

EXAMINERS GENERAL COMMENTS

BREACH OF EXAMINATION INSTRUCTIONS

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

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

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

INADEQUATE COVERAGE OF THE SYLLABUS

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

INSIGHT

FOREWORD

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

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

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

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



NOTE

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

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AT/162/PII.5

**ASSOCIATION OF ACCOUNTANCY BODIES IN
WEST AFRICA
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2016**

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.

- Which of the following statements best describes the term “Financial Position”?
 - The net income and expenses of an entity
 - The net of financial assets less liabilities of an entity
 - The assets, liabilities and equity of an entity
 - The potential to contribute to the flow of cash and cash equivalents of the entity
 - The summary of the liabilities of an entity
- The amount of cash or cash equivalents that could currently be obtained by selling an asset in an orderly disposal is called
 - Carrying value
 - Residual value
 - Value in use
 - Realisable value
 - Net current value
- Abijan Limited has the following records in relation to an item of goods manufactured. Calculate the value of the inventory.

	Le
Materials	17,500
Storage costs of finished goods	4,500
Delivery cost to customers	1,000
Irrecoverable purchase taxes	1,500

- Le 7,000
- Le 18,500
- Le 19,000
- Le 22,000

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- E. Le 24,500
4. The depreciation of an asset is best described as
- A. The systematic allocation of an asset's cost less residual value over its useful life
 - B. The removal of an asset from an entity's statement of financial position
 - C. The amount by which the recoverable amount of an asset exceeds its carrying amount
 - D. The amount by which the carrying amount of an asset exceeds its recoverable amount
 - E. The net book value of an asset
5. Where it is treated as a non-recurring event under which activities would disposal proceeds of a major item of plant be most appropriate?
- A. Cash flows from operating activities
 - B. Cash flows from investing activities
 - C. Cash flows from financing activities
 - D. Cash flows from operating and financing activities
 - E. Does not appear in the cash flow statement
6. A seller issues **ONE** of the following documents to the buyer when goods sold on credit are returned
- A. Credit Invoice
 - B. Debit Note
 - C. Credit Note
 - D. Bill of Exchange
 - E. Goods Return Note
7. Which of the following situations dissolves a partnership?
- A. Changes in the economic activity of the partnership business
 - B. Death of an existing partner or admission of a new partner
 - C. Changes in the profit or loss sharing ratio
 - D. An increase or a decrease in the capital contribution of the partners
 - E. When a partner becomes bankrupt

Use the following information to answer questions 8 & 9

The authorized Share Capital of Ponke Plc of ₦8,000,000 was converted into 20,000,000 ordinary shares. A public offer of 85% of the shares was made at ₦0.5 each and were fully subscribed and paid-up.

8. What is the nominal value of each of the shares?
- A. ₦0.3

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- B. ~~₦~~0.4
 - C. ~~₦~~0.5
 - D. ~~₦~~4.0
 - E. ~~₦~~5.0
9. Calculate the total share premium received from the offer
- A. ~~₦~~1,200,000
 - B. ~~₦~~1,700,000
 - C. ~~₦~~1,800,000
 - D. ~~₦~~2,000,000
 - E. ~~₦~~3,000,000
10. The use of **ONE** of the following methods of inventory valuation is discouraged by the provisions of IAS 2
- A. Weighted Average Cost
 - B. LIFO
 - C. Net Realisable Value
 - D. FIFO
 - E. Specific Identification
11. The International Financial Reporting Standard (IFRS) on Accounting policies, changes in accounting estimates and errors is
- A. IFRS 2
 - B. IAS 16
 - C. IAS 8
 - D. IAS 2
 - E. IAS 1
12. Which of the following can be used for the purpose of original entry of all kinds of business transactions and adjustments?
- A. Suspense Journal
 - B. Sales Journal
 - C. Cash Book
 - D. Journal Proper
 - E. Purchases Journal
13. A suspense account is used for the correction of errors that
- A. Overstate or understate profit or loss
 - B. Affect the agreement of net assets to current assets
 - C. Affect the agreement of the trial balance
 - D. Can only be detected by the auditor
 - E. Do not affect the agreement of the trial balance
14. The following are relevant in choosing a method of computing the depreciation of a depreciable asset **EXCEPT**
- A. The cost and residual value of the asset
 - B. The amount of money being owed in respect of the asset

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- C. The acquisition date of the asset
 - D. The depreciation policy of the owner of the asset
 - E. The intensity of use of the asset
15. Jonah and Koffi entered into a joint venture to buy and sell second hand clothes. Jonah paid GH¢60,000 for the goods and GH¢15,000 for expenses. He sold the goods for GH¢120,000 and Koffi paid cash expenses of GH¢6,000. They share profits or losses in the ratio 4:2 respectively.
- Calculate profit due to Jonah from the Joint Venture.
- A. GH¢6,000
 - B. GH¢13,000
 - C. GH¢15,000
 - D. GH¢26,000
 - E. GH¢39,000
16. A three party lease involving a lender, in addition to usual lessor or lessee is called
- A. Leverage lease
 - B. Sales-type lease
 - C. Finance lease
 - D. Operating lease
 - E. Risk lease
17. Which of the following is **NOT** a characteristic of a finance lease?
- A. Ownership is transferred to the lessee
 - B. If the lessee cancels the lease, the lessor bears the cost of cancellation
 - C. The lease term covers eventually the economic useful life of the asset
 - D. Lessee has the option to purchase the asset at the end of its useful life
 - E. The lessor transfers all risks and rewards to the lessee
18. Which of the following taxes is imposed on a royalty paid?
- A. Sales tax
 - B. Capital gain tax
 - C. Withholding tax
 - D. Income tax
 - E. Pay-as-you-Earn (PAYE)

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19. Which of the following disclosure is **NOT** required under IAS 1?
- A. The measurement basis used in preparing the accounts
 - B. Name of the reporting entity
 - C. A description of the entity's operation and principal activities
 - D. Name of major shareholders of the entity
 - E. The level of rounding used in presenting the accounts
20. A company with ordinary shares of ₦1.00 each issued shares at a price of 90k per share. What is the share premium or discount?
- A. Premium of 10k per share
 - B. Discount of 90k per share
 - C. Premium of ₦1 per share
 - D. Discount of ₦1.90 per share
 - E. Discount of 10k per share

Use the following information to answer questions 21 & 22

Rex and Ken are in partnership sharing profits or losses in the ratio of 2:3. On 1 January 2015, they decided to admit Ted to join the business upon bringing L\$360m.

The following also took place on that date

- i. Goodwill was valued at L\$1,200m
- ii. New profit sharing ratio to be 3:6:1 (Rex, Ken & Ted)
- iii. Property is re-valued upwards by L\$1,050m

Rex had a balance of L\$1,350m credit prior to adjusting the accounts.

Goodwill is not to be retained in the business.

21. Calculate the total amount of goodwill credited into Ken's capital account.
- A. L\$480m
 - B. L\$630m
 - C. L\$720m
 - D. L\$900m
 - E. L\$1,1350m
22. What is the balance in Ted's capital account?
- A. L\$240m
 - B. L\$345m
 - C. L\$360m
 - D. L\$450m
 - E. L\$600m
23. Which of following columns can be found in an extended trial balance?
- i. Current Account

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- ii. Adjustments
 - iii. Capital Account
 - iv. Profit or Loss Account
- A. i & iii
 - B. ii & iii
 - C. ii & iv
 - D. iii & iv
 - E. 1 & iv
24. When the ordinary shares of a company are over-subscribed, this means that
- A. The shares were issued at a bonus
 - B. Number of shares applied for is more than the number of shares issued
 - C. Nominal value of the share is more than the market price
 - D. The share premium of the company is very high
 - E. Ordinary and preference shareholders applied for the shares
25. The statement of cash flows provides the following information to its users **EXCEPT**
- A. Determination of profit of the entity for the year
 - B. Assessment of the use of fund for the purpose of investment
 - C. Reconciliation of profit or loss and cash flows
 - D. Assessment of the ability of the enterprise to meet its financial obligations
 - E. Assessment of the entity's ability to generate and utilise cash
26. During the year, Ife sold inventory which had cost ~~₦~~180,000. The inventory held at the beginning of the year was ~~₦~~18,000 and that of the year end was ~~₦~~30,000.
- What was the annual rate of inventory turnover?
- A. 6 times
 - B. 7 times
 - C. 7.5 times
 - D. 10 times
 - E. 12 times
27. The credit entry for short-workings recoupable is recorded in the

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- A. Landlord's account
 - B. Tenant's account
 - C. Minimum rent account
 - D. Royalty payable account
 - E. Royalty receivable account
28. What is the cost of goods sold, given that the sales figure is Le1,200,000 with a mark-up of 25%?
- A. Le 48,000
 - B. Le 300,000
 - C. Le 756,000
 - D. Le 960,000
 - E. Le 1,500,000
29. In which of the following ways should cash that is restricted to the settlement of a liability due 18months after the reporting period be presented in line with IAS 1?
- A. Equity
 - B. Non-current liabilities
 - C. Current assets
 - D. Non-current assets
 - E. Income statement
30. Which of the following items should be presented under cash flows from operating activities according to IAS 7?
- A. Property revaluation
 - B. Development costs capitalised in the period
 - C. Redemption of debentures
 - D. Proceeds from sales of shares
 - E. Employee costs

**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. How would the loss brought about by the inability of one partner to discharge the debit balance in his capital account be shared by other solvent partners according to the rule in Garner V Murray?
2. The statement prepared to ascertain the increase or decrease in cash and cash equivalent during a period is called

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3. A columnar list of balances extracted from the ledger accounts in order to carry out adjustments for the preparation of final accounts is
4. A branch that is allowed by its head office to keep a full set of accounts is known as
5. OKONTA Limited head Office transferred goods to Kolomo branch at cost plus 25% amounting to ₦5,750,000. The goods (inventory) remained unsold at the end of the year. The unrealised profit on the transaction will be

Use the following information to answer questions 6 & 7.

Goods returned from branch to Head office at cost plus is ₦12,960.
Goods are transferred to the branch at cost plus 20%.

6. What is the cost of the goods returned to the head office by the Branch?
7. What is the amount of profit in the goods returned to the Head office by the Branch?

Use the following information to answer questions 8 & 9.

Johnson and Yomie are into a Joint venture dealing in farm produce. Johnson bought 3,000 bags of Cocoa at Le1,500 per bag and incurred expenses as follows: transportation Le7,500; loading Le20 per bag.

Johnson sent the Cocoa bags to Yomie.

Yomie incurred expenses on: Warehousing Le5,000; insurance Le3,120; selling and distribution Le4,300; offloading at Le10 per bag. Yomie sold 2,500 bags of Cocoa to customers.

8. What is the total cost per Cocoa bag?
9. What is the value of the unsold inventory of Cocoa bags?
10. What are the accounting entries required to record expenses incurred but not yet paid on revaluation of partnership assets when a new partner is admitted?

Use the following information to answer questions 11 & 12.

X, Y and Z were in partnership sharing profits/losses equally. The capital balances after the partnership was dissolved and all the accounts closed were:

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X ₦5,000,000 (Cr.)

Y ₦7,500,000 (Cr.)

Z ₦6,250,000 (Dr.)

11. State how Z's debit balance should be accounted for, if he is not insolvent
12. State how Z's debit balance will be disposed of, if he is insolvent
13. What are the accounting entries to record the sales of VATable goods sold on credit in the books of the vendor?
14. Determine the profit or loss made by a business enterprise with Opening Capital GH¢650,000; Drawings GH¢45,000; Closing Capital GH¢715,000 and additional capital introduced during the year GH¢200,000.
15. State **TWO** ways of determining the price of Construction Contracts.
16. State the formula for calculating dividend yield?
17. What are the causes of differences in the current accounts between the branch and head office under branch accounts?
18. Where the guaranteed amount payable Royalty is calculated on the basis of actual production falls short of the estimated level is called
19. The portion of progress billing or contract price that is withheld by the contractee until certain conditions are met is referred to as
20. The events that occur between the reporting date and the date when the financial statements are authorised for issue is known as

SECTION B: ATTEMPT ANY FOUR QUESTIONS
(50 Marks)

QUESTION 1

Ganiyu and Jamiu entered into a Joint Venture to buy and sell metal scraps with profit or loss to be shared in ratio 2:1 respectively.

Ganiyu purchased metal scraps and sold them as follows:

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Purchased:	
Aluminium	₦22,400
Zinc	₦33,600
Sold:	
Aluminium	₦28,000
Zinc	₦43,000

The proceeds of the Zinc sold was paid over to Jamiu who lodged the amount into his bank account.

Jamiu bought a scrapped car for ₦28,000. He sold the scrapped car for ₦35,000.

However, the scrapped car was returned by the buyer who was refunded with ₦33,600.

As the scrapped car was still unsold at the conclusion of the joint venture, Ganiyu agreed to take it over at a valuation of ₦31,500.

At that specific period, the venture ended and the sum required in full settlement between the venturers was paid by the party accountable.

