOT** an advantage of the on-line processing technique?
- A. It minimises paper work
 - B. It makes error correction easy
 - C. It is less labour intensive than offline systems
 - D. It is difficult to debug
 - E. It enables interactive data processing
30. Which of the following roles is **NOT** expected to be performed by a user in an information systems environment?
- A. Report any suspicion of breach of security
 - B. Debug programming errors from the application being used
 - C. Comply with the usage policy of their organisation
 - D. Use the hardware and software responsibly for the business of the organisation
 - E. Report issues in the right format as agreed in the organisation

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

ATTEMPT ALL QUESTIONS

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

1. A version of the desktop computer that has a smaller main unit which takes up less space on a surface and also designed to stand upright on any surface is called
2. The manipulation of the following data; hourly rate, number of hours worked, housing and transport allowances and tax will produce information called
3. EBCDIC is an acronym for
4. A method by which a group of people can meet and talk together without all physically coming to the same place is called

INSIGHT

5. A connecting socket on the outside of the system unit that is used to connect input and output devices to the system unit is called
6. Storage devices provide an area to save and retrieve
7. The amount of time required to retrieve data and programs from storage is called
8. A secondary storage device that has no moving parts is called
9. A is a resource of the program segment that moves data into the appropriate location in the memory ready for execution.
10. The style of computer programming that uses the principle of objects is called
11. Assembly language allows program instructions to be expressed in
12. Health hazards associated with fast repetitive motions of the wrist, hand, arm and neck is generally referred to as
13. Removal of confidential information within a system without any trace is called
14. A multi-tasking processing where a user switches back and forth between programs is called
15. Two types of editors that convert input into a particular output format are text editor and editor.
16. The act of taking control of the operating system based on allocated amount of time and priority is
17. The type of network consisting of several computers linked to a central host that serves as hosts to smaller computers or devices is called
18. The term that best describes how a communication link is established, information is transmitted, errors are detected and corrected in a network is called

INSIGHT

19. The application that can be purchased from the computer vendor is called application.
20. An enterprise-wide private network that uses internet and web technologies as its standard for data/information transmission is appropriately called

SECTION B: ATTEMPT ANY FOUR QUESTIONS (50 Marks)

QUESTION 1

- a. State **THREE** characteristics of each of the following:
- i. Mainframe computers
 - ii. Mini computers
 - iii. Micro computers
- (4¹/₂ Marks)
- b. What is Office Automation? State **TWO** activities performed and used in Office Automation. (2 Marks)
- c. Convert:
- i. 11011101₂ to a Hexadecimal number
 - ii. 3112₄ to an Octagonal number
(Show your workings)
- (6 Marks)
(Total 12¹/₂ Marks)

QUESTION 2

- a. Define the following terms:
- i. Input device (1¹/₂ Marks)
 - ii. Direct input device (1 Mark)
 - iii. Indirect input device (1 Mark)
- b. Define the following terms:
- i. Optical Character Reader (OCR) (2 Marks)
 - ii. Bar Code Reader (2 Marks)
 - iii. Optical Mark Reader (OMR) (2 Marks)

INSIGHT

- c. State **THREE** advantages of a computer mouse over other pointed input devices (3 Marks)
(Total 12¹/₂ Marks)

QUESTION 3

- a i. State **TWO** differences between an off-the-shelf application package and a custom-tailored package (2 Marks)
- ii. State **THREE** sources of application packages (3 Marks)
- b. List **THREE** factors that can be considered in the choice of an application package (4¹/₂ Marks)
- c. State **THREE** advantages of in-house developed packages over off-the-shelf packages (3 Marks)
(Total 12¹/₂ Marks)

QUESTION 4

- a i. State **TWO** distinctions between centralised processing technique and distributed data processing technique. (2 Marks)
- ii. List **TWO** advantages of centralised processing technique over distributed data processing technique. (2 Marks)
- b i. What is pre-emptive multi-tasking? (1¹/₂ Marks)
- ii. State **TWO** conditions that facilitate pre-emptive multi-tasking operation (1 Mark)
- c i. Highlight **TWO** differences between spreadsheet and database as an accounting software product (4 Marks)
- ii. State **TWO** examples each of spreadsheet and database packages. (2 Marks)
(Total 12¹/₂ Marks)

INSIGHT

QUESTION 5

Cloud Computing enables consumers and businesses to use applications without installing them in order to access files on any computer with internet access.

You are required to:

a. List and briefly explain the **THREE** technologies used in cloud computing.

(7¹/₂ Marks)

b. Enumerate **THREE** advantages and **TWO** disadvantages of using cloud computing

(5 Marks)

(Total 12¹/₂ Marks)

QUESTION 6

a i. What is Rapid Applications Development (RAD)? (1¹/₂ Marks)

ii. Enumerate **THREE** situations when RAD is appropriate in system development (3 Marks)

b i. Define Cybercrime (2 Marks)

ii. List **TWO** ways in which computer security can be breached (2 Marks)

c. State **FOUR** characteristics of big data (4 Marks)

(Total 12¹/₂ Marks)

INSIGHT

SOLUTIONS

MULTIPLE-CHOICE ANSWERS

1. D
2. C
3. A
4. B
5. C
6. E
7. C
8. B
9. A
10. D
11. A
12. B
13. A
14. D
15. C
16. D
17. B or D or E
18. A
19. A

INSIGHT

20. E

21. E

22. A

23. B

24. A

25. A

26. C

27. B

28. E

29. D

30. B

EXAMINER'S COMMENT

Thirty questions are set in this section and they cover almost all segments of the syllabus. They are all standard questions.

SHORT-ANSWER SOLUTIONS

1. Minitower
2. Net pay
3. Extended Binary Coded Decimal Interchange Code
4. Teleconferencing
5. I / O port
6. Data/Programs/Information
7. Access time/Turn-around time

INSIGHT

8. Solid state storage
9. Loader
10. Object-Oriented programming (OOP)
11. Symbolic codes/Mnemonic codes
12. Repetitive Strain Injury (RSI)
13. Data leakage
14. Context switching
15. Linkage Editor
16. Pre-emptive multitasking
17. Hybrid
18. Protocol (Network protocol)
19. Off-the-shelf
20. Virtual Private Network (VPN)

EXAMINER'S REPORT

Twenty questions which cover almost all segments of the syllabus are set in this section. All the questions are standard and are very clear.

SECTION B: SOLUTIONS

SOLUTION 1

a(i.) Mainframe Computers

- It is very expensive
- It is a large system
- It is used mainly by large multinational companies

INSIGHT

- It evolves large quantity of heat
- It can run for several uninterrupted hours
- It has a large primary memory
- It supports wide range of peripheral equipments
- It is normally housed in air-conditioned rooms surrounded by security measures
- It is capable of handling multiple simultaneous functions such as batch processing and interactive processing.

ii. **Mini Computer**

- Used by medium sized companies
- Can be used in networking
- It is easier to install but still by a professional
- Its use has no complex management structure
- It is used for engineering and scientific applications
- Smaller in size than a mainframe
- It has a low cost compared to the mainframe
- Its capabilities are lower than mainframe but higher than a micro computer

iii. **Micro Computer**

- It is used as part of a network
- It is very small in size
- Consists of a processor on a single silicon chip mounted on a circuit board together
- Has a keyboard to enter data and instructions
- Has a screen also called monitor or VDU
- Has a small word length size
- It is the cheapest in the range of computers
- It operates under normal room condition
- It can be operated by unskilled users
- It can be installed by unskilled users
- It is used as stand-alone computers

- b. Office automation is the use of computers, micro-electronics and telecommunications technology to manage information resources automatically. It integrate some or all of the departmental functions in an organisation. It is used in handling almost all office routines.