You are required to prepare:

- a. Joint Venture with Jamiu Account
- b. Joint Venture with Ganiyu Account
- c. Memorandum Joint Venture Account

**(Total 12½
Marks)**

QUESTION 2

Monrovia Social Club has the following information in its books for the year ended 31 December 2015,

(i) **Subscriptions Account Balances:**

1 January 2015: In advance L\$64,000 and in arrears
L\$100,000

31 December 2015: In advance L\$28,000 and in arrears
L\$20,000

Amount received during the year:

2014 L\$80,000
-

INSIGHT

2015	L\$620,000
-	
2016	L\$7,500
-	

(ii) **Assets and Liabilities**

	1 January 2015	31 December 2015
	L\$	L\$
Bar inventories	19,840	21,100
Bar suppliers	117,600	136,000
Bar expenses owing	10,000	14,400
Bank balance	209,600	-

(iii) **Receipts & payments**

	L\$
Donations received	48,000
Bar attendants wages	70,000
Bar expenses	46,800
Bar takings	500,000
Ticket takings	1,750,000
Payment for bar supplies	300,000
Payment for ticketing expenses	984,800

You are required to prepare the Club's:

- a. Subscriptions account
- b. Bar account
- c. Ticket account

Show all workings

**(Total
12½ Marks)**

QUESTION 3

ABC Airline Limited acquired a Boeing 737 Aircraft on 1 January 2015 from Boeing of China on hire purchase.

The aircraft was acquired on the following terms:

- (i) The hire purchase price of the aircraft is Le820,000,000.

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- (ii) ABC Airline Limited is to pay 30% of the total hire purchase cost as deposit on the acquisition of the aircraft.
- (iii) The balance of the hire purchase price is to be paid in four instalments at 31 December each year starting from year 2015.

The instalments are to be paid as follows:

1 st Instalment	35%
2 nd Instalment	20%
3 rd Instalment	25%
4 th Instalment	20%

The aircraft could be purchased in open market at a cost of Le700,000,000.

ABC Airline Limited depreciates its fleet of aircraft at the rate of 5% straight line method.

You are required to prepare:

- a. Boeing of China account
- b. Property, Plant and Equipment account
- c. Hire purchase interest account

**(Total 12^{1/2}
Marks)**

QUESTION 4

In September 2015 Ketiku Enterprises consigned 600 bags of beans at a cost of ₦1,500 per bag to Petewo Ventures, that will be entitled to 5% Commission and 1% del-credere Commission on sales.

Ketiku paid transportation ₦5,000; insurance ₦2,400. While the goods were in transit, 10 bags of beans were wasted due to road motor accident. After the receipt of the consignment, the consignee incurred sundry expenses of ₦15,000.

By the end of September, Petewo had sold 495 bags at ₦2,750 each, deducted its commission, expenses and remitted the proceeds to the consignor. Immediately the accident occurred, Ketiku Enterprises lodged claims with XY Insurance Company and the insurer agreed to pay ₦12,000. By the end of October, Ketiku Enterprises received the claim in cash from the insurer.

You are required to prepare:

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- a. In the books of the consignor
 - i. Goods on consignment account
 - ii. Consignment to consignee account
 - iii. Consignee account
 - iv. Insurance claim account

- b. In the books of the consignee
 - i. Consignor account
 - ii. Commission received account

(Total 12½ Marks)

QUESTION 5

ACCRA Limited, a manufacturer of rubber tiles has the following trial balance for the year ended 31 December 2015.

	DEBIT	CREDIT
	GH¢	GH¢
Ordinary share capital		180,000
Purchases and Revenue	483,955	474,235
Inventory 1/1/15	42,015	
Wages	83,090	
Rent	23,400	
Motor vehicle expenses	6,696	
Insurance	1,368	
Irrecoverable debts	216	
Allowance for doubtful recoverable 1/1/15		1,060
Light and cooling expenses	5,535	
Bank overdraft interest	135	
Motor vehicle at cost	43,200	
Acc. Depreciation on motor vehicle 1/1/15		21,600
Land	180,000	
Receivables and payables	31,195	41,415
Bank	6,145	
Retained earnings 1/1/15	<u> </u>	<u>188,640</u>
Total	<u>906,950</u>	<u>906,950</u>

You are given the following additional information:

- i. Rent prepaid was GH¢5,900 and motor vehicle expenses owed was GH¢804.
- ii. Land is to be revalued to GH¢300,000.

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- iii. The company decided to write off another debt of GH¢194.
- iv. Wages outstanding amounted to GH¢16,912.
- v. GH¢850 of light and cooling expenses relates to January 2016.
- vi. Of the insurance paid, GH¢368 is for 2016, while insurance outstanding at 31 December 2015 was GH¢2,500.
- vii. Depreciation is to be charged on motor vehicle at 25% on cost.

You are required to prepare the adjusted trial balance of ACCRA Limited for the year ended 31 December 2015.

(Total 12½ Marks)

QUESTION 6

Ever-ready Nigeria Ltd
Statement of Profit or Loss and Other Comprehensive Income
for the year ended 31 December 2015

	₦'000	₦'000
Turnover		2,600
Cost of goods sold		<u>(1,200)</u>
Gross profit		1,400
Salaries, wages and General expenses	(1,040)	
Provision for depreciation	(200)	
Interest on loan Notes	<u>(40)</u>	
		<u>(1,280)</u>
Profit before taxation		120
Income tax expense		<u>(25)</u>
Profit for the year		<u>95</u>

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Statement of Financial Position as at 31 December 2015

	31 December 2015		31 December 2014	
	N'000	N'000	N'000	N'000
Non-current assets (Cost)	1800		1520	
Accumulated depreciation	<u>(920)</u>		<u>(720)</u>	
		880		800
Current assets				
Inventories	160		230	
Trade Receivables	60		80	
Bank	<u>80</u>		<u>40</u>	
	<u>300</u>		<u>350</u>	
Current liabilities:				
Tax	25		30	
Trade payables	110		100	
Accrued wages	10		20	
Dividend	<u>20</u>		<u>-</u>	
	<u>165</u>		<u>150</u>	
		<u>135</u>		<u>200</u>
		<u>1,015</u>		<u>1,000</u>
EQUITY & LIABILITIES:				
Ordinary shares		400		400
Retained earnings		<u>255</u>		<u>200</u>
		655		600
10% loan notes		<u>360</u>		<u>400</u>
		<u>1,015</u>		<u>1,000</u>

You are required to prepare statement of cash flows for the year ended 31 December 2015 using direct method.

(Show all workings)

(Total 12 ½

Marks)

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SECTION A

PART I- MULTIPLE CHOICE QUESTIONS

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

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27. B
28. D
29. D
30. E

WORKINGS

Q3. Materials ₦17,500 + Purchase tax ₦1,500

Q8. Value of shares ₦8,000,000
Number of issues 20,000,000
Nominal value ₦8,000,000
20,000,000 = ₦0.4

Q9. Number of shares issued = 20,000,000
Offer price = ₦0.5
Share premium on issue = (₦0.3 - ₦0.4) x 20,000,000 x
85%
= ₦1,700,000

Q15.

	₦
Sales proceed	120,000
Less cost (₦60,000 + ₦15,000 + ₦6,000)	<u>81,000</u>
Profit	<u>39,000</u>
Share of profit Jonah $\frac{4}{6} \times$ ₦39,000	<u>₦26,000</u>
=	

Q21. Goodwill credited to Ken's Capital Account
 $\frac{3}{5} \times \text{L\$}1,200\text{m} = \text{L\$}720\text{m}$

Q22.

TED CAPITAL A/C			
	₦'000		₦'000
Goodwill	120	Bank	360
Balance c/d	<u>240</u>		_____
	<u>360</u>		<u>360</u>
		Balance b/d	240
GOODWILL A/C			
	₦'000		₦'000
Revaluation	1,200	Rex ac/	360

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	Ken a/c	720
<u> </u>	Ted a/c	<u>120</u>
1,200		1,200

EXAMINER'S REPORT

The questions were attempted by all the candidates and the performance was generally average, as about 75% of the candidates scored average marks.

SHORT-ANSWER QUESTIONS

1. The loss is shared in the ratio of the partners' last agreed capital account.
2. Statement of cash flows
3. Trial Balance
4. Autonomous/Independent branch
5. ₦1,150,000
6. ₦10,800
7. ₦2,160
8. Le 1,536.64
9. Le 767,605
10. Dr Revaluation Account
Cr Revaluation Expenses Account
11. deficit will be recovered from his private asset/should inject cash
12. ₦2,500,000 and ₦3,750,000
It should be shared between X and Y in the ratio of their last agreed capital
13. Dr Trade Receivable Account
Cr Sales Account
Cr VAT Account (Output Vat)
14. ₦90,000 (loss)
15. (a) Fixed sum contract
(b) Cost plus a fixed rate contract
(c) Variable price contract
(d) Re-measure contract
} any two
16.
$$\frac{\text{Divident per share}}{\text{Market price per share}}$$
17. Goods in transit and

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Cash in transit

- 18. Short workings
- 19. Retention fee
- 20. Events after reporting date

WORKINGS

Q5. Unrealised profit is

$$^{25}/_{125} \times \frac{5,730,000}{1} = \text{N}1,150,00$$

Q6. Cost = $\frac{100}{120} \times \text{N} \frac{12,960}{1} = \text{N}10,800$

Q7. $\frac{1}{5}$ on cost price = $\frac{1}{6}$ of transfer price
Profit = $\frac{1}{6} \times \text{N}12,960$
= $\text{N}2,160$

Q8.

	Le	
Johnson: Le4,500,000 + 7,500 + 60,000	=	4,567,500
Yomie 5,000 + 3,120 + 4,300 + 30,000	=	<u>42,420</u>
		<u>4,609,920</u>

Cost per bag of cocoa = $\frac{\text{Le}4,609,920}{3,000} = \text{Le}1,536.64$

Q9. Closing inventory = $\frac{\text{Le}4,609,920 - \text{Le}4,300}{3,000} = \frac{4,605,620}{3,000} = \text{Le}1,535.21$

= 500 x Le1,535.21 = Le767,605

Q12. X = $\frac{\text{N}5,000,000}{12,500,000} \times \frac{\text{N}6,250,000}{1} = \text{N}2,500,000$

Y = $\frac{\text{N}7,500,000}{12,500,000} \times \frac{\text{N}6,250,000}{1} = \text{N}3,750,000$

Q14.

	GH¢	
Closing capital		715,000

INSIGHT

Opening capital	(650,000)
	65,000
Add: Drawings:	<u>45,000</u>
	110,000
Less: Additional capital	<u>200,000</u>
Loss	<u><u>90,000</u></u>

EXAMINER'S REPORT

All candidates attempted these questions and the performance was poor as about 40% were able to score up to average marks.

SOLUTION 1

In the book of Ganiyu

JOINT VENTURE WITH JAMIU ACCOUNT

	₦		₦
Purchase: Aluminium	22,400	Sales: Aluminium	28,000
Zinc	33,600	Zinc	43,000
Cash sent to Jamiu	43,400	Inventory taken over	31,500
Share of profit	<u>13,263</u>	Cash (Jamiu)	<u>9,767</u>
	<u>112,267</u>		<u>112,267</u>

In the book of Jamiu

JOINT VENTURE WITH GANIYU ACCOUNT

	₦		₦
Purchase of scrapped car	28,000	Cash received from Ganiyu	43,000
Sales return	33,600	Sales: scrapped car	35,000
Share of profit	6,633		
Cash (Ganiyu)	<u>9,767</u>		
	<u>78,000</u>		<u>78,000</u>

Ganiu and Jamiu

MEMORANDUM JOINT VENTURE ACCOUNT

	₦		₦
Purchase: Aluminium	22,400	Sale: Aluminium	28,000
Zinc	33,600	Zinc	43,000
Scrapped car	28,000	Scrapped car	35,000
Sales return	33,600	Inventory taken over	31,500
Share of profit			

INSIGHT

Ganiyu ($\frac{2}{3} \times \text{N}19,900$)	13,267		
Jamiu ($\frac{1}{3} \times \text{N}19,900$)	<u>6,633</u>		
	<u>137,500</u>		<u>137,500</u>

EXAMINER'S REPORT

The question on the preparation of Joint Venture account was attempted by about 80% of the candidates, while 75% of them scored above average marks.