INSIGHT

Activities

- Word processing
- Desktop publishing
- Fax
- Audio/Teleconferencing/videoconferencing

c(i). 11011101_2 to a Hexadecimal number

First Step

Convert 11011101 to Decimal

$$1 \times 2^7 + 1 \times 2^6 + 0 \times 2^5 + 1 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$$

$$1 \times 128 + 1 \times 64 + 0 \times 32 + 1 \times 16 + 1 \times 8 + 1 \times 4 + 0 \times 2 + 1 \times 1$$

$$128 + 64 + 0 + 16 + 8 + 4 + 0 + 1$$

$$221_{10}$$

Second Step

Convert 221_{10} to Base 16

$$221 \div 16 = 13 \text{ rem } D$$

$$13 \div 16 = 0 \text{ rem } D$$

$$DD_{16}$$

Hexadecimal system = (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F)
(Base 16)

ii. 3112_4 to Base 8

First Step

Convert 3112_4 to Decimal

$$3 \times 4^3 + 1 \times 4^2 + 1 \times 4^1 + 2 \times 4^0$$

$$3 \times 64 + 1 \times 16 + 1 \times 4 + 2 \times 1$$

$$192 + 16 + 4 + 2$$

$$214_{10}$$

INSIGHT

Second Step

Convert 214_{10} to Base 8

$$214 \div 8 = 26 \text{ rem } 6$$

$$26 \div 8 = 3 \text{ rem } 2$$

$$3 \div 8 = 0 \text{ rem } 3$$

$$326_8$$

EXAMINER'S REPORT

This question tests the knowledge of candidates on the characteristics of the generation of computers and properties of office automation. It also tests the arithmetic of number systems. Almost all the candidates attempted this question and the performance is good.

SOLUTION 2

- a(i.) Input device: These are devices which transfer data and programs into the internal memory.
- ii. Direct input device: The term 'direct' means that data is transferred in a form suitable for processing without the need for data conversion. Examples of direct input devices include Optimal Mark Reader (OMR), Magnetic Ink Character Reader (MICR) and Optical Character Reader (OCR).
- iii. Indirect input device: The term 'indirect' means that data are converted before transferring into the memory for processing. Examples include; Punched card, Barcode, Paper tape. In these systems, the data they contain is usually converted to magnetic media prior to being input for processing.

b(i.) **Optical Character Reader (OCR)**

Optical Character Reader is an input device used to read a printed text. OCR scans the text optically, character by character, converts them into a machine readable code and stores the text on the system memory.

ii. **Bar Code Readers**

Bar Code Reader is a device used for reading bar coded data (data in the form of coded lines). Bar coded data is generally used in labeling goods, it may be a handheld scanner or may be embedded in a stationary scanner. Bar code reader scans a bar code image, converts it into an alphanumeric value, which is then fed to the computer that the bar code reader is connected to.

iii. **Optical Mark Reader (OMR)**

OMR is a special type of optical scanner used to recognise the type of mark made by pen or pencil. It is used where one out of a few alternatives is to be selected and marked. It is specially used for checking the answer sheets of examinations having multiple choice questions.

c. **Advantages of Computer Mouse**

- i. Easy to use
- ii. Not very expensive
- iii. Moves the cursor faster than the arrow keys of the keyboard
- iv. It is used to control the position of the cursor on the screen
- v. It helps to interact with the computer system
- vi. It helps the user to hover on an object
- vii. It takes very little space
- viii. It selects options faster

EXAMINER'S COMMENT

This question tests candidates' understanding on the differences between direct and indirect input systems. Many of the candidates answered this question and the performance is good.

INSIGHT

SOLUTION 3

a.(i.) Differences between off-the-shelf application package and custom-tailored.

S/N	Off-the-Shelf Package	Custom-Tailored Package
1.	Solves problem of a general nature	Solves peculiar problems
2.	It is cheaper	It is costlier
3.	It is long in the market, so will be error-free	Could still contain errors
4.	Readily available	Takes a long time to develop

ii. **Sources of application packages are:**

1. Mail-order sources as advertised in computer magazines and dailies
2. Over the counter from retail shops or stores
3. Dealers (i.e vendors) in micro-computers
4. Manufacturers of micro-computers who also develop programs
5. Specialist organisations, known as “software houses”, which develop software.
6. In-house by programmers (i.e tailor-made programs)

b. **Factors that can be considered in the choice of an application package:**

1. A feasibility report indicating the choice between off-the-shelf and in-house packages.
2. Purchase price of the off-the-shelf package
3. Type of hardware and operating system designed for the environment
4. Can the package be integrated with other standard packages?
5. Will the RAM capacity of the hardware on which it will be installed be adequate?
6. Availability of installed security facilities
7. After sales maintenance
8. User’s friendliness
9. Ability to meet user’s needs
10. Flexibility of the package
11. The technology version

INSIGHT

- c. **Advantages of In-house developed package over-off-the-shelf package**
1. It directly addresses specific user's problems unlike off-the-shelf package that is general
 2. User is free from over-dependence on vendor or manufacturer
 3. The scope of users' problems are well covered
 4. In-house developed package is well suited to existing hardware and software
 5. Support and maintenance services are easily provided (not dependent on vendors)
 6. In-house application packages provide integration of multiple process

EXAMINER'S COMMENT

This question tests candidates' understanding of Application Packages. Over 90% of the candidates attempted this question and the performance is encouraging.

SOLUTION 4

ai.

S/N	Centralised Processing Technique	S/N	Distributed Data Processing Technique
1.	Data processing is done in a single location i.e various departments may not be involved in the processing activities.	1.	The processing system is an hybrid of the centralised and decentralized system/approaches.
2.	All terminals and other devices are connected to a central corporate computer i.e server for data processing.	2.	Each location has its own computers (server) to handle local processing and the computers in the departments are all linked together to the corporate server.
3.	There is only one central server where back up is done.	3.	Various departmental computers are linked together, hence the back-up process is interwoven.
4.	The processing technique is prone to catastrophic loss (i.e high risk) because it uses only one central	4.	Less catastrophic loss since the resources including the back-up are spread across multiple locations.

INSIGHT

	server in one location.		
5.	The network cannot be expanded without considering the carrying capacity of the central server.	5.	There is an opportunity to expand the network as local processing computers are treated as modules.
6.	There is only one central server hence data storage costs and data inconsistency is reduced.	6.	Data duplication of multiple locations creates increase in data storage costs and data inconsistency.
7.	There is only one location hence documentation standardization and its control may not be difficult to achieve.	7.	There is difficulty in standardizing the documentation and control because the authority and responsibility are distributed across the network.
8.	Less tedious and complex, because the data processing is done in a single location.	8.	High complexity in coordinating data processing within the network.
9.	More experienced IT staff	9.	Less experienced IT staff
10.	Complex administrative structure	10.	Less complex administrative structure

ii. Advantages of centralised processing technique over distributed data processing technique:

- There is better control over the data processing activities since the data, program and other devices are located within one place but in distributing, the resources are spread within the department and outside the departments and also to the corporate server.
- There are economies of scale, that is, it is cheaper to run the processing stages. Resources that are needed for the work is concentrated into only one location. In distributed processing, resources are not concentrated in one location and this increases the running cost, i.e economics of scales.
- Complication in the task of coordination of system and maintenance of hardware, software and data consistency is highly reduced or less in centralized processing technique because it is located in a

INSIGHT

single place, whereas the multiple locations of distributed data processing makes the case complicated.