SOLUTION 2

Monrovia Social Club SUBSCRIPTION ACCOUNT

	L\$		L\$
Subscription in arrears b/f	100,000	Subscription in advance b/f	64,000
Income & Expenditure (Bal. Fig)	663,500	Receipts & Payment:	
		2014	80,000
		2015	620,000
		2016	7,500
Subscription in advance c/d	<u>28,000</u>	Subscription in arrears c/d	<u>20,000</u>
	<u>791,500</u>		<u>791,500</u>
Subscription in arrears b/d	20,000	Subscription in advance b/d	28,000

Bar Account for the year ended December 31, 2015

	L\$	L\$
Bar takings		500,000
<u>Cost of sales:</u>		
Opening bar inventory	19,840	
Bar purchases		
	<u>318,400</u>	
Available for sales		
	338,240	
Closing bar inventory	<u>(21,100)</u>	
Cost of goods sold		<u>(317,140)</u>
Gross profit		182,860
Less:		

INSIGHT

Bar attendance wages	70,000	
Bar expenses	<u>51,200</u>	
		<u>(121,200)</u>
Bar net profit		<u>61,660</u>

Ticket Account for the year ended December 31, 2015

	L\$
Ticket takings	1,750,000
Cost of sales:	
Payment for ticketing expenses	<u>(984,800)</u>
Profit from ticket	<u>765,200</u>

WORKINGS

Bar Suppliers Account

	L\$		L\$
Receipt and payment	300,000	Balance b/f	117,600
Balance c/d	<u>136,000</u>	Purchase (Bal. Fig)	<u>318,400</u>
	<u>436,000</u>		<u>436,000</u>
		Balance b/f	136,000

Bar Expenses Account

	L\$		L\$
Receipt and payment	46,800	Balance b/f	10,000
Balance c/d	<u>14,400</u>	Bar SOPL (Bal. Fig)	<u>51,200</u>
	<u>61,200</u>		<u>61,200</u>
		Balance b/f	14,400

EXAMINER'S REPORT

The question which tests candidates' knowledge in preparation of Club's account was attempted by about 60% of the candidates and about 50% of them displayed good understanding of the question. Their performance was above average.

SOLUTION 3

THE BOOK OF ABC

BOEING OF CHINA LIMITED

		Le			Le
1/1/12	Cash	246,000,000	1/1/12	PPE	700,000,000
	deposit				
31/12/12	Cash 1 st	200,900,000	31/12/12	Interest	42,000,000

INSIGHT

	Inst.				
31/12/12	Bal c/d	<u>295,100,000</u>			
		<u>742,000,000</u>	1/1/13		<u>742,000,000</u>
31/12/12	Cash 2 nd	114,800,000	31/12/13	Bal b/d	295,100,000
	Inst.				
31/12/12	Bal c/d	<u>204,300,000</u>		Interest	<u>24,000,000</u>
		<u>319,100,000</u>			<u>319,100,000</u>
1/1/14	Cash 3 rd	143,500,000	1/1/14	Bal c/d	204,300,000
	Inst.				
31/12/14	Bal c/d	<u>90,800,000</u>	31/12/14	Interest	<u>30,000,000</u>
		<u>234,300,000</u>			<u>234,300,000</u>
31/12/15	Cash 4 th	114,800,000	1/1/15	Bal b/d	90,800,000
	Inst.				
		<u>114,800,000</u>	31/12/15	Interest	<u>24,000,000</u>
					<u>114,800,000</u>

PROPERTY, PLANT & EQUIPMENT ACCOUNT

1/1/15	H. P. Vendor's a/c	<u>700,000</u>	31/12/15	Bal. c/d	<u>700,000</u>
1/1/16	Bal. b/d	<u>700,000</u>	31/12/16	Bal. c/d	<u>700,000</u>
1/1/17	Bal. b/d	<u>700,000</u>	31/12/17	Bal. c/d	<u>700,000</u>
1/1/18	Bal. b/d	<u>700,000</u>	31/12/18	Bal. c/d	<u>700,000</u>

HIRE PURCHASE INTEREST ACCOUNT

		Le			Le
31/12/12	Boeing of China	<u>42,000,000</u>	31/12/12	Profit & Loss a/c	<u>42,000,000</u>
31/12/12	Boeing of China	<u>24,000,000</u>	31/12/13	Profit & Loss a/c	<u>24,000,000</u>
31/2/14	Boeing of China	<u>30,000,000</u>	31/2/14	Profit & Loss a/c	<u>30,000,000</u>

INSIGHT

31/12/15	Boeing of China	<u>24,000,000</u>	31/12/15 Profit & Loss a/c	<u>24,000,000</u>
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EXAMINER'S REPORT

The question on Hire Purchase account was attempted by about 40% of the candidates. They put up good performance as about 80% of the candidates who attempted it scored above average marks.

SOLUTION 4

In the books of the Consignor

GOODS ON CONSIGNMENT ACCOUNT

	Le		Le
Trading Account	<u>900,000</u>	Consignment to Petewo Ventures	<u>900,000</u>

CONSIGNMENT TO PETEWO VENTURES ACCOUNT

	₦		₦
Goods on Consignment	900,000	Petewo Ventures (Sales)	1,361,250
Transportation	5,000	XY Insurance: Goods Lost in transit	15,123
Insurance	2,400	Balance c/d	146,087
Sundry expenses	15,000		
Commission:			
Ordinary	68,062.5		
Del-credere	13,612.5		

INSIGHT

Profit	518,385	
	<u>1,522,460</u>	<u>1,522,460</u>
		<u>0</u>

PETEWO VENTURES

N		N	
Consignment to Petewo Ventures		Consignment to Petewo Ventures	
Sales	1,361,250	Sundry expenses	15,000
		Commissions:	
		Ordinary	68,062.5
		Del-Credere	13,612.5
		Bank	<u>1,264,575</u>
	<u>1,361,250</u>		<u>1,361,250</u>
			<u>0</u>

XY INSURANCE COMPANY LIMITED

N		N	
Consignment to Petewo Venutue		Bank	12,000
Goods loss in transit	<u>15,123</u>	Profit & Loss	<u>3,123</u>
	<u>15,125</u>		<u>15,123</u>

IN THE BOOK OF THE CONSIGNEE

Keitiku Enterprises

N		N	
Sundry expenses	15,000	Sales	1,361,250
Commission:			0
Ordinary	68,062.5		
Del - Credere	13,612.5		
Final settlement (Bank)	<u>1,264,575</u>		
	<u>1,361,250</u>		<u>1,361,250</u>
			<u>0</u>

INSIGHT

COMMISSION RECEIVED ACCOUNT

	N		N
Profit & Loss	81,675	Ketiku Enterprises	
		Ordinary	68,062.
			5
		Del-credere	<u>13,612.5</u>
	<u>81,675</u>		<u>81,675</u>

WORKINGS

- (i) Consignor cost: $(600 \times \text{N}1,500) + \text{N}5,000 + \text{N}2,400 = \text{N}907,400$
 Consignee: $\text{N}15,000$
- (ii) Inventories loss: $10 \text{ bags} \times \text{N}907,400 \div 600\text{bags} = \text{N}15,123$
- (iii) Closing inventories
 Unsold quantity: $600\text{bags} - (495 + 10\text{bags}) = 95\text{bags}$
 Consignor: $95\text{bags} \times \text{N}907,400 \div 600\text{bags} = \text{N}143,672$
 Consignee: $95\text{bags} \times \text{N}15,000 \div (600 - 10\text{bags}) = \text{N}2,415$
 $\text{N}146.087$
- (iv) The loss of goods in transit do not affect the books of the consignee.
- (v) Commission
 Ordinary 5% of $(\text{N}2,750 \times 495\text{bags}) = \text{N}68,062.5$
 Del-Credere 1% of $(\text{N}2,750 \times 495\text{bags}) = \text{N}13,612.5$

EXAMINER'S REPORT

The question that tests candidates' knowledge on the preparation of Consignment account was attempted by 70% of the candidates. They put up good performance as about 90% of those who attempted it scored above average marks.

INSIGHT

SOLUTION 5

ACCRA LIMITED

Preparation of Extended Trial Balance for the year ended 31 December, 2015

	Initial Trial Balance		Adjustments		Adjusted Trial Balance	
	DEBIT	CREDIT	DEBIT	CREDIT	DEBIT	CREDIT
	GH¢	GH¢	GH¢	GH¢	GH¢	GH¢
Ordinary share capital		180,000				180,000
Purchases	483,955				483,955	
Revenue		474,235				474,235
Inventory 01/01/15	42,015				42,015	
Wages	83,090		16,912		100,002	
Rent	23,400			5,900	17,500	
Motor vehicle expenses	6,696		804		7,500	
Insurance	1,368		2,500	368	3,500	
Irrecoverable debts	216		194		410	
Allowance for doubtful recoverable 1/1/15		1,060				1,060
Light and cooling expenses	5,535			850	4,685	
Bank overdraft interest	135				135	
Motor vehicle at cost	43,200				43,200	
Acc. Depreciation on motor vehicle 1/1/15		21,600		10,800		32,400
Land	180,000		120,000		300,000	
Receivables	31,195			194	31,001	
Payables		41,415				41,415
Bank	6,145				6,145	

INSIGHT

Retained earnings 1/1/15		188,640				188,640
Prepaid rent			5,900		5,900	
Accrued motor vehicle expenses				804		804
Revaluation surplus				120,000		120,000
Accrued wages				16,912		16,912
Prepaid light and cooling expenses			850		850	
Prepaid insurance			368		368	
Accrued insurance				2,500		2,500
Depreciation charge for the year			<u>10,800</u>		<u>10,800</u>	
	<u>906,950</u>	<u>906,950</u>	<u>158,328</u>	<u>158,328</u>	<u>1,057,966</u>	<u>1,057,966</u>

INSIGHT

EXAMINER'S REPORT

The question on Extended trail balance was attempted by about 85% of the candidates, and they put up good performance as about 80% scored above average marks.

SOLUTION 6

EVER-READY NIGERIA LIMITED
STATEMENT OF CASH FLOWS FOR THE YEAR ENDED 31 DECEMBER
2015

	N'000	N'000
Cash flow from customers w1		2,690
Cash paid to suppliers w2		(1,190)
Cash paid to employees w3		(1,050)
Cash flow from operating activities		450
Tax paid w4		(30)
		420
<u>Cash flow from investing activities</u>		
Purchase of non-current asset		<u>280</u>
		140
<u>Cash flow from financing activities</u>		
Loan repayment	(40)	
Dividend paid w5	(20)	
Interest paid	(40)	<u>100</u>
Net increase in cash & cash equivalents		40
Cash and cash equivalent at Jan. 1		<u>40</u>
Cash and cash equivalent at Dec 31		<u>80</u>

W1

Cash flow from customers

	N'000
Turnover	2,600
Increase in inventory	70
Increase in receivable	<u>20</u>
	<u>2,690</u>

W2

Cash Paid to Suppliers

	N'000
Cost of goods sold	1,200
Less increase in payables	<u>10</u>

INSIGHT

1,190

W3

Cash Paid to Employers

	N'000
Salaries, a wages & gen expenses	1040
Add: Accrued wages	<u>10</u>
	<u>1,050</u>

W4

Tax paid

	N'000		N'000
Bank	30	Balance b/f	30
(balancing fig)			
Balance c/d	<u>25</u>	Income tax	<u>25</u>
		for the year	
	<u>55</u>	Balance b/d	<u>55</u>
			25

W5

Dividend Paid

	N'000		N'000
Dividend	20	Balance b/f	200
Bank(balancing	20	Profit & Loss	95
fig)			
Balance c/d	<u>255</u>		—
	<u>295</u>	Balance b/d	<u>295</u>
			255

EXAMINER'S REPORT

The question that tests the candidates' knowledge on preparation of statement of cash flows was attempted by about 20% of the candidates. The performance was poor as about 15% scored below average marks and they displayed lack of understanding the question, which could be due to inadequate preparation on the topic tested.