- There may not be need for document standardization and control because the authority and responsibility are centralized or located in one place unlike the case of distributed data processing where there are multiple locations.
- Adequate security controls is achievable because of the single location of the computer server whereas the multiple locations of the servers in distributed processing system make the security controls and separation of duties difficult.

bi.

- Pre-emptive multi-tasking is when operating system switches programs based on allocated amount of time and priority, or
- Pre-emptive multi-tasking is a task in which a computer operating system uses some criteria to decide how long to allocate to any one task before giving another task a turn to use the operating system, or
- The act of taking control of the operating system from one task and giving it to another task.
- The conditions that facilitate pre-emptive multi-tasking operation are:
 - ✓ Allocated time or Time allocated
 - ✓ Priority
 - ✓ System support

ci. A spreadsheet is an application for managing, tabulating (arranging) data while a database is where data is stored so that it can be retrieved by users i.e a database is a collection of related data in an organized way.

- The amount of data that is usually stored in a database is more than what is contained in a spreadsheet.
- A spreadsheet is edited directly by people while a database is accessed by application that enter and modify data.

INSIGHT

- A spreadsheet is usually used for presentations and paper works while databases are commonly used in cases where a lot of data needs to be stored.
- ii. Examples of Spreadsheet:
- Lotus 1 - 2 - 3
 - Open office calc
 - Microsoft Excel
 - Zoho sheet
 - Anumeric
 - Spread 32
 - Google sheets
 - Numbers
 - Easy office
 - Smart sheet
 - Professional Plan
 - Multiplan
 - PC - Focals
 - Quattro
 - Super c als
 - SUN

- Database:
- Oracle
 - My SQL
 - DB 2 (D base)
 - MS Access (Microsoft Access)
 - File maker
 - Air table
 - R base
 - Reflexive

EXAMINER'S REPORT

This question tests candidates' knowledge on processing techniques, spreadsheet and database application packages. About 60% of the candidates attempted this question and the performance is poor. Candidates did not show good understanding of processing techniques, particularly, centralised and distributed techniques.

INSIGHT

SOLUTION 5

a. **The three technologies used in cloud computing are:**

- Software as a Service (SaaS)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)

(i) Software as Service (SaaS) is hosted directly from the software provider servers and is accessed by the end-users with any computer having internet access. Using on-demand service, the end-user pays the software provider a subscription fee for the service. Examples of companies that offer SaaS include:

- ✓ Google
- ✓ Net suite
- ✓ Info Technologies etc

(ii) Platform as a Service (PaaS) refers to products that are used to deploy the applications. Platform serves as an interface for users to access applications provided by partners or in some cases the consumers. Examples of companies offering Paas include:

- ✓ Salesforce.com
- ✓ Net suite
- ✓ Google
- ✓ SUN Oracle, Amazon etc

(iii) Infrastructure as a Service (IaaS) is the backbone of the entire concept; the vendors provides the physical storage space and processing capabilities that allow for all the services (i.e SaaS & PaaS) above. Major infrastructure vendors include:

- ✓ Google
- ✓ International business Machine (IBM)
- ✓ Amazon.com
- ✓ Terremark
- ✓ Rackspace Hosting etc
- ✓ Microsoft Azure

b. **Advantages of Cloud Computing include:**

- i. Costless because there is no need to pay for all people, products and facilities to run them.

INSIGHT

- ii. The services are more scalable, secured and reliable than most application software.
- iii. It is easily upgraded and get security and performance enhancements with new features.
- iv. Cloud application does not consume valuable IT resources.
- v. Its users can avoid expenses on hardware, software and services when they pay a provider for only what they use.
- vi. Immediate access to a wide range of applications.
- vii. Enable users to access systems using web browsers regardless of their locations and devices used.
- vii. Providers are able to devote resources to solve security issues that many users cannot afford.

Disadvantages of Cloud Computing include:

- i. Cloud computing systems are internet-based; which means that access is fully dependent on internet connection.
- ii. No cloud provider, even the best, would claim immunity to service outages.
- iii. Downtime is one of the worst lapses of cloud computing.

EXAMINER'S REPORT

This question tests candidates' knowledge on cloud computing technique. Less than 10% of the candidates attempted this question and the performance is very poor.

INSIGHT

SOLUTION 6

- ai. Rapid Applications Development (RAD) is a quick way of developing software, combining a managed approach to systems development with the use of modern software tools such as prototyping and modeling.

RAD involves end-users heavily in the development process. It has to be so because users' needs must be fully covered and this is best done with their full commitment and participation.

- ii. The situations when RAD is appropriate include:

- If users are not clear about their requirements
- Where there is a need for faster delivery time than what conventional development can provide
- Where the target system is limited in scope
- Where the target system is not expected to be implemented on a new platform
- If there is the culture of user involvement in system development, RAD team can work productively.

- bi. Cybercrime is any criminal act of dealing with computers and networks in terms of abuse or vandalization. Such crime includes: Warez trading, supper zapping, data leakage, cracking, hacking etc.

- ii. **Ways of Breaching of Computer Security:**

- Virus, worms and Trojan horses
- Poor implementation of network/bad network administration
- Poor implementation of ICT policies
- User's negligence or carelessness
- Hackers, spanners or hacker's intrusion
- Downloading of files from untrusted websites or unknown website
- Eavesdropping
- Failure to update anti-virus software regularly
- Privilege escalation
- Cracking

- Data dialing
- Data leakage
- Denial of service attack
- Email forgery
- E-mail threat

INSIGHT

- Hacking
- Using of weak password
- Internet misinformation
- Internet terrorism
- Logic time bomb
- Masquerading or impersonation
- Password cracking
- Piggy backing
- Round-down
- Salami technique
- Scavenging
- Social-engineering
- Software piracy
- Spamming
- Supper zapping
- Trap door
- Trojan horse
- Virus
- War dialing

c. Characteristics of big data are:

- **Volume**
The quantity of generated and stored data is enormous.
- **Velocity**
The speed at which data is generated and processed is very high. Big data is often available in real time.
- **Variety**
Big data contain different types and nature of data. Big data draws from text, images, audio, video plus it completes missing pieces through data fusion.
- **Variability**
Big data could contain inconsistencies in the data set, this can hamper processes to handle and manage it.
- **Veracity**
The quality of captured data can vary greatly, affecting accurate analysis.

EXAMINER'S REPORT

INSIGHT

This question tests candidates' knowledge on system development and data security. Less than 60% of the candidates attempted the question and the performance is not encouraging.