INSIGHT

AT/162/PII. 6 ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA

ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2016

PUBLIC SECTOR ACCOUNTING

Time Allowed: 3 hours

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

ATTEMPT ALL QUESTIONS

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

1. Which of the following purposes is **NOT** relevant with reference to allocated stores?
 - A. In order to save storage space by holding minimum stocks requirement
 - B. To allow the vote of the relative project or service to be charged with the stores value
 - C. To acquire stores for general stock
 - D. To reduce overall cost
 - E. Stores of a standard design are acquired

2. The new Pension Reform Act 2014 as amended for both Public and Private Sector Pension Schemes are now
 - i. Non contributory
 - ii. Pensionable
 - iii. Contributory
 - A. ii only
 - B. i & ii only
 - C. i only
 - D. ii & iii
 - E. iii only

3. Which of these classifications is **NOT** relevant in Accounting for Employee Benefits?
 - A. Award of contract
 - B. Long term benefits
 - C. Termination benefits
 - D. Short-term benefits
 - E. Post-employment benefits

INSIGHT

4. The accounting standards applicable to Government Business Enterprises (GBEs) is
- A. IPSAS
 - B. IAS
 - C. FIRS
 - D. SIRS
 - E. IFRS
5. Under IPSAS, the finance functions of Public Sector Entities (PSEs) shall include but **NOT** limited to
- i. Preparation of periodic financial reports
 - ii. Keeping all relevant books of accounts
 - iii. Processing payments for all approved expenditure
 - iv. Responsibility for IPSAS implementation in Nigeria
- A. iv only
 - B. i, ii and iii
 - C. i and iv only
 - D. ii and iv only
 - E. iii only
6. A default by a customer who owes ₦2,000 to an entity having net assets worth ₦20million is to the financial statements
- A. Material
 - B. Reliable
 - C. Immaterial
 - D. Relevant
 - E. Cardinal
7. The following are the sources of revenue for the Federation Account **EXCEPT**
- A. Petroleum Profit Tax
 - B. Company Income Tax
 - C. Royalty on Oil
 - D. Rent on government property
 - E. Excise Duties
8. Transparency, accountability and public confidence in governance are enhanced through
- A. Payment voucher
 - B. Overseeing contracts
 - C. Loans and grants
 - D. Due process

INSIGHT

- E. Borrowing from the public
9. Where a store in a department is out of stock of a particular item, the department should raise a to the issuing store
- A. Store transfer requisition
 - B. Store issue requisition
 - C. Store receipt voucher
 - D. Store issue voucher
 - E. Store requisition form
10. Which of the following documents is **NOT** used in government store?
- A. Tally card
 - B. Store ledger
 - C. Store issue voucher
 - D. Store receipt voucher
 - E. Store survey sheet
11. IPSAS scope could be described as
- A. Internal standards for Public Sector Accounting for internal use
 - B. International standards for Public Sector Accounting for internal use
 - C. General purpose financial statements prepared under cash or accrual basis of accounting for public sector entities
 - D. Internal standards for Public Sector Accounting for international use
 - E. International standards for Public Sector Accounting for external use
12. Which of the following officers serves as Secretary to the Funds Management Committee of the Local Government?
- A. The Chairman
 - B. The Council Treasurer
 - C. The Vice Chairman
 - D. Secretary to Local Government
 - E. Head of Personnel Management
13. An Accounting Officer sends copies of store losses to the following **EXCEPT** the
- A. Chairman, Federal Civil Service Commission
 - B. Auditor-General
 - C. Inspector-General of Police
 - D. Federal Ministry of Finance
 - E. Accountant-General

INSIGHT

14. In evaluation of bids, the Tender Committee shall **NOT** examine
 - A. Conformity with minimum requirements stipulated in the bid document
 - B. Political Status of directors in the bid
 - C. That they have been duly signed
 - D. That they are substantially responsive to bid document
 - E. That they are generally in order
15. The Minister of Finance is **NOT** authorized by law to
 - A. Manage the Consolidated Revenue Fund
 - B. Authorize issue from Consolidated Revenue Fund
 - C. Suspend issued warrant for statutory first line charges
 - D. Suspend issued warrant for appropriate expenditure
 - E. Correct erroneous receipts into the consolidated fund
16. The body of the Local Government that has the responsibility to debate, approve and amend the budget of the Local Government is the
 - A. Auditor-General for Local Government
 - B. Chairman of the Council
 - C. Local Government Council
 - D. Secretary to the Local Government
 - E. Local Government Revenue Committee
17. According to the Fiscal Responsibility Act 2007 “Borrowing” does **NOT** include
 - A. Any loan including principal, interest and fees of such loan
 - B. The deferred payment for property, goods and services
 - C. Loan taken by the ruling party for campaign purpose
 - D. Bonds, debentures, notes or similar investments
 - E. Conditional sales agreements, capital leases or other retention agreements
18. The body responsible to receive declarations by public officers made under paragraph 12 of Part 1 of the 5th Schedule of the 1999 Constitution is the
 - A. Fiscal Responsibility Commission
 - B. Public Complaints Commission
 - C. Code of Conduct Bureau
 - D. Economic and Financial Crimes Commission
 - E. Security and Exchange Commission
19. Which of the following is **NOT** a loss of fund in the Public Sector?
 - A. Loss of cash
 - B. Fraud discovered within the year
 - C. Fraud discovered from previous year
 - D. Selling of public goods below the market price

INSIGHT

- E. Abandonment of the recovery of personal advance to staff
20. The Body set up to establish pricing standards and benchmarks in Nigeria is the
- A. Bureau of Public Procurement
 - B. Bureau-de-Change
 - C. Bureau of Public Enterprises
 - D. Bureau of Public Investigation
 - E. Public Sector Enterprises
21. The definition, functions and respective responsibilities of Finance Officers in Public Sector Organizations are spelt out in the
- A. Finance (Control and Management) Act of 1958, CAP A15 LFN 2004
 - B. Appropriation Acts
 - C. Financial Regulations
 - D. Finance circulars and circular letters
 - E. Treasury circulars
22. Money Bill when passed into law becomes
- A. Public Procurement Act
 - B. Fiscal Responsibility Act
 - C. Financial Regulation Act
 - D. Audit Ordinance Act
 - E. Appropriation Act
23. The Finance (Control and Management) Act of 1958, CAP A15 LFN 2004 provides for the following **EXCEPT**
- A. The accounting format for the preparation of government accounts and statement
 - B. Public revenue
 - C. The principles of valuation of government investment and which securities should form part of government portfolio
 - D. Cash Basis Accounting
 - E. Creation of fund and fund accounting
24. The main objectives underlining the setting up of government agencies include the following **EXCEPT**
- A. To render social amenities to the members of the public as cheaply as possible
 - B. To beat down high prices charged by the private sector businesses and raise standard of living of the people
 - C. To protect some industries from dying
 - D. To encourage competition in industries
 - E. To break monopolies in the economy

INSIGHT

25. In Public Sector Organisations, parastatals have
Ministries
- A. Monitoring
 - B. Controlling
 - C. Co-ordinating
 - D. Supervising
 - E. Planning
26. is issued by the Administration Department of a Ministry for the information of the salary section of any changes affecting the salary of an Officer
- A. Variation control sheet
 - B. Variation file
 - C. Variation advice
 - D. Variation charge
 - E. Variation advance
27. Contributory Pension Scheme was established by
- A. S.3 Part II of the Pension Reform Act 2014
 - B. S.15 Part II of the Pension Reform Act 2014
 - C. S.3 Part III of the Pension Reform Act 2014
 - D. S.15 Part III of the Pension Reform Act 2014
 - E. The Pension ordinance of 1990
28. An employee shall **NOT** be entitled to make any withdrawal from his retirement savings account, opened under Section II (i) of the Pension Reform Act, before attaining the age of years
- A. 45
 - B. 50
 - C. 55
 - D. 60
 - E. 65
29. The Chairman of the Independent Corrupt Practices and Other Related Offences Act 2000 is entitled to a maximum of in office
- A. 8 years
 - B. 6 years
 - C. 10 years
 - D. 4 years
 - E. 5 years

INSIGHT

30. Any Public Officer who in the discharge of his duty presents false information to another public officer who is to take decision thereon under the Economic and Financial Crimes Commission Act 2002 shall be liable on conviction to imprisonment for a term of
- A. Not less than 10 years and not exceeding 20 years
 - B. Not less than 15 years and not exceeding 25 years
 - C. Not less than 5 years and not exceeding 10 years
 - D. Not less than 6 years and not exceeding 12 years
 - E. Not less than 7 years and not exceeding 14 years

**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. Estimates of receipts and expenditure in respect of Development Fund for the following year is prepared by
2. The method of effecting payments from one year end to another, through the medium of the computer without manual intervention beyond inputting the payment date is called
3. Who controls the stock verification unit of Ministry and extra Ministerial Departments
4. Stores and materials issued within the same store for manufacturing or production shall be supported by
5. Exchange of money or assets that were obtained criminally for money or assets which were legally acquired is known as
6. The Officer charged with the responsibility for providing adequate accounting systems and controls in the Ministries, extra ministerial departments and other arms of Government is called
7. An Officer to whom the control of sub-head or specified portion of sub-head has been delegated by the Accounting Officer is called
8. The preparation of payment vouchers in the unit and forwarding them to the Federal Sub-Treasury for checking and payment

INSIGHT

- through the cash book of the sub-treasurer of the Federation is done by unit
9. As specified in the Pension Reform Act 2014, an employee shall maintain an account known as with any Pension Fund Administrator of his choice.
 10. One of the characteristics of a Self Accounting Unit is that it is operated by Central Pay Office. **TRUE OR FALSE**
 11. An accounting basis that recognizes revenue on cash basis and expenditure on accrual basis is called
 12. The International Public Sector Accounting Standards were developed by
 13. A publication by the Federal Government for the Local Government that contains the administrative guidelines, the existing systems of checks and balances and the roles of all the Officers from the Chief Accounting Officer, the Chairman to the Officer at the lowest cadre is
 14. refers to any income that a department receives apart from releases from the Consolidated Revenue Fund.
 15. The body set up to investigate and conduct research in Ministries and Departments, private companies and on officials of these Bodies is known as
 16. is a system in which financial activities of a government are made into several entities for purposes of recording information, reporting financial position and the results of operations.
 17. A warrant that authorizes the release of funds withheld by the Minister of Finance in the Annual General Warrant or Supplementary General Warrant over which he or she desires to exercise Special Control is
 18. is made to acquire physical and permanent assets in the form of equipment, vehicles and buildings.
 19. Board of Enquiry can be set up if the responsibility of Officers is not clearly defined for a loss. **TRUE OR FALSE**
 20. International Public Sector Accounting Standards (IPSAS) 15 is on

INSIGHT

SECTION B ATTEMPT ANY FOUR QUESTIONS (50 MARKS)

QUESTION 1

- a. Most retirement benefit plans are formal agreements between an enterprise and its employees or their representatives. In some countries, the plans may be established by law or through industry arrangements whereby enterprises are required to contribute to national, state, industry or other multi-employer retirement benefit plans.

Briefly state **FIVE** conditions for granting retirement benefits with immediate effect for public servants.

(7½ Marks)

- b. What is Pensionable Emolument? (2½ Marks)

- c. The Pension Reform Act 2014 mentions the tenure of the office of the Chairman and the Director-General of the Board of the Commission.

Briefly highlight the principles guiding the appointment and re-appointment of the Chairman and the Director-General

(2½ Marks)

(Total 12½ Marks)

QUESTION 2

The Management of NANA AYISAT College, Zangolo provides you with the following information to enable you prepare the accounts of its activities for the 2014/15 session which ended on 31 July 2015.

The College is an all female Boarding School with 4500 students. The academic session has 261 days excluding holidays.

The following data are relevant:

		₦'000
School tuition fees, JSS1-SSS3	=	₦ 50,000
Boarding fees	=	₦ 40,000
Other domestic expenses	=	₦ 10,000
Feeding (261 days)	=	₦ 120 per student
per day		
Plant and Equipment maintenance	=	₦ 17,000

The School has a Mini Mart where students are entitled to buy provisions worth ₦80 per student per day. Maintenance of Hall is 60% of the Hall

INSIGHT

charges. Clinical services are provided by five Specialist Hospitals at the rate of ₦1,000 per student per session which is paid for by the P.T.A. The Government of the state where the school is located decided to pay for the bill on feeding and provisions making them free to all students every year. Actual cost of feeding is ₦200million. The boarding fees include Hall rental of ₦15,000 per student per session, transport of ₦10,000 per session, tutorials and extra curricular activities of ₦10,000. While the remaining balance is a refundable fee for fines or damages; none of which occurred in the session under review.

You are required to prepare:

- a. A Boarding Account for the session ended 31 July 2015 (7½ Marks)
 - b. Show relevant workings (5 Marks)
- (Total 12½ Marks)**

QUESTION 3

- a. State **FIVE** legal instruments designed to regulate the accounting functions in government. (5 Marks)
 - b. Section 13 of the Audit Act of 1956 requires the Accountant-General of the Federation to submit relevant documents to the Auditor-General annually as part of the annual financial statements.
List **TWO** of these documents. (2½ Marks)
 - c. List **TEN** sources of Federal Government revenue that make the Consolidated Revenue Fund. (5 Marks)
- (Total 12½ Marks)**

QUESTION 4

- a. Fiscal Responsibility Act 2007 is one of the efforts embarked upon by the Nigerian Government towards attaining social and economic developments.
 - i. List **THREE** objectives of the Fiscal Responsibility Act 2007 as it relates to Public Sector Accounting. (3 Marks)

INSIGHT

- ii. State **FIVE** functions of the Fiscal Responsibility Commission in ensuring that Public Funds are well utilized to achieve set goals. (7½ Marks)
- b. State the rules stipulated in S.604, Chapter 6 of the Federal Government Financial Regulations (Revised in January 2009) for the preparation of Payment Voucher.
(2 Marks)

(Total 12½ Marks)

QUESTION 5

The Accountant-General of the Federation supplied the following information for the year ended 31 December 2015

	₦ Billion
Petroleum Profit Tax	900
Companies Income Tax	350
Import Duties	200
Excise Duties	250
Export Duties	180
Education Tax	120
Sales of Crude Oil	4,000
Royalties of Coal	50
Arms and Ammunition Licence fee	30
Dividends from Federal Government Investment	25
Royalties on Oil	170
Pay as you earn of Armed Forces Personnel, Police Personnel, Residents of Federal Capital Territory and Foreign Service Officers	1,000
Cost of Collection by FIRS and Nigerian Customs Services	80

You are informed that the Federal Government's share from the Federation Account is 52.68%

You are required to calculate

- a. The total amount due to the Federal Government from Federation Account for the year ended 31 December 2015.
(8 Marks)
- b. Determine the total revenue to be paid into the Federal Government Consolidated Revenue Fund.
(4½ Marks)

(Total 12½ Marks)

QUESTION 6

INSIGHT

Unallocated Stores Account is a statement which discloses the value of stores available at each period. It is published in the Accountant-General's Statement.

The Director of supplies of Egunje States Ministry of Works provided you with the following information for the period ended 31 December 2015

	N000
Value of Stores on hand as at 1/1/15	117,251
Store taken on charge in 2015	1,121,000
Store found surplus and taken on charge during the year	526,000
Store revaluation on change of price during 2015	414,000
Stores issued during 2015	1,215,300
Stores written off during 2015	413,000

You are given the following additional information:

(i) Charges on short fall and excess a/c	130,000
(ii) Unallocated deficiency	120,000
(iii) Value of stores at the end of the year.	299,951

You are required to prepare Unallocated Stores Annual Balance Statement (Stores Account) for the period ended 31 December 2015

(Total 12½ Marks)

INSIGHT

SOLUTIONS

MCQ – SOLUTION

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

EXAMINER'S REPORT

This consists of 30 compulsory Multiple Choice Questions covering the entire syllabus. About 95 % attempted this part and performance was fair as over 60% scored above 50% of marks obtainable.

INSIGHT

SAQ – SOLUTION

1. Minister of Finance (Director – General of Budget Office)
2. E- Payment
3. Accounting Officer
4. Conversion Voucher
5. Money Laundering
6. Accountant General
7. Officer Controlling Expenditure
8. A non – Self Accounting Unit
9. Retirement Savings Account
10. False
11. Modified Cash Basis
12. International Public Sector Accounting Standards
13. Financial Memoranda for Local Government
14. Appropriation – in – Aid
15. Public Complaints Commission
16. Fund Accounting
17. Reserve Expenditure Warrant
18. Capital Expenditure
19. True
20. Financial Instruments: Disclosure and Presentation

EXAMINER’S REPORT

This consists of 20 compulsory Short Answer Questions covering the entire syllabus. About 75% of the candidates attempted this part and performance was poor as less than 40% of the candidates scored 50% of marks obtainable.

INSIGHT

SOLUTION 1

- a.
 - i. On voluntary retirement after qualifying service period of 35 years.
 - ii. On compulsory retirement for the purpose of facilitating improvement in the department.
 - iii. On compulsory retirement on attaining the retirement age of 60 years.
 - iv. On health grounds.
 - v. On total permanent disability while in service.
 - vi. Abolition of office.
 - vii. Public interest.

- b. Pensionable Emolument
This is the gross salary attached to a retiree's substantive rank. The emolument will be on basic salary and allowances

- c. The Chairman and the Director – General shall hold office for a term of five (5) years in the first instance and may be re-appointed for another term of five (5) years and no more.

EXAMINER'S REPORT

The question tests on Pension and Gratuity Accounting. It tested candidates' knowledge on conditions for granting retirement benefits, the tenure of office as well as appointment and re-appointment of the Chairman and the Director-General of the Board of the Commission. About 90% attempted the question. Performance was poor as only about 20% of them scored 50% of the mark obtainable.

INSIGHT

SOLUTION 2

NAN AYISAT COLLEGE, ZANGOLO (FOR GIRLS) BOARDING ACCOUNTS FOR THE SESSION ENDED 31 JULY 2015

	N'000	N'000
INCOME:		
School fees		50,000
Boarding fees		40,000
Other Domestic expenses		<u>10,000</u>
		100,000
Subventions:		
Feeding	140,940	
Provisions	<u>93,960</u>	<u>234,900</u>
Total Income		334,900
Less Expenses:		
Maintenance Plant	40,500	
	<u>17,000</u>	
	57,500	
Feeding	200,000	
Tuition and extra	10	
Donation need	<u>10</u>	
Total Expenses		<u>257,520</u>
Excess of Income		<u>77,380</u>

Refund is Nil (Since boarding fee is lower than the cost)

Boarding	40,000	
Maintenance Expenses	(40,500)	
Donations	(10)	
Ext. Tutorial	<u>(</u>	
	<u>10)</u>	
	<u>(</u>	
	<u>520)</u>	

Workings

1. Hall Porters Rental - 4,500 x N15,000 = 67,500,000
2. Maintenance of hall - 60% x 67,500,000 = 40,500,000
3. Expected Government Subvention

(a) Feeding	-	120 x 261 x 4,500 =	140,940,000
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INSIGHT

$$(b) \text{ Provision} \quad - \quad 80 \times 261 \times 4,500 = \quad \underline{\underline{93,960,000}}$$
$$\underline{\underline{342,900,000}}$$

EXAMINER'S REPORT

The question tests on Sub-Ministerial Accounting System which tested the candidates understanding of School Accounting System with particular reference to Boarding Account. About 75% of the candidates attempted the question and above 50% scored above 50% of marks obtainable.

SOLUTION 3

a.

1. The Nigerian Constitution 1999
2. The Finance (Control and Management) Act 1958
3. The Audit Act, 1956
4. The Annual Appropriation Acts
5. The Financial Regulations
6. Treasury and Finance Circulars
7. Financial Memoranda
8. Accounting Manuals

b. Documents to be submitted

- i. Receipts and Payments Account
- ii. A Statement of Assets and Liabilities
- iii. A Statement of Revenue and Expenditure

c.

- i. Direct Allocation from Federation Account
- ii. Direct Taxes
- iii. Licences
- iv. Mining
- v. Fees
- vi. Earning and Sales
- vii. Rent of Government Properties
- viii. Interest and Repayment (General)
- ix. Interest and Repayment (State)
- x. Reimbursement
- xi. Armed Forces: Sales of armed forces properties
- xii. Miscellaneous

INSIGHT

EXAMINER'S REPORT

The question is on the Constitutional, Legal and Administrative Framework of Government Accounting. It tested the candidates understanding of relevant documents expected by the Auditor-General from the Accountant-General to be submitted annually. It also tested on sources of revenue that makes the Consolidated Revenue Fund.

Above 80% of the candidates attempted the question and above 75% of them scored above 50% of mark obtainable.

SOLUTION 4

a. i. Three Objectives of the Fiscal Responsibility Act 2007

The Fiscal Responsibility Act 2007 was established to achieve the following objectives:

1. To provide for prudent management of the Nations resources
2. To ensure long-term macro-economic stability
3. To secure greater accountability and transparency
4. To ensure diligent pursuit of the country's economic objectives
5. To provide medium-term expenditure framework

ii. The functions of Fiscal Responsibility Act 2007 Commission in ensuring that Public funds are well utilized. These include the following:

1. Monitor and enforce the provision of the Act and promote the economic objectives of the Nation.
2. Disseminate such standard practices including International good practice that will result in greater efficiencies in the allocation and management of Public expenditure, revenue collection and debt control and transparency in fiscal matters.
3. Undertake fiscal and financial studies, analysis and diagnosis and disseminate the result to the general public.

INSIGHT

4. To make rules for carrying out its functions under the Act.
 5. Perform any function consistent with the promotion of the objectives of the Act.
 6. Compel any person or government institutions to disclose information relating to public revenue and expenditure.
 7. Cause an investigation into whether any person has violated any provision of the Act.
 8. Forward a report of any investigation against any person to the Attorney-General of the Federation for possible prosecution.
- b.
1. All copies must be legible. The totals of all vouchers shall be written in ink and in words as well as in figures.
 2. No erasures of any kind, whether in typescript or manuscript or the use of correction fluid shall be allowed.
 3. A single thick horizontal line shall be drawn immediately before and immediately after the Naira (₦) figure where it appears in words, spaces shall not be allowed where the (₦) figure is nil. The word "NIL" shall be entered in the appropriate space.

EXAMINER'S REPORT

The question tested the candidates' understanding on objectives and functions of the Fiscal Responsibility Commission.

Part "b" is on rules for the preparation of Payment Voucher.

About 70% of the candidates attempted the question and performance was poor as only about 20% of them scored above 50% of the marks obtainable.

SOLUTION 5

a.

CALCULATION OF TOTAL AMOUNT DUE TO FEDERAL GOVERNMENT FOR THE YEAR ENDED 31 DECEMBER 2015

INSIGHT

	₦'Billion
Petroleum Profit Tax	900
Companies Income Tax	350
Import Duties	200
Excise Duties	250
Export Duties	180
Sales of Crude Oil	4,000
Royalties on Oil	<u>170</u>
Total Collection	6,050
Less: Cost of Collection to IFRS and NCS	<u>(80)</u>
	<u><u>5,970</u></u>

Revenue to be paid to Federal Government

(Approx.)
b. $52.68\% \times \text{₦}5,970 \text{ Billion} = \text{₦}3,145 \text{ Billion}$

**CALCULATION OF THE TOTAL AMOUNT TO BE PAID TO
FEDERAL GOVERNMENT CONSOLIDATED REVENUE FUND
FOR THE YEAR ENDED 31 DECEMBER 2015**

	₦'Billion	
Statutory Allocation	3,145	(Approx.)
Education Tax	120	
Royalties on Coal	50	
PAYE of Armed Forces, etc.	1,000	
Dividend from Investments	25	
Arms and Ammunition Licences Fees	<u>30</u>	
	<u><u>4,370</u></u>	

EXAMINER'S REPORT

The question is on Treasury Final Accounts. It tested the candidates understanding of the Preparation of Federation Account and the Federal Government Consolidated Revenue Fund.

About 98% of the candidates attempted this question. They showed good understanding of the question as about 80% of them scored above 50% of marks obtainable.

INSIGHT

SOLUTION 6

**EGUNJE STATES
MINISTRY OF WORKS
UNALLOCATED STORES STATEMENT OF ANNUAL BALANCE
FOR THE PERIOD ENDED 31 DECEMBER 2015
(STORE ACCOUNT)**

	₦'000		₦'000
Value of Store at January	117,251	Store Issued	1,215,300
Store taken on charge	1,121,000	Store written off	413,000
Store found surplus and taken on charge	526,000	Shortfall and excess a/c	130,000
		Deficiency	120,000
Store revaluation on change in Price	<u>414,000</u>	Value of store as at 31 December 2015	<u>299,951</u>
	<u>2,178,251</u>		<u>2,178,251</u>

INSIGHT

NOTE

There was a typographical error of N413,001 as against N413,000 as stores written off during 2015.

EXAMINER'S REPORT

The question is on Store and Stores Accounting. It tested the candidates understanding on the Preparation of Unallocated Stores Annual Balance Statement (Store Account).

Most of the candidates avoided the question as only about 40% attempted it. Performance was fair as about 45% of them scored above 50% of marks obtained.

INSIGHT

AT/162/PII. 7 ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA

ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2016

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:

- Which of the following is **NOT** a component of holding costs in inventory control?
 - Handling and storage costs
 - Insurance and security costs
 - Loss due to pilferage
 - Cost of purchase of items
 - Cost of capital tied up
- The sum of squares of the differences between each pair of ranks, $\sum d_g^2$ between the income (x) and expenditure (y) of a government parastatal from 2006 to 2015 is 50. Calculate the Spearman's Rank correlation coefficient
 - 0.85
 - 0.70
 - 0.68
 - 0.58
 - 0.40
- The total monthly revenue of a company is given by $R(x) = 600,000(0.5)^{0.6x}$, where x is the amount spent on overheads in Naira. The maximum revenue of this company is
 - ₦ 300,000.00
 - ₦ 600,000.00
 - ₦ 600,000.05
 - ₦1,200,000.00
 - ₦3,000,000.00
- The probability of any event **CANNOT** be greater than 1 because the sample points for the event
 - Are known

ATSWA PART II SEPTEMBER 2016 DIET

INSIGHT

- B. Are finite
C. Cannot be more than the sample points in the sample space
D. Are always less than the sample points in the sample space
E. Are always equal to the sample points in the sample space
5. A man borrowed ₦1,000,000 from a bank at an annual interest rate of 15% for 5 years. Use the Simple Interest concept to calculate the amount due at the end of 5 years
A. ₦1,050,000
B. ₦1,150,000
C. ₦1,500,000
D. ₦1,600,000
E. ₦1,750,000
6. The following are mathematical models used in Operations Research **EXCEPT**
A. Allocation models
B. Inventory models
C. Heuristic models
D. Replacement models
E. Queuing models
7. The prices of a commodity in 2014 and 2015 were ₦20,000 and ₦35,000 respectively. Calculate the price relative for 2015
A. 42.86%
B. 57.14%
C. 75.00%
D. 104.28%
E. 175.00%
8. Mr. Solomon wants to motivate his son, Michael, to do well in the University. In order to do this, he promised to give him ₦2,000,000 at the end of 5 years.
If his son is studying a five-year course in one of the Nigerian Universities, how much should he deposit into an account now, paying an interest of 10% per annum, so that all things being equal, ₦2,000,000 will be available for Michael after graduation
A. ₦1,100,000.00
B. ₦1,241,842.65
C. ₦1,502,629.60
D. ₦1,818,181.81
E. ₦3,221.020.00
9. A Linear programming problem with all the constraints having less than or equal to sign is a problem