INSIGHT

**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS –SEPTEMBER 2019**

QUANTITATIVE ANALYSIS

Time Allowed: 3 hours

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

ATTEMPT ALL QUESTIONS

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

1. A sampling method in which the first item of a data set is selected randomly and the rest are selected at regular and successive intervals is known as
 - A. Simple random sampling
 - B. Multisage sampling
 - C. Stratified sampling
 - D. Systematic sampling
 - E. Cluster sampling
2. Which of the following is a/are method(s) of data presentation?
 - A. Text presentation
 - B. Tabular presentation
 - C. Diagrammatic presentation
 - D. Tabular and Diagrammatic presentation
 - E. Text, Tabular and Diagrammatic presentation
3. The point of intersection of the Ogives of “Less than” and “More than” gives the
 - A. First Decile
 - B. First Quartile
 - C. Fifth Percentile
 - D. Mode
 - E. Median
4. The statistical measure that can be utilised to determine the level of precision and reliability of a data set is the
 - A. Mean deviation
 - B. Standard Deviation
 - C. Coefficient of variation
 - D. Range

INSIGHT

- E. Skewness
5. Regression of variable Y on X, or/and X on Y can be used to determine the following, **EXCEPT**
- A. Pearson's product moment correlation coefficient
 - B. Spearman's correlation coefficient
 - C. Regression coefficient of each concerned line
 - D. The intercept value of each concerned line
 - E. Normal equations of the concerned line
6. Which of the following does **NOT** support the emphasis on regular interval of time in the Time Series definition?
- A. Daily sales in a store
 - B. Yearly income of a company
 - C. Working days record of bank deposits
 - D. Amount of rainfall
 - E. Annual enrolment of students in a school
7. Which of the following is **NOT** a merit of Moving Average Method?
- A. That it is simpler than the Least Squares Method
 - B. That it is good for time that reveals Linear Trend
 - C. That it is suitable for forecasting
 - D. Cyclical fluctuation is completely removed by this method if the period of moving average is equal to the average period of cycles
 - E. It takes less and quicker time to get the linear pattern of the data set
8. Which of the following is a measure of location
- A. Mean deviation
 - B. Range
 - C. Mode
 - D. Quartile deviation
 - E. Standard deviation

INSIGHT

9. Determine the simple average of relative price index (SARPI) from the following table using year 2016 as the base year:

Items/Commodities	Price per unit (cedi)	
	Year 2016	Year 2017
E	20	60
F	30	55
G	10	20
H	6	15

- A. 233
B. 227
C. 144
D. 143
E. 140
10. Determine the probability of picking a card that is a Heart or a Spade from a deck of cards

- A. $\frac{12}{51}$
B. $\frac{13}{52}$
C. $\frac{26}{52}$
D. $\frac{26}{50}$
F. $\frac{30}{52}$

11. Given the following table:

X	1	2	3	4	5
P(X)	$\frac{1}{6}$	$\frac{5}{36}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{9}$

Obtain $E(X^2)$

- A. 11.0384
B. 11.0483
C. 11.0834
D. 11.8034
E. 11.8304

INSIGHT

12. Which of the following is the test statistic for the hypothesis that a coin is unbiased if in 400 tosses, the head turns up 216 times?
- A. 1.2
 - B. 1.4
 - C. 1.5
 - D. 1.6
 - E. 1.7
13. If x = no. of bulbs produced by a bulb manufacturing firm while $R(x) = 300 + 2x^2$ (in L\$) and $C(x) = 100 + x^2$ (L\$) are the respective revenue and cost functions, the profit made from the sale of 600 units of bulb is
- A. L\$360,000
 - B. L\$360,100
 - C. L\$360,200
 - D. L\$720,100
 - E. L\$720,200
14. A petty trader rents a space in a market at ₦1,750 monthly where he buys and sells a particular household item. If the cost price and selling price of the item are ₦4.50 and ₦8.00 per unit respectively, then the quantity at which he breaks even monthly is
- A. 140
 - B. 350
 - C. 500
 - D. 750
 - E. 850
15. The cost and revenue functions of a firm are given by $C(x) = 210 + 28x$ and $R(x) = 35x$ respectively, where x is the number of items produced and sold. At what range of values of x is the revenue function greater than cost function?
- A. $x > 3$
 - B. $x > 21$
 - C. $x > 30$
 - D. $x > 35$
 - E. $x > 63$

INSIGHT

16. A bike rider wants to purchase a motorcycle for L\$750,000 in 4 year's time. What is the present value of the cost of the motorcycle at 25% per annum simple interest rate over the given period?
- A. L\$225,000
 - B. L\$375,000
 - C. L\$500,000
 - D. L\$550,000
 - E. L\$625,000
17. The discount rate at which a project has a present value of zero is called
- A. Tax rate
 - B. Simple Interest rate
 - C. Discounting rate
 - D. Internal rate of return
 - E. Compound interest rate
18. The supply function for a certain commodity is $S(q) = 10q + 3q^2$. Find the producers' surplus when the quantity of the commodity supplied is 100 units
- A. 105,000
 - B. 310,000
 - C. 1,000,000
 - D. 1,050,000
 - E. 2,050,000
19. The central aspect of an Operations Research Project is the
- A. Decision making
 - B. Construction of model
 - C. Identification of problem
 - D. Identification of objectives
 - E. Identification of variables
20. The following are the underlying basic assumptions of a Linear Programming problem, **EXCEPT** the
- A. Linearity of the objective
 - B. Linearity of the constraints

INSIGHT

- C. Non-negativity of the decision variables
 - D. Non-linearity of the objective function
 - E. Inequality form of the constraints
21. The graphical method of solving Linear Programming problems is applicable only when the problem involves
- A. More than two constraints
 - B. Two constraints
 - C. More than two decision variables
 - D. Two decision variables
 - E. Only one decision variable
22. In inventory planning and production control, the term “inventory” could mean any of the following, **EXCEPT**
- A. List of items in a shop
 - B. Stock of items available in an organisation
 - C. List of items in a company
 - D. Stock of finished products or unfinished products
 - E. Stock of items in circulation
23. Which of the following is **NOT** an inventory cost?
- A. Ordering cost
 - B. Holding cost
 - C. Stock-out cost
 - D. Slack cost
 - E. Stock cost
24. Which of the following is **NOT** an assumption of Basic Economic Order Quantity (EOQ) model?
- A. Stock-outs are allowed
 - B. Ordering cost is known and constant
 - C. Rates of demand are known
 - D. Stock holding cost is known and constant
 - E. Price per unit is known and constant

INSIGHT

25. The activities involved in a road construction project are given in the table below:

Activity	Preceding activity	Duration (in weeks)
P	-	5
Q	-	8
R	Q	7
S	R	6
T	P	3
U	T	4

- The duration of the critical path is.....weeks
- A. 12
B. 18
C. 21
D. 25
E. 33
26. In the replacement of items that deteriorate or wear out gradually, the efficiency of the item with the gradual failure will result in any of the following, **EXCEPT**
- A. A decrease in the equipment production capacity
B. An increase in the maintenance cost
C. An increase in the operating cost
D. A decrease in the maintenance cost
E. A decrease in the value of the resale of the item
27. Which of the following is **NOT** true about the nature of a Transportation model?
- A. It is a special class of Linear Programming problem
B. It involves distribution of goods from various sources to different destinations
C. destinations
D. The main objective is to minimise the transportation cost of supplying goods from the origin to the destination
E. goods from the origin to the destination
F. The North-West corner rule gives the initial feasible solution
G. The Vogel's approximation method gives the optimal solution

INSIGHT

28. The following table gives the unit transportation costs (N'000) of a particular product from various sources to the various destinations with the quantities demanded and quantities supplied.