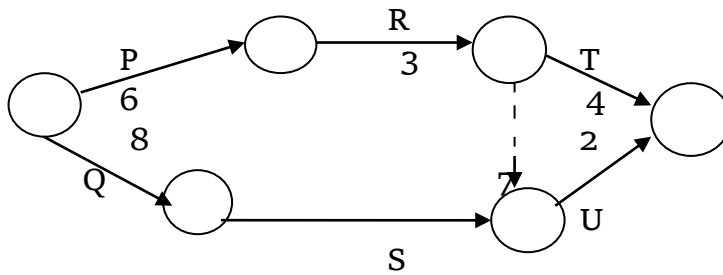
INSIGHT

- A. Dual
 - B. Minimisation
 - C. Primal
 - D. Basic
 - E. Maximisation
10. Which of the following is **NOT** a measure of spread?
- A. Range
 - B. Quartile
 - C. Quartile deviation
 - D. Standard deviation
 - E. Variance
11. A demand curve is inelastic if its price elasticity is
- A. Less than 1
 - B. Equal to 1
 - C. Greater than 1
 - D. Equal to zero
 - E. Between 0 and 1
12. If the supply capacities are given as $S_1=125$, $S_2=75$, $S_3 = 55$ and $S_4=70$ and the demand capacities are $D_1=115$, $D_2=75$, $D_3=95$ and $D_4 = 105$, then the amount of dummy capacity to add to source or destination is
- A. 65 for demand (destination)
 - B. 55 for supply (source)
 - C. 75 for demand (destination)
 - D. 65 for supply (source)
 - E. 55 for demand (destination)
13. The degree of freedom for a t-test with 9 samples drawn from the population is
- A. 10
 - B. 9
 - C. 8
 - D. 7
 - E. 6
14. Suppose the income from a slot machine in a shopping mall flows continuously at a rate given by $f(t) = 100e^{0.1t}$ in Naira, where t is the time in hours since the mall opened. Find the total income during the first 10 hours
- A. ₦271.83
 - B. ₦1,000.00

INSIGHT

- C. ₦1,500.00
- D. ₦1,718.28
- E. ₦2,718.28

15. Use the following network diagram to determine the shortest time (in weeks) within which the project can be completed



- A. 9
- B. 11
- C. 13
- D. 15
- E. 17

16. The following table shows the prices of some commodities (in Naira) for the years 2014 and 2015.

Calculate the Simple Aggregative Price Index

Commodities	2014	2015
A	75	120
B	105	150
C	120	150
D	150	180

- A. 15.00%
- B. 25.00%
- C. 33.33%
- D. 75.00%
- E. 133.33%

17. If the total cost function of XYZ company is $C(x) = 20x - 400$ in hundreds of naira, the cost of producing additional unit is

- A. ₦ 20
- B. ₦ 400
- C. ₦ 2,000

INSIGHT

- D. ₦ 20,000
E. ₦ 200,000
18. In an administrative complex, 300 bulbs are in use simultaneously. If the average number of monthly replacements is 60 bulbs and the cost of individual replacement is ₦70, then the cost of monthly individual replacement is
- A. ₦3,600
B. ₦4,200
C. ₦16,800
D. ₦18,000
E. ₦21,000
19. In approximation, biased errors are errors which
- A. Are biased
B. Are not in the same direction
C. Are in the same direction
D. Occur when rounding down the numeric values
E. Occur when rounding up the numeric values
20. **ONE** of the major advantages of simple random sampling is that it
- A. Can be used for any population
B. Is straight forward
C. Is independent of the entire population
D. Is simple and random
E. Gives equal opportunity to every member of the population
21. Which of the following is a linear constraint of a standard minimization problem of a linear programming problem?
- A. $2x + 3y = 5$
B. $2x + 3y < 5$
C. $2x + 3y \leq 5$
D. $2x + 3y > 5$
E. $2x + 3y \geq 5$
22. The second derivative of a function “is used to determine the nature of the”
- A. Maximum point only
B. Minimum point only
C. Turning point(s)
D. Minimum or maximum point
-

INSIGHT

E. Point of inflection only

23. The pump price of petrol from a random sample of 25 filling stations in a community gives the following statistics: $\bar{x} = \text{₦}100$, $s = \text{₦}20$ where \bar{x} is average pump price and s is the standard deviation.

The 90% Confidence Interval for the mean price of petrol in the community is

(Given that $t_{0.05,24} = 1.711$)

- A. (83.2, 100.8)
B. (93.2, 106.8)
C. (98.2, 108.6)
D. (100.2, 109.6)
E. (106.8, 110.2)
24. Suppose that during a period, the number of units of goods produced when utilizing x units of labour and y units of capital is

$$F(x, y) = 80x^{\frac{3}{4}}y^{\frac{1}{4}}$$

Find the marginal productivity of labour when $x = 16$ and $y = 256$

- A. 60
B. 80
C. 120
D. 160
E. 240
25. Given that the economic order quantity is 5,000 items while the annual demand is 6,000 items, calculate the length of inventory cycle in weeks.
- A. 4.0
B. 4.3
C. 4.4
D. 4.5
E. 4.6
26. An accountant made **FIVE** withdrawals within hours to pay certain bills in his office. The amounts are 55, 75, 80, 95, 49 in thousands of Naira. Find the harmonic mean of the data.
- A. ₦35,400.00
B. ₦66,711.47
C. ₦68,752.22
D. ₦70,800.00

INSIGHT

- E. ₦75,000.00
27. Which of the following is **NOT** a method for estimating trend in Time Series Analysis?
- A. Moving averages
B. Semi-averages
C. Least squares
D. Forecasting
E. Graphical
28. The graphical method of solving a linear programming problem is applicable only when the problem involves decision variables.
- A. At least 2
B. Less than 2
C. At most 2
D. Exactly 2
E. Greater than 2
29. Stock-out refers to a situation when
- A. The store runs out of stock
B. An item is not in the store
C. There is no demand for an item
D. There is demand but the item is not in store
E. There is no item in the store
30. From the table of moving totals (M) given below, what are the values of x and y ?

t	Y	M
1	34	
2	46	x
3	28	105
4	31	y
5	42	124
6	51	

- A. 139 and 147
B. 128 and 137
C. 108 and 101
D. 100 and 107
E. 80 and 147

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. The most common model that is used in Operations Research is the
2. Scatter diagram is the graphical presentation of data on a two-axis Cartesian surface.
3. The total cost function of a product XYZ is the sum of and
4. If there is demand for 20 units of an item and only 12 units are available then there is a of units.
5. A set of data that are successively collected at regular intervals of time of occurrence is known as
6. In transportation problems, Vogel's Approximation method makes allocation to various cells by the cost.
7. If, in a lottery game of 1500 tickets, there are 20 grade A prizes and 50 grade B prizes, then the probability that a player of the lottery wins a prize is
8. A linear programming is mainly concerned with the of an
9. The following data is the number of years which nine chartered accountants spent before becoming fellows of the Institute of Chartered Accountants of Nigeria: 10, 14, 15, 11, 12, 10, 12, 10, 6. The mode of the data set is.....
10. The price of each item produced by a firm is ₦1,500. If this firm produced 100,000 units of the commodity over a period of one year, the anticipated revenue of this firm is
11. Laspeyre's index is a index and has bias.
12. The time that a sum of money will take to double itself using simple interest is than that of compound interest.

INSIGHT

13. If the demand and cost functions of a firm are $P = 22,500 - 3q^2$ and $C = 5,000 + 14,400q$, respectively, the marginal profit function is
14. There must not be any delay in starting and finishing critical activities otherwise the of the whole project will be
15. If Fisher's Index is 119.8 and Paasche's Index is 120.4, calculate the Laspeyre's Index.
16. Construction of a model is the central aspect of an Operations Research project. This model can either be model or model.
17. If the mean, median and mode of a data set are approximately equal, then the distribution is
18. The calculus allied conditions for the maximization of a function $y = f(x)$ are and
19. Consider the sequence 3, 8, 13, 18, 23,..... the value $8 - 3 = 13 - 8 = 18 - 13 = 23 - 18 = \dots\dots\dots$ is called
20. Individual replacement policy and group replacement policy are two types of policies used when replacement of an item is done based on

SECTION B:

ATTEMPT ANY FOUR QUESTIONS

(50 Marks)

QUESTION 1

- a. The table below shows a bank's record of amount of deposits and withdrawals (₦m) for seven months of a year:

Month	Deposit (₦M)	Withdrawals (₦M)
June	60	40
July	70	45
August	80	60
September	75	55
October	80	65
November	90	60

INSIGHT

December	50	45
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Required:

Draw the percentage component bar chart for the data. (6^{1/2} Marks)

- b. Mr. Adegoke received unexpected bonus of ₦1,000,000 from his work place. He decided to invest ₦800,000 in a fund that pays 10% commission per annum compounded monthly for 6 years.

You are required to:

- i. Obtain the future value of this investment
- ii. The accumulated interest over this period of time (6 Marks)

(Total 12^{1/2} Marks)

QUESTION 2

- a. The demands for a commodity from destinations X, Y and Z are 300,500 and 200 units respectively, while the sources A, B, and C have 450,300 and 250 units of the commodity respectively in the store.

The table below shows the cost of transporting (in hundreds of Naira) a unit of the commodity from each source to each destination.

Source	Destination		
	X	Y	Z
A	4	3	5
B	3	4	1
C	5	1	3

Required:

Use the Least Cost Method to find the initial total transportation cost.

(6^{1/2} Marks)

- b. The table below gives the prices of some commodities and the quantities of the commodities purchased in 2014 and 2015.

Commodity	2014		2015	
	Price	Quantity	Price	Quantity
P	10	30	18	25
Q	8	20	10	20

INSIGHT

R	15	40	20	10
S	5	15	18	8

Required:

Calculate the Laspeyre's Index for 2015.

(6 Marks)

(Total 12^{1/2}

Marks)

QUESTION 3

- a. A small enterprise sells each item of a product at GH¢500 and the total cost function is given by $C(x) = 100x + 180,000$, where x is the number of items.

Obtain:

- i. The revenue function. (1 mark)
- ii. The total cost when 200 items are produced and interpret your results. (2 marks)
- iii. The number of units that must be sold for the enterprise to break even. (2 marks)
- iv. The break even value. (1 mark)
- b. FAFAW Tuition Academy prepares six candidates for a diet of ATSWA examination in Quantitative Analysis. The number of days spent (x) by each candidate at the academy to prepare for the examination and their corresponding marks obtained in percentage (y) are given in the table below:

No of days spent (x)	Marks obtained (in percentage) (y)
45	64
55	70
60	85

INSIGHT

36	54
30	40
40	50

You are required to:

- i. Determine the Linear Regression Equation of y on x using the least Square Method.
(5^{1/2} Marks)
- ii. Estimate the marks scored by a candidate who spent 50 days at the academy.
(1 Mark)

(Total 12^{1/2}

Marks)

INSIGHT

QUESTION 4

- a. The table below shows the estimate of hours spent per week by randomly selected candidates preparing for ATSWA examination in March:

Hours	11 - 20	21 - 30	31 - 40	41 - 50	51 - 60	61 - 70	71 - 80
Frequency	8	9	12	7	6	5	13

Calculate the quartile deviation of this data. (6¹/₂ Marks)

- b. The following information is supplied for the activities needed to complete a project.

Activity	D	EST	LST	EFT	LFT
A	8	0	0	8	8
B	2	0	0	10	17
C	8	8	8	16	16
D	1	8	8	10	17
E	8	8	8	17	16
F	1	16	16	18	21
G	6	16	16	22	22
H	1	16	16	17	21

D = Duration; EST = Earliest Start Time;
 LST = Latest Start Time; EFT = Earliest Finish Time;
 LFT = Latest Finish Time.

Calculate the total float for each activity and hence determine the critical activities.

(6 Marks)

(Total 12¹/₂ Marks)

INSIGHT

QUESTION 5

- a. WAF Manufacturing Company produces two types of paints; type x and type y. The table below gives the information on the production requirement:

Type of paint	Required materials		Profit
	Pigment (litres)	Adhesive (litres)	(₦)
X	10	1	250
Y	5	4	400
Available materials	2000	480	

You are required to:

- Use the information given above to formulate the Linear Programming problem.
(1½ Marks)
- Obtain the optimal production level using graphical method.

(5

Marks)

- b. A business man has an opportunity to buy a house in Victoria Island. The cost of this house is ₦100,000,000. However, it will cost ₦15,000,000 to renovate the building and this amount is payable at the end of 2 years. It is possible for this man to lease this building out for 10 years to one of the Multinational Companies for ₦200,000,000.

What is the net present value of the businessman's investment, if a discount rate of 8% is allowed? Comment on your result.

(6 Marks)

(Total 12½ Marks)

QUESTION 6

- a. An election observer claims that 60% of the total voters are female. A random sample of 600 voters from a particular ward shows that 55% of them are female.

You are required to:

Test at 5% level of significance the validity or otherwise of the observer's claim.

(Given that $Z_{\text{tab}} = 1.96$)

(6

Marks)

INSIGHT

- b. The demand for an item is 3,200 units per annum, the cost of an order is ₦14.50, the holding cost per unit of an item is ₦2.20 per annum and the price per unit of an item is ₦9. If the supplier offers a discount rate of 4.5% for orders between 700 and 2,200, calculate the total cost per annum.

(6^{1/2} Marks)

(Total 12^{1/2}

Marks)

Formulae

$$\text{Laspeyre's Index} = \frac{\sum P_i q_o}{\sum P_o q_o} \times \frac{100}{1}$$

Regression line $y = a + b x$, where

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

$$a = \frac{\sum y}{n} - \frac{b \sum x}{n}$$

$$\text{Quartile, } Q_i = L_i + \left(\frac{\frac{iN}{4} - F_i}{f_i} \right) C, i = 1, 2, 3$$

L_i = lower class boundary of the i^{th} quartile

F_i = Frequency of i^{th} quartile

F_i = Sum of the frequencies of all classes lower than i^{th} quartile class

C = Class interval of the i^{th} quartile

N = Total number of items in the distribution

$$Z_{\text{cal}} = \frac{\hat{P} - p_o}{\sqrt{\frac{\hat{P}(1-\hat{p})}{n}}}$$

Spearman's Rank Correlation Coefficient

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

Confidence interval for population mean

$$= \bar{x} \pm t_{\alpha/2, n-1} (s/\sqrt{n})$$

INSIGHT

Simple Interest Formula

$A = P (1 + rt)$, r = simple annual interest rate, t = loan duration time.

SECTION A

SOLUTION TO MCQ

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

INSIGHT

- 27. D
- 28. D
- 29. D
- 30. C

WORKINGS

$$\begin{aligned} 2. \quad R &= 1 - \frac{6 \sum d^2}{n(n^2-1)} \\ &= 1 - \frac{6 \times 50}{10(10^2-1)} \\ &= 1 - 0.3030 \\ &= 0.6960 \\ &= \text{approx. } 0.7 \end{aligned}$$

3. The maximum value of $R(x)$ occurs
when $x = 0$ i.e. $R(0) = \text{R}600,000$

$$\begin{aligned} 5. \quad P &= 1,000,000, \quad r = 0.15, \quad t = 5 \\ A &= P(1+rt) \\ &= 1,000,000 [1 + (0.15)5] \\ &= 1,000,000 (1.75) \\ &= \text{R}1,750,000 \end{aligned}$$

$$\begin{aligned} 7. \quad \text{Price relative} &= \frac{35,000}{20,000} \times 100 \\ &= 175\% \end{aligned}$$

$$8. \quad A = P(1+i)^n, \quad A = 2,000,000$$

INSIGHT

$$n = 5, \quad i = 0.1$$

$$\begin{aligned} PV &= \frac{A}{(1+i)^n} = \frac{2,000,000}{(1.10)^5} \\ &= \frac{2,000,000}{1.1^5} \\ &= \text{R}1,241,842.65 \end{aligned}$$

$$\begin{aligned} 12. \quad \text{Supply} &= S_1 + S_2 + S_3 + S_4 = 125 + 75 + 55 + 70 = 325 \\ \text{Demand} &= D_1 + D_2 + D_3 + D_4 = 115 + 75 + 95 + 105 = 390 \\ \therefore \text{Dummy (source)} &= 390 - 325 = 65 \\ \therefore \text{horizontal Dummy} &\text{ should be introduced to have a supply of } 65 \end{aligned}$$

$$13. \quad \text{Degree of freedom} = n - 1 = 9 - 1 = 8$$

$$\begin{aligned} 14. \quad f(t) &= 100e^{0.1t} \\ \text{Reqd total revenue} &= \int_0^{10} f(t) dt \\ &= \frac{100e^{0.1t}}{0.1} \Big|_0^{10} \\ &= 1000e^1 - 1000 \\ &= 1,718.28 \end{aligned}$$

$$\begin{aligned} 15. \quad \text{The durations are} \\ 6 + 3 + 4 &= 13 \text{ weeks} \\ 6 + 3 + 0 + 2 &= 11 \text{ weeks} \\ 8 + 7 + 2 &= 17 \text{ weeks} \\ \text{Shortest time reqd} &= \underline{11} \text{ weeks} \end{aligned}$$

$$\begin{aligned} 16. \quad \text{Simple Aggregate Price Index (SAPI)} &= \frac{\sum P_{2015}}{\sum P_{2014}} \times 100 \\ &= \frac{600}{450} \times 100 \\ &= 133.33\% \end{aligned}$$

INSIGHT

17. The slope of the equation is the change in $C(x)$ due to one unit change in x . Thus, the cost of additional unit is ~~₦20~~ (100) = ₦2,000

18. Cost of monthly individual replacements is $60 \times 70 = \text{₦}4,200$

23. Confidence interval $= \bar{x} \pm t_{\alpha/2, n-1} \left(\frac{s}{\sqrt{n}} \right)$

$$= 100 \pm 1.711 \times \frac{20}{\sqrt{25}}$$

$$= 100 \pm 6.84$$

$$= (100 - 6.84, 100 + 6.84)$$

$$= (98.16, 106.8)$$

$$\cong (98.2, 106.8)$$

24. $f(x,y) = 80 x^{3/4} y^{1/4}$

$$\frac{\partial f}{\partial x} = 80^{(3/4)} x^{-1/4} y^{1/4}$$

$$= 60 x^{-1/4} y^{1/4}$$

$$\therefore \frac{\partial f(16,256)}{\partial x} = 60 (16)^{-1/4} (256)^{1/4}$$

$$= 60 (2)^{-1} (4)$$

$$= 120$$

25. No. of orders $= \frac{60000}{5000} = 12$

\therefore Length of inventory cycle $= \frac{52}{12}$

$$= 4.3 \text{ weeks}$$

26. $H_m = \frac{N}{\sum_{i=1}^m \frac{1}{x_i}}$

INSIGHT

$$\begin{aligned} &= \frac{5}{\frac{1}{55000} + \frac{1}{75000} + \frac{1}{80000} + \frac{1}{95000} + \frac{1}{49000}} \\ &= \frac{5}{0.0000181818182 + 0.0000133333333 + 0.0000125 + 0.0000109263158 + 0.0000204081633} \\ &= \frac{5}{0.000074949606} \\ &= \text{₹ } 66,711.469555929 \\ &= \text{₹ } 66,711.46 \end{aligned}$$

30. This is order 3 moving average

$$\begin{aligned} \therefore x &= 34+46+28 = 108 \\ \text{and } Y &= 28+31+42 = 101 \end{aligned}$$

Examiner's Report

The questions cover the entire syllabus and all candidates' attempted the questions. About 40% performed above average.

SOLUTION TO SAQ

1. Mathematical model
2. Bivariate
3. Fixed cost, variable cost
4. Stock out, 8 units (in that order)
5. Time Series data
6. Minimising, penalty (in that order)
7. 0.047
8. Optimisation, objective function (in that order)
9. 10
10. ₹150,000,000
11. Weighted, upward (in that order)
12. More
13. Marginal Profit function = $8100 - 9q^2$

INSIGHT

14. Duration, Extended (in that order)
15. 119.2
16. Mathematical, heuristic
17. Symmetric or Bell shaped or Normal
18. $\frac{dy}{dx} = \frac{df}{dx} = 0$, $\frac{d^2y}{dx^2} = \frac{d^2f}{dx^2} < 0$ (in that order)
19. Common difference
20. Sudden failure

Workings

$$4. \quad \text{Stock out} = 20 - 12 = 8$$

$$7. \quad \text{Probability of winning a prize} = \frac{20 + 50}{1500} = 0.047$$

$$10. \quad \text{Revenue} = \text{N}(1,500 \times 100,000) = \text{N}150,000,000$$

$$13. \quad P = 22,500 - 3q^2$$

$$\therefore R = pq = 22,500q - 3q^3$$

$$C = 5,000 + 14,400q$$

$$\text{Profit} = \pi = R - C$$

$$= 22,500q - 3q^3 - [5,000 + 4,400q]$$

$$= 81,000q - 3q^3 - 5,000$$

$$\text{Marginal Profit function} = \frac{d\pi}{dq} = 8100 - 9q^2$$

$$15. \quad F = \sqrt{LP}$$

$$119.8 = \sqrt{120.4L}$$

$$L = \frac{119.8^2}{120.4}$$

$$= 119.2$$

INSIGHT

18. $\frac{dy}{dx} = y^1$ or $y \text{ Prime} = 0$, $\frac{d^2y}{dx^2} = y^{11}$ or $y \text{ prime prime} < 0$

Examiner's Report

The questions cover the entire syllabus and all candidates attempted the questions. About 30% performed above average.

INSIGHT

SECTION B

SOLUTION 1

a.

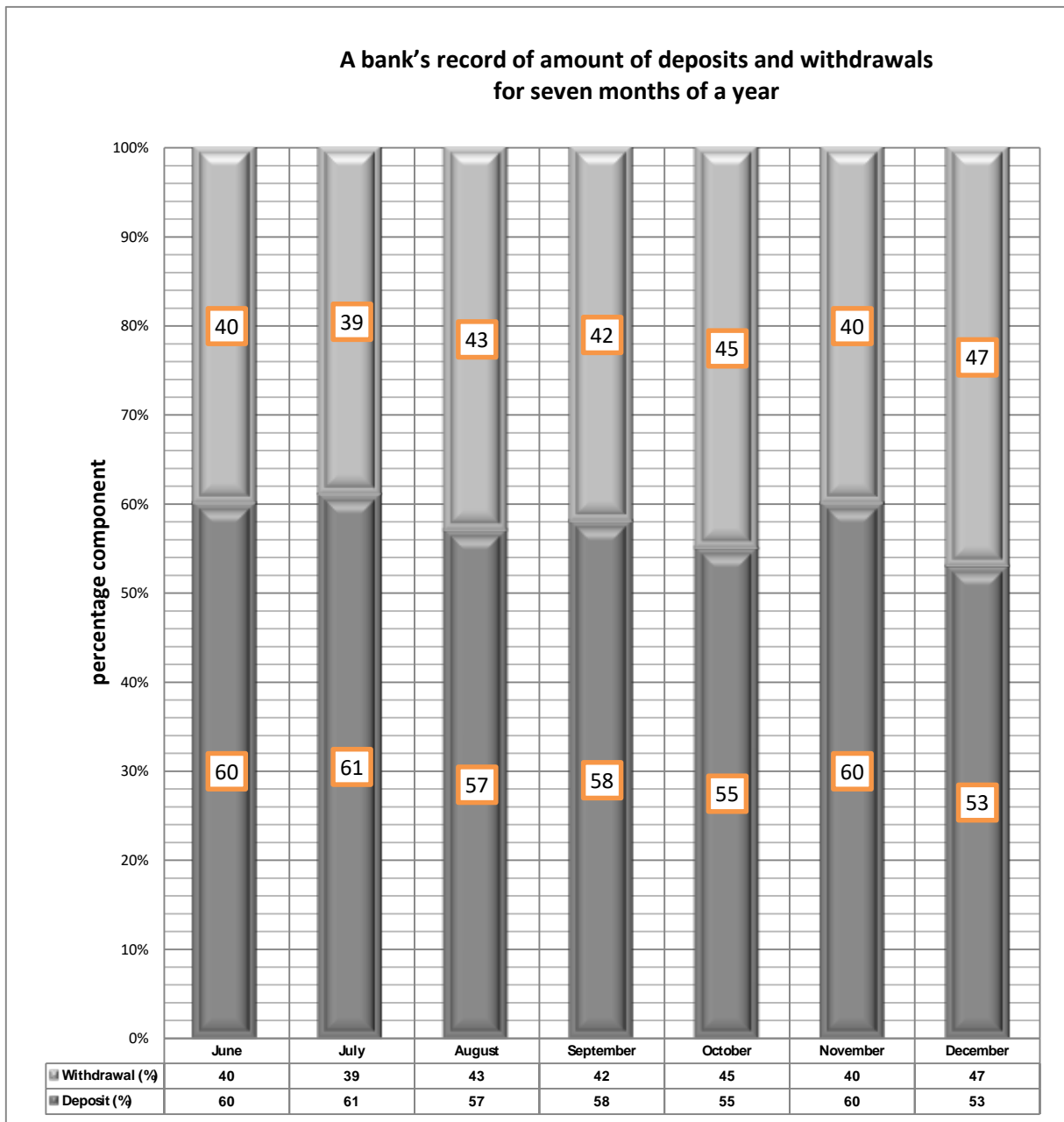
Month	Deposit (R'm)	Deposit (%)	Withdrawal (R'm)	Withdrawal (%)
June	60	60	40	40
July	70	61	45	39
August	80	57	60	43
September	75	58	55	42
October	80	55	65	45
November	90	60	60	40
December	50	53	45	47

Sample calculations:

$$\text{July: Deposit } \frac{70}{115} \times 100 = 60.9 = 61\%$$

$$\text{Withdrawal } \frac{45}{115} \times 100 = 39.1 = 39\%$$

INSIGHT



Bar Chat Graph

- b.
- i. Future value of investment is

$$F = P \left(1 + \frac{i}{m} \right)^{mm}$$

where

- i = Commission
 P = Principal

INSIGHT

$$\begin{aligned}
 m &= \text{Compounding times in a year} \\
 n &= \text{No. of years} \\
 \therefore F &= 800,000 \left(1 + \frac{0.1}{12}\right)^{(12)(6)} \\
 &= 800,000(1 + 0.0083333)^{72} \\
 &= 800,000(1.0083)^{72} \\
 &= \text{N}1,454,075.42
 \end{aligned}$$

$$\begin{aligned}
 \text{ii. Accumulated Interest over time} &= \text{N}(1,454,075.42 - 800,000) \\
 &= \text{N}654,075.42
 \end{aligned}$$

Examiner's Report

The question tests candidates' knowledge and understanding of presentation of data and investment policy analysis (compound interest, future value).