Source	Destination			Supply
	X	Y	Z	
A	18	25	16	50
B	27	21	17	40
C	20	24	22	60
Demand	70	60	20	150

If Vogel's approximation method is used to obtain the initial basic feasible solution, then the first cell to be given allocation is cell

- A. AX
 - B. BY
 - C. BZ
 - D. CX
 - E. ZA
29. Which of the following is **NOT** an advantage of simulation as the imitation of the operation of a real-world process or system over time?
- A. It makes the decision-maker to note and study the interactive system and
 - B. effects changes where possible
 - C. Simulation experiments make use of the system not the model itself
 - D. It can be used for sensitivity analysis on complex systems
 - E. It is suitable for analysing large and complex real-life problems which may
 - F. not be solved by the usual quantitative methods
It can be used as a pre-test service for situations where new products are to be introduced
30. Which of the following processes is **NOT** involved in the Monte Carlo method of solving a simulated problem?
- A. Identification of the variables in the problem
 - B. Setting up the probability distributions for the variables identified
 - C. Using the principle of systematic sampling to carry out the simulation experiment

INSIGHT

- D. Obtaining the cumulative probability distribution for each random variable involved in the system
- E. Assignment of a set of generated random numbers to represent the range of values for each random variable

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

ATTEMPT ALL QUESTIONS

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

1. The method that is used to construct a frequency table especially when there are many observations or figures is known as.....
2. Quartiles, Percentiles and Deciles are collectively called.....
3. A graph of cumulative frequencies against upper class boundaries is called.....
4. The Interquartile range of the following set of data: 16, 28, 15, 13, 6, 9, 15, is.....
5. Index number is atool which measures the difference that may have to do with prices of commodities.
6. The actual definition of the purpose of an index number is very necessary so as to know what.....to include in the computation process.
7. Each outcome of an experiment is called.....
8. In hypothesis testing, if the maximum probability of the willingness to risk a type I error is α , then an investigator has.....confidence that he/she is making right decision.
9. If the total cost and total revenue functions of a firm are given by $C(x) = 500 + 5x$ and $R(x) = 25x$, respectively, then the quantity at the break-even point is.....

INSIGHT

10. It will take.....years for ₦20,000 to grow to ₦50,000 at 10% simple interest.
11. The slope of the function $f(x) = 5x^3 - 7x^2 + 5x - 14$ at $x = 1$ is.....
12. The output level, x , that guarantees a minimum profit for a company with $f(x) = 2,700x^2 - 135,000x + 5,210,000$ as profit function is
13. In Operations Research Analysis, it is conventional to assume that the decision variables are
14. Linear Programming is a basic tool used to allocate limited resources such as....., in order to achieve optimal utilisation of the said resources.
15. In the graphical solution to a LPP, the region where all the constraints are simultaneously satisfied is called
16. The lead time is the time that elapses between and
17. If the demand for an item is 4,000 units per annum, the cost of an order is GMD20 and holding cost per unit is GMD4 per annum, then the number of orders per year is
18. In a Network Analysis, the Earliest Start Time (EST), Latest Start Time (LST), Earliest Finish Time (EFT) and Latest Finish Time (LFT) are needed to compute the.....
19. To be useful, the cost or profit matrix in an assignment problem must be a
20. A method that utilises the principle of random numbers with some known probability distributions to represent a given system is known as..... method of simulation.

INSIGHT

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

- a. A manufacturing Company with 5,000 workers is interested in knowing the average number of items sold per week per worker. While the Sales Manager thinks that the average number of items sold per worker per week is 12 items, the Company Secretary thinks that the value should be more. However, the Sales Manager subsequently chose 11 workers at random and estimated from their sales record that the average number of items sold per week per worker is 13 items and has a sample standard deviation of 5.4.

Required:

Set up a suitable hypothesis for the assertions of Sales Manager and the Secretary and test it at 5% level of significance. (8 Marks)

- b. The price of Ordinary Shares of Mobil Oil Plc. quoted on the Stock Exchange at the close of business on successive Fridays is tabulated as follows:

Share Price (₦)	No of Stock
105 - 109	2
110 - 114	5
115 - 119	4
120 - 124	8
125 - 129	10
130 - 134	5
135 - 139	4
140 - 144	2

Required:

Draw an Ogive of the distribution

(4½ Marks)

(Total 12½ Marks)

INSIGHT

QUESTION 2

- a. The quarterly sales figures for a company are as recorded in the table below:

Year	Sales in (GH¢'000)			
	Q1	Q2	Q3	Q4
2001	21	31	58	28
2002	20	44	78	32

The trend line estimated by Least Squares Method is given as:
 $T = 28.08 + 3.12x$, where $x = 0$ for 2001 first quarter, $x=1$ for 2001 second quarter e.t.c

You are required to:

- i. Find the trend for each quarter (4 Marks)
 - ii. Hence, based on multiplicative model, compute the seasonal indices for each quarter (4 Marks)
- b. Given the table below:

Items/Commodities	Price per unit Cedi		
	Year 2016	Year 2017	Year 2018
R	22	32	63
X	32	52	58
Y	12	17	23
Z	8	10	18

Required:

Compute Simple Aggregate Price Index for 2017 using 2016 as base year.
(4^{1/2} Marks)
(Total 12^{1/2} Marks)

QUESTION 3

- a. Two fair coins and a six-sided-fair die are tossed.
- i. Obtain the possible sample space. (2 Mark)
 - ii. Hence, obtain the probability of getting two heads and a prime number.
(3 Marks)

INSIGHT

- b. A company has the following total revenue (TR) and total cost (TC) functions:

$$TR = 100x - x^2$$

$$TC = x^3 - \frac{57}{2}x^2, \text{ where } x \text{ is the level of the output}$$

Find the maximum profit.

(7½ Marks)

(Total 12½ Marks)

QUESTION 4

- a. A company manufactures three types of Electrical product: Electric Iron, Fan and Toaster. All the three products have to be processed on two machines I and II. The processing time (hours) required by each product on both machines is as shown below:

	Electric Iron	Fan	Toaster
Machine I	4	3	2
Machine II	3	2	2.5

Machine I is available only for 150 hours and Machine II is available for 130 hours. The firm should not manufacture more than 300 electric irons, not more than 400 fans and not more than 100 toasters. An electric iron gives a profit of Le120, a fan gives a profit of Le100 and a toaster gives a profit of Le60.

You are required:

To formulate the problem as a Linear Programming problem.

(10 Marks)

- b. ALAJATEDO Company Limited manufactures motor parts by using 8,000 components per annum purchased at Le50 each. The ordering and holding costs are Le120 per order and 25% of 50 per annum, respectively.

You are required to calculate:

The optimum lot-size

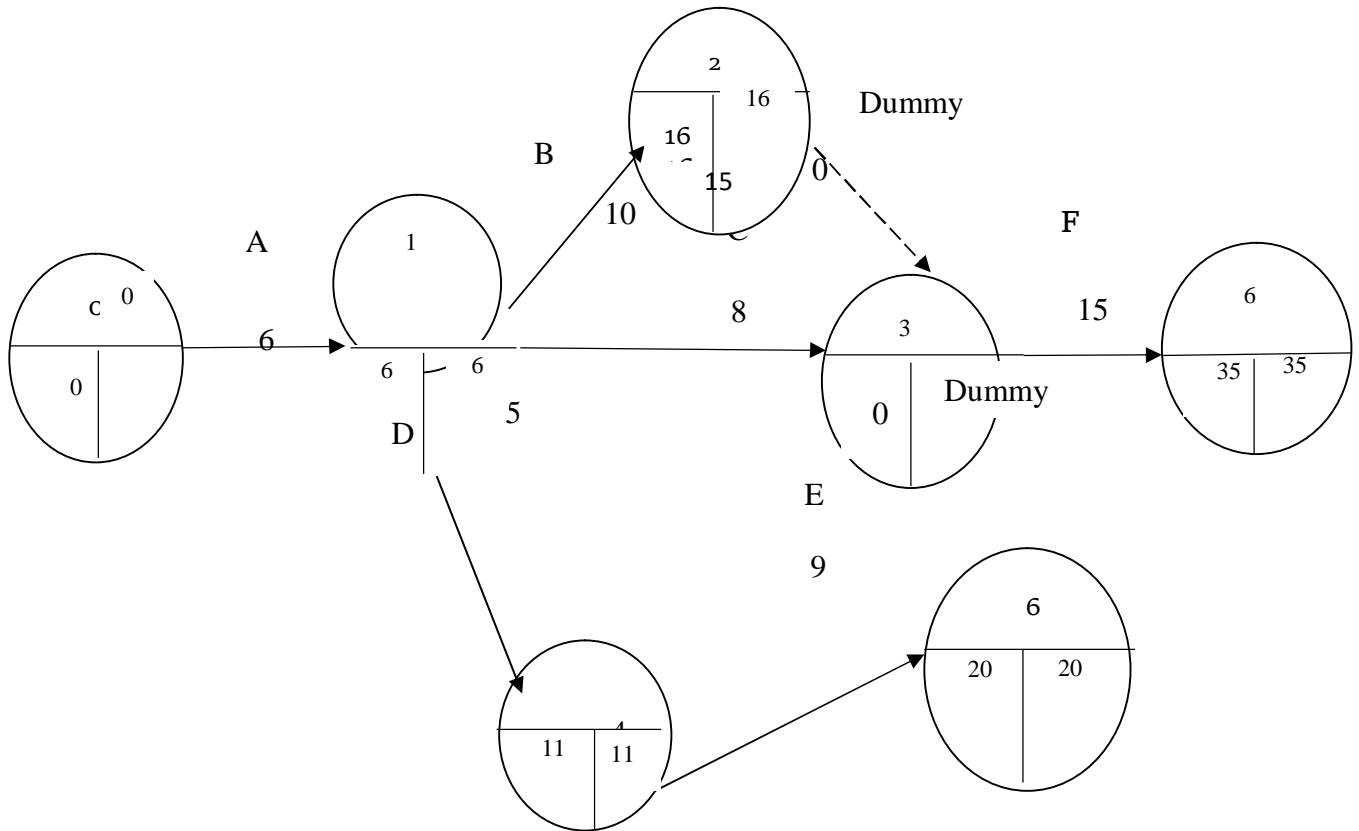
2½ Marks)

(TOTAL 12½ Marks)

INSIGHT

QUESTION 5

a. Given a Network Diagram below:



Calculate the total float?

(6 Marks)

- b. QAD company has 3 plants on locations I, II, III where its goods can be produced with production capacities of 70, 50, 55 per month, respectively, for a particular product. These units are to be distributed to 4 points A, B, C, D of consumption with the demands of 60, 25, 40 and 50 per month, respectively.

INSIGHT

The following table gives the unit transportation costs (in GHD) from various plants to the various points of consumption:

Source/Plan	Destination/Demand			
	A	B	C	D
I	18	20	22	27
II	25	17	19	24
III	21	18	26	23

Obtain the Initial Basic Feasible solution using Least Cost Method.

(6¹/₂ Marks)

(Total 12¹/₂ Marks)

INSIGHT

QUESTION 6

- a. A manufacturing industry keeps stocks of its products. From the past records, the industry had weekly demand pattern for the product with the associated probabilities as shown below:

Daily demand quantity	0	5	10	15	20
Probabilities	0.04	0.15	0.24	0.05	0.52

You are required to simulate for 5 weeks using the sequence of random numbers: 24, 30, 56, 75 and 82. (5 Marks)

- b. A man deposits ₦10,000 in his savings bank account at 2½% compound interest at the end of every year. How much will his savings amount to in 15 years? (7½ 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 $t = x_i - x_m$

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

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

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

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

EOQ with stock-out

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

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

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

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

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

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

Spearman's rank correlation coefficient

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

EOQ with gradual replenishment

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

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

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

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

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

INSIGHT

SOLUTIONS

MULTIPLE-CHOICE SOLUTIONS

1. D
2. E
3. E
4. C
5. B
6. D
7. C
8. C
9. A
10. C
11. C
12. D
13. C
14. C
15. C
16. B
17. D
18. E
19. B
20. D

INSIGHT

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

SHORT ANSWER SOLUTIONS

1. Tally or Tally method
2. Measures of partition or Fractiles
3. Cumulative frequency curve or Ogive
4. 7
5. Statistical
6. Items (not item)
7. Sample point
8. $1 - \alpha$
9. 25
10. 15
11. 6
12. 25
13. Positive
14. Machines, Men, Materials, Money (4 M's)
15. Feasible region

INSIGHT

16. Ordering, delivery/supply (in that order)
17. 20
18. Floats
19. Square matrix
20. Monte Carlo

SOLUTION 1

(a) $H_0 : \mu = 12$

$H_1 : \mu > 12$

Since the sample size $n = 11$ is small, we use the t-test statistics.

$$\begin{aligned} t_{\text{cal}} &= \frac{\bar{x} - \mu}{s/\sqrt{n}} \\ &= \frac{13 - 12}{5.4/\sqrt{11}} \\ &= \frac{1}{5.4/3.3166} = \frac{1}{1.6282} \\ &= 0.614175 \\ &\cong 0.614 \end{aligned}$$

The degree of freedom = $11 - 1 = 10$

\therefore from the table, $t_{10} (0.05) = 2.23$.

Since $t_{\text{cal}} < t_{10} (0.05)$, we accept H_0 and conclude that the sales manager is right that the average number of items sold per worker is 12 products.

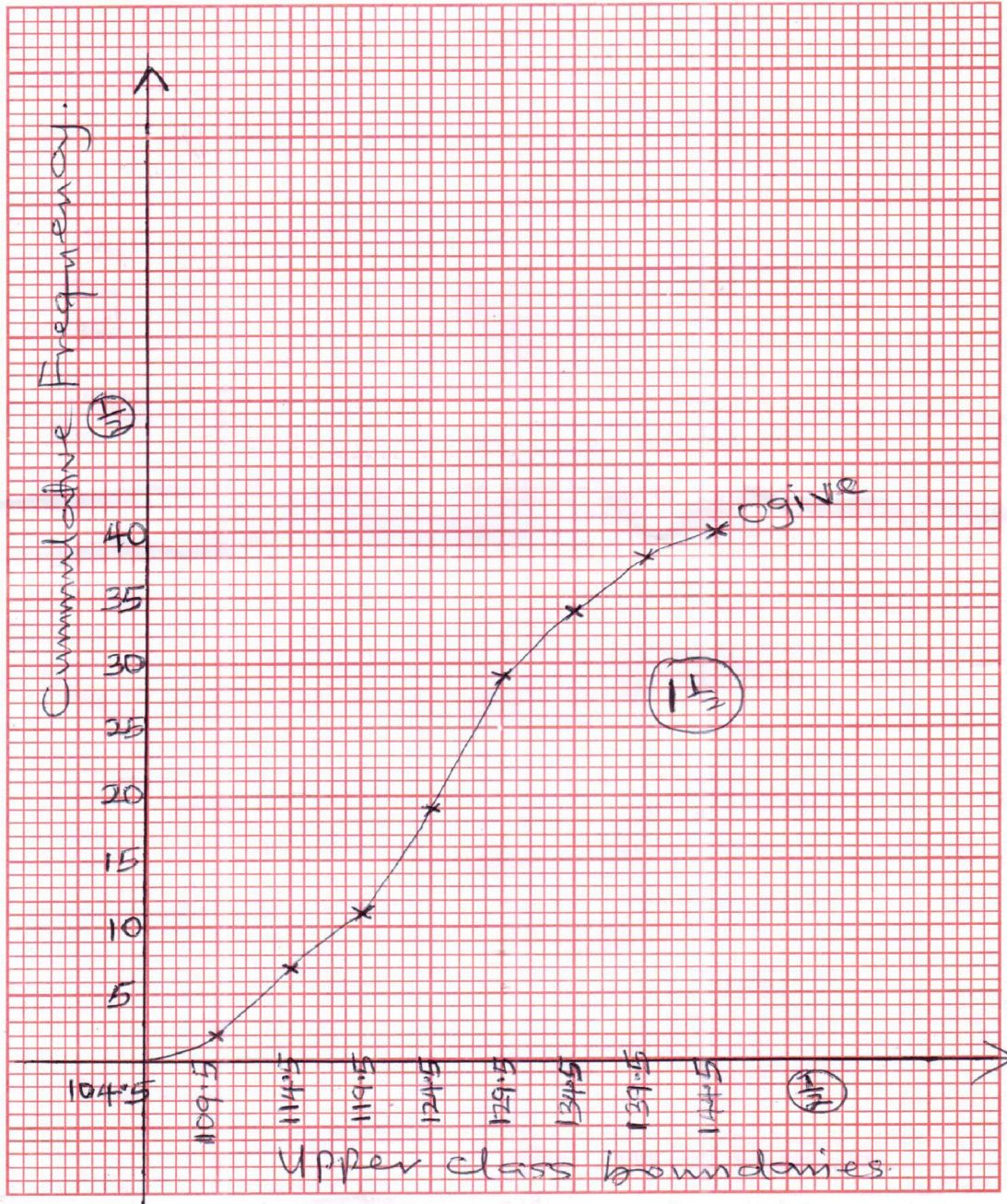
(b)

Class interval (N)	F	CF	Less than	Cumf
105 - 109	2	2	104.5	0
110 - 114	5	7	109.5	2
115 - 119	4	11	114.5	7
120 - 124	8	19	119.5	11
125 - 129	10	29	124.5	19
130 - 134	5	34	129.5	29
135 - 139	4	38	134.5	34
140 - 144	<u>2</u>	40	139.5	38
	40		144.5	40

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

No Of Question.....

Candidate's No.....



G. 5

INSIGHT

EXAMINER'S REPORT

The question tests the candidates' knowledge of hypothesis testing and data presentation using Ogive. About 85% of the candidates attempted the question with about 15% scoring above the average mark.

The major pitfall was their inability to form correct statement of alternative hypothesis and identify correct t-statistic formular to use. Also, most of the candidates did not know how to draw the Ogive using boundaries and most did not label their axes.

SOLUTION 2

(a) i. $T = 28.08 + 3.12x$

X	y	T	Variation by multiplication model $\left\{ \frac{y}{T} \right\}$
0	21	28.08	0.7479
1	31	31.2	0.9936
2	58	34.32	1.6900
3	28	37.44	0.7479
4	20	40.56	0.4931
5	44	43.68	1.0073
6	78	46.8	1.6667
7	32	49.92	0.6410

ii. Seasonal index table

Year	Q1	Q2	Q3	Q4	Total
2001	0.7479	0.9936	1.6900	0.7479	
2002	0.4931	1.0073	1.6667	0.6410	
Total	1.4931	2.0009	3.3567	1.3889	
Averages	0.6205	1.0005	1.6784	0.6945	(3.9939)
Adjustment	0.001525	0.001525	0.001525	0.001525	0.0061
Adjusted index	0.622025	1.002025	1.679925	0.696025	4.000

i.e. The seasonal indices for the quarters are:

$$Q_1 = 0.622$$

$$Q_2 = 1.002$$

$$Q_3 = 1.680$$

$$Q_4 = 0.696$$

INSIGHT

(b)

Items/Commodities	Poi	Pni
	2016	2017
R	22	32
X	32	52
Y	12	17
Z	8	10
Total	74	111

i.
$$\begin{aligned} \text{SAPI for 2017} &= \frac{\sum P_{ni}}{\sum P_{oi}} \times 100 \\ &= \frac{111}{74} \times 100 \\ &= 150\% \end{aligned}$$

EXAMINER'S REPORT

The question tests the candidates' knowledge of Time series with application of Least Squares method and computation of simple aggregate price index. About 96% of the candidates attempted the question with about 60% scoring above the average. The year 2003 instead of 2002 in the question paper caused confusion to some candidates that attempted the question. This made it impossible for seasonal indices to be calculated completely.

Generally, those of them that used 2002 instead of 2003 were able to solve the problem completely and correctly. Adequate preparation and the usage of appropriate calculators should be encouraged in future examination.

SOLUTION 3

(a) i.

	1	2	3	4	5	6
HH	HH1	HH2	HH3	HH4	HH5	HH6
HT	HT1	HT2	HT3	HT4	HT5	HT6
TH	TH1	TH2	TH3	TH4	TH5	TH6
TT	TT1	TT2	TT3	TT4	TT5	TT6

INSIGHT

- $n(S) = 24$
 ii. Let E_1 represent the outcome of 2 heads and a prime number
 $E_1 = (HH2, HH3, HH5)$
 $n(E_1) = 3$
 $\therefore P(E_1) = 3/24 = \frac{1}{8}$

(b) Profit (π) = TR - TC
 $= (100x - x^2) - \left\{ x^3 - \frac{57}{2}x^2 \right\}$
 $= 100x - x^2 - x^3 + \frac{57}{2}x^2$
 $\pi = 100x + \frac{55}{2}x^2 - x^3$

For turning point $\frac{d\pi}{dx} = 0$

i.e. $100 + 55x - 3x^2 = 0$
 $100 + 60x - 5x - 3x^2 = 0$
 $20(5 + 3x) - x(5 + 3x) = 0$
 $(20 - x)(5 + 3x) = 0$
 $\rightarrow x = 20 \text{ or } -5/3$

For max/min identification,

$$\frac{d^2\pi}{dx^2} = 55 - 6x$$

At $x = 20$, $\frac{d^2\pi}{dx^2} \bigg|_{x=20} = 55 - 6(20) = -65$

Since it is negative, $x = 20$ is the maximum point

\therefore The max profit is

$$\pi = 100(20) + \frac{55}{2}(20^2) - 20^3 = 5,000$$

ALITER

$$MR = \frac{dTR}{dx} = 100 - 2x$$

$$MC = \frac{dTC}{dx} = 3x^2 - 57x$$

For profit maximization, $MR = MC$

$\therefore 100 - 2x = 3x^2 - 57x$
 $3x^2 - 55x - 100 = 0$
 $3x^2 - 60x + 5x - 100 = 0$
 $3x(x - 20) + 5(x - 20) = 0$
 $(x - 20)(3x + 5) = 0$
 $X = 20 \text{ or } -5/3$

Since x cannot be negative, $x = 20$ is the maximum point

$$\begin{aligned}
 \text{Profit } (\pi) &= 100(20) + \frac{55}{2}(20^2) - (20^3) \\
 &= 5,000
 \end{aligned}$$

INSIGHT

EXAMINER'S REPORT

The question tests the candidates' understanding of the application of simple probability theory and the use of calculus to calculate maximum profit. More than 60% of the candidates scored below average. About 98% of the candidates attempted this question with over 60% of these candidates scoring below the average mark.

Inability to construct the required sample space and not having a clear understanding of classical optimisation procedure were the main pitfalls identified.

ICAN Study Text should provide the candidates with more illustrative examples with detailed solutions. Other relevant texts can also be of use.

SOLUTION 4

- (a) Let x_1 be the number of electric irons to be manufactured
Let x_2 be the number of fans to be manufactured
Let x_3 be number of toasters to be manufactured
Let P be the profit (objective function) which is to be maximised

i.e. Maximise $P = 120x_1 + 100x_2 + 60x_3$

S. t. the following constraints:

$$4x_1 + 3x_2 + 2x_3 \leq 150$$

$$3x_1 + 2x_2 + 2.5x_3 \leq 130$$

$$x_1 \leq 300$$

$$x_2 \leq 400$$

$$x_3 \leq 100$$

$$\text{and } x_1, x_2, x_3 \geq 0$$

- (b) $D = 8,000$; $C_o = \text{R}120$
 $C_c = 0.25 \times 50 = 12.5$
The optimum lot-size is

$$\begin{aligned} Q &= \sqrt{\frac{2C_oD}{C_c}} \\ &= \sqrt{\frac{2 \times 120 \times 8,000}{12.5}} \\ &= \sqrt{153,600} \\ &= 391.92 \\ &\cong 392 \text{ units} \end{aligned}$$

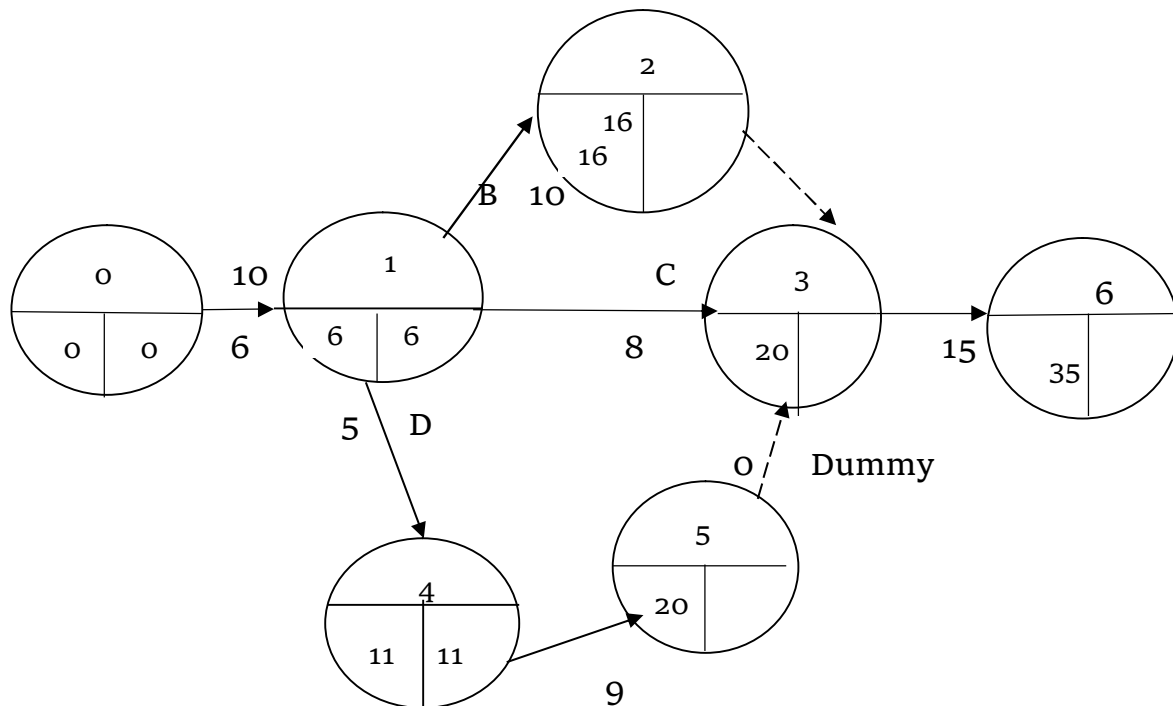
EXAMINER'S REPORT

INSIGHT

The question tests the candidates' application of Linear Programming and Inventory Model. About 40% of the candidates attempted the question out of which 25% scored above average mark. This performance was due to the poor understanding of the question requirements in Linear Programming and poor knowledge of Inventory Model.

Candidates should study ICAN Study Text and other relevant texts for better understanding of the topics.

SOLUTION 5



To find the total floats in the table below:

For illustration

Total float for Activity C is obtained as $TF = LHT - ETT - \text{Activity duration}$

Where

$$\begin{aligned} LHT &= 20, ETT = 6, \\ \text{Activity duration} &= 8 \end{aligned}$$

$$\therefore TF \text{ for C activity} = 20 - 6 - 8 = 6 \text{ and so on}$$

INSIGHT

Activity	LHT	ETT	Duration	TF
A	6	0	6	0
B	16	6	10	0
C	20	6	8	6
D	11	6	5	0
E	20	11	9	0
F	35	20	15	0

INSIGHT

(b) **Destination**

Plant	A	B	C	D	Supply			
I	6	18	20	10	22	27	70 10 0	
II	-	25	25	25	19	2	50 25 0	
III	-	21	18	5	26	5	23	55 5 0
Demand	60 0	25 0	40 15 5 0	50 0	175			

$$\begin{aligned}
 \therefore \text{Total cost} &= 60(18) + 10(22) + 25(17) + 25(19) + 5(26) + 50(23) \\
 &= 1,080 + 220 + 425 + 475 + 130 + 1,150 \\
 &= \text{N}3,480
 \end{aligned}$$

EXAMINER'S REPORT

About 90% of the candidates attempted the question. It tests the candidates' knowledge of solving Network Analysis and Transportation problems. About 65% of the candidates that attempted the question performed above average (scored 6 marks and above).

The major pitfalls identified include the following:

- (i) Wrong choice of formular for determining the total float;
- (ii) Inadequate in-depth understanding of the network analysis and Transportation problem; and
- (iii) Wrong allocations due to misinterpretation of the problem.

For future better performance, the ICAN Study Texts and other relevant texts should be consulted from time to time.

INSIGHT

SOLUTION 6

(a)

Daily Dd (C ₁)	Probability (C ₂)	Cumm. Frequency	Random - Number Intervals (C ₄)
0	0.04	0.04	00 - 03
5	0.15	0.19	04 - 18
10	0.24	0.43	19 - 42
15	0.05	0.48	43 - 47
20	0.52	1.00	48 - 99

Random number interval (C₄) is obtained by multiplying Col. 3 by 100 and subtracting 1 from the result

Weeks	R - N	Dd
1	24	10
2	30	10
3	56	20
4	75	20
5	82	20

(b)

$$\begin{aligned}
 FV &= PV \left\{ \frac{(1+i)^n - 1}{i} \right\} \\
 &= 10,000 \left\{ \frac{(1.025)^{25} - 1}{0.025} \right\} \\
 &= 10,000 \left\{ \frac{14483 - 1}{0.025} \right\} \\
 &= \text{N}179,319.27
 \end{aligned}$$

EXAMINER'S REPORT

The question tests the candidates' knowledge of Simulation and Business Mathematics (future value of annuity). About 95% of the candidates attempted the question. About 90% of these candidates scored above 5 marks.

The pitfalls of the candidates include wrong interpretation of the question. Candidates are advised to study the ICAN Study Text and other relevant materials.