About 60% of the candidates attempted the question out of which about 40% performed above average. The major pitfall was due to the fact that most of the candidates did not understand the difference between the component Bar-Chart and Histogram, simple interest and compound interest.

Candidates are expected to prepare adequately for the examinations.

SOLUTION 2

a.

SOURCE	DESTINATION						SUPPLY
	X		Y		Z		
A	200	4	250	3	-	5	200 450 0
B	100	3	-	4	200	1	100 - 300 0
C	-	5	250	1	-	3	0 250
Demand	300	200 0	500	250 0	200	0	

INSIGHT

The initial total transport cost is

$$\begin{aligned}
 &= 100 [(4 \times 200) + (3 \times 250) + (3 \times 100) + (1 \times 200) + (1 \times 250)] \\
 &= \cancel{\text{N}2300} \times 100 \\
 &= \text{N}230,000
 \end{aligned}$$

b.

Commodity	P_o	q_o	$P_o q_o$	p_i	$P_o q_o$
P	10	30	300	18	540
Q	8	20	160	10	200
R	15	40	600	20	800
S	5	15	75	18	270
			1135		1810

$$\begin{aligned}
 \text{LI for 2014} &= \frac{\sum P_i q_o}{\sum P_o q_o} \times 100 \\
 &= \frac{1810}{1135} \times 100 \\
 &= 159.47\%
 \end{aligned}$$

Note:

The Laspeyre's price index is normally emphasized more than Laspeyre's quantity index

Examiner's report

The question tests candidates' knowledge and understanding of transportation problem and construction of Laspeyre's price index.

About 99½% of the entire candidates attempted the question with an average score of about 8½ marks out of 12½ marks allocated to it. The candidates' pitfall was the wrong allocation of the resources available. About 70% of the candidates demonstrated very good knowledge and understanding of the topic without much stress.

Adequate preparation for the examination by the candidates is essential.

SOLUTION 3

a.

i. The Revenue function

$$R(x) = P(x) = 500x$$

x is the number of items sold

ii. The total cost when 200 items are produced =

$$C(200) = 100(200) + 180,000$$

$$= \text{GH}¢200,000$$

INSIGHT

iii. The number of units that must be sold for the enterprise to break even

$$\begin{aligned}
 &= R(x) - C(x) = 0 \\
 500x - 100x - 180,000 &= 0 \\
 400x &= 180,000 \\
 x &= 450 \text{ is the break-even quantity}
 \end{aligned}$$

iv. The break-even value

$$\begin{aligned}
 &= R(450) \\
 &= 500(450) \\
 &= \text{GH}\text{\textasciicircum}225,000 \\
 \text{Or} \\
 C(450) &= 100(450) + 180,000 \\
 &= \text{GH}\text{\textasciicircum}225,000
 \end{aligned}$$

b. FAWFAW TUITION ACADEMY

X	Y	X ²	XY
45	64	2025	2880
55	70	3025	3850
60	85	3600	5100
36	54	1296	1944
30	40	900	1200
40	50	1600	2000
$\sum x = 266$	$\sum y = 363$	$\sum x^2 = 12446$	$\sum xy = 16974$

The linear regression equation of y on x is

$$\begin{aligned}
 y &= a + bx \\
 b &= \frac{\sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2} \\
 b &= \frac{6(16,974) - (266)(363)}{6(12,446) - (266)^2} \\
 b &= \frac{101,844 - 96,558}{74,676 - 70,756} \\
 b &= \frac{5286}{3920} \\
 b &= 1.348 \\
 a &= \frac{\sum y}{n} - \frac{b \sum x}{n} \\
 a &= \frac{363}{6} - (1.374) \frac{266}{6}
 \end{aligned}$$

INSIGHT

$$a = 60.5 - 60.91$$

$$a = 0.74$$

The regression equation is

$$y = 0.74 + 1.348x$$

When $x = 50$,

$$y = 0.74 + 1.348(50)$$

$$y = 68.14\% \text{ or } 68\%$$

Examiner's Report

The question tests candidates' knowledge and understanding of application of calculus (Integration and Differentiation) to business. About 98% of the candidates attempted the question out of which 60% performed above average. The major pitfall identified was premature approximation. This greatly affected the accuracy of the final answers. Candidates are encouraged to prepare adequately for the examination.

SOLUTION 4

a.

Class interval	Frequency (f)	Cumulative frequency (cf)
11 - 20	8	8
21 - 30	9	17
31 - 40	12	29
41 - 50	7	36
51 - 60	6	42
61 - 70	5	47
71 - 80	13	60
	60	

Calculation of quartile deviation

$$\text{Quartile (Q}_i\text{)} = L_1 + \left[\frac{\frac{iN}{4} - F_1}{f_1} \right] C \quad i = 1, 2, 3$$

INSIGHT

L_i = lower class boundary of the i th quartile class
 f_i = frequency of the i th quartile class
 F_i = $\sum f_i$ = sum of the frequency of all classes lower than the i th quartile class
 C = class interval of the i th quartile class
 N = total number of items in the distribution
 N = 60

Q_1 : Position of Q_1 = $\left(\frac{60}{4}\right)^{th}$ = 15^{th}

Frequency of Q_1 = $\frac{60}{4}$ = 15

Q_1 Class = 21 - 30

L_1 = 20.5

F_1 = 8

f_1 = 9

C = 10

Q_1 = $20.5 + \left[\frac{15-8}{9}\right] 10$

= $20.5 + \left(\frac{7}{9}\right) 10$

= 28.28

Q_3 : Position of Q_3 = $\left(\frac{3}{4}(60)\right)^{th}$ = 45^{th}

Frequency of Q_3 = 45

Q_s Class = 61 - 70

L_3 = 60.5,

F_3 = $8 + 9 + 12 + 7 + 6 = 42$

INSIGHT

$$\begin{aligned}f_3 &= 5 \\C &= 10 \\Q_3 &= 60.5 + \left[\frac{45 - 42}{5} \right] 10 \\&= 60.5 + \left(\frac{30}{5} \right) \\&= 66.5\end{aligned}$$

$$\begin{aligned}\therefore \text{Quartile deviation} &= \frac{Q_3 - Q_1}{2} \\&= \frac{66.5 - 28.28}{2} \\&= \frac{38.22}{2} \\&= 19.11\end{aligned}$$

b.

Activity	D	EST	LST	EFT	LFT	Total Float =LFT - EST - D
A	8	0	0	8	8	0
B	2	0	0	10	17	15
C	8	8	8	16	16	0
D	1	8	8	10	17	8
E	8	8	8	17	16	0
F	1	16	16	18	21	4
G	6	16	16	22	22	0
H	1	16	16	17	21	4

\therefore The critical activities are A, C, E, and G

Examiner's Report

The question tests candidates' knowledge and understanding on the measures of dispersion and Network Analysis. About 70% of the candidates attempted the question out of which about 55% performed above average.

INSIGHT

The major pitfall identified was the fact that the candidates did not substitute correct value into the given formula.

Candidates are expected to prepare adequately for the examination.

INSIGHT

SOLUTION 5

a.

- i. Let x be the number of type X points produced
Let y be the number of type Y points produced

The linear programming problem is

$$\text{Objective function: } Z = \text{R}(250x + 400y)$$

$$\text{Subject to: } 10x + 5y \leq 2000 \text{ (pigment constraint)}$$

$$x + 4y \leq 480 \text{ (adhesive constraints)}$$

$$x \geq 0, y \geq 0 \text{ (non-negativity constraints)}$$

- ii. If $10x + 5y \leq 2,000$, then

When $x = 0, y = 400$

$y = 0, x = 200$

If $x + 4y = 480$, then

When $x = 0, y = 120$

$y = 0, x = 480$

From the graph

Corner point	Type of point		Z
	X	Y	
A	0	120	$\text{R}250(0) + \text{R}400(120) =$ $\text{R}48,000$
B	160	80	$\text{R}250(160) + \text{R}400(80) =$ $\text{R}72,000$
C	200	0	$\text{R}250(200) + \text{R}400(0) =$ $\text{R}50,000$

The optimal solution is $x = 160, y = 80, z = \text{R}72,000$

INSIGHT

INSIGHT

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

No of Question.....

Candidate's No.....



G. 5

INSIGHT

b. Calculation of NPV

$$i = 0.08.$$

We need to calculate the sum of the present values of all future net cash flows of this investment

End of Year	Cash flow Amount in (₦)	Net Cash flow Amount in (₦)
0	-100,000,000	- 100,000,000.00
2	-15,000,000	$\frac{-15,000,000}{1.08^2} = -12,860,082.30$
10	-200,000,000	$\frac{-200,000,000}{1.08^{10}} = +92,638,692.62$
		NPV = -20,221,384.68

Since the net present value is negative, therefore, the investment is not desirable.

Examiner's Report

The question tests candidates' understanding of Linear Programming and Investment Analysis. About 85% of the candidates attempted this question out of which about 40% performed above average.

The major outfall was the fact that the candidates were unable to formulate the problem as a linear programming problem and identify the feasible region.

Candidates are encouraged to prepare adequately for the examination.

SOLUTION 6

a. Let P be the population proportion of female voters and \hat{P} be the estimated proportion of female voters

$$\therefore H_0 : P = 0.60 \quad \text{vs} \quad H_1 : \hat{P} \neq 0.60$$

$$Z_{cal} = \frac{\hat{P} - P_0}{\sqrt{\frac{\hat{P}(1 - \hat{P})}{n}}}$$

INSIGHT

$$\begin{aligned} &= \frac{0.55 - 0.60}{\sqrt{\frac{0.55(1 - 0.55)}{600}}} \\ &= \frac{-0.05}{0.0203} \\ &= -2.46 \end{aligned}$$

It is a two-sided test, Zcal of -2.5 is less than Ztab of 1.96 at 5% level of significance.

Decision Rule: Reject H_0 if $Z_{cal} > Z_{tab}$ otherwise do not reject H_0 .

Decision: Since $|Z_{cal}| = |-2.46| > |Z_{tab}| = |1.96|$
Then, H_0 is rejected and it is concluded that the election observers claim cannot be supported based on the data

b.

		₦
Cost of purchase	$= 3,200 \times 9 \times (1 - 0.045)$	$= 27,504.00$
Holding cost	$= 700 \times 2.2 \times 0.955$	$= 1,470.70$
Ordering cost	$= \frac{3,200}{700} \times 14.50$	$= 66.29$
		₦
	\therefore Total annual cost	$= 29,040.99$

Examiner's Report

The question tests candidates' knowledge of Probability and Demand Function. About 15% of the candidates attempted the question out of which about 30% performed above average.

The major pitfall identified was the fact that the candidates did not understand the question at all.

Candidates are encouraged to prepare very well for the examination.

INSIGHT

AT/162/PII.8ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA

**ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2016
INFORMATION TECHNOLOGY**

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 facilities **CANNOT** be taken over by Facilities Management?
 - A. Project Management assistance
 - B. Taking over employment contracts of IT staff
 - C. Redeployment of IT staff to other departments
 - D. Complete control of system to other departments
 - E. Running the entire Information system function
2. A firm that offers Information Technology services to individuals and other firms that require the services but does **NOT** have the required facilities is known as
 - A. Accounting Firm
 - B. Computer Firm
 - C. Information Technology Firm
 - D. Computer Service Bureaux /Outsourcing
 - E. Facilities Management Firm
3. The major parts of desktop windows include the following **EXCEPT**
 - A. Sidebar and Gadgets
 - B. Shortcut Icons
 - C. Notification Area
 - D. Taskbar and Toolbar
 - E. Control panel
4. In data representation, ASCII denotes
 - A. American service code for information interference
 - B. Application service control for information interface
 - C. American system code for information interface
 - D. Application standard code for information interchange
 - E. American standard code for information interchange

INSIGHT

5. In data representation, 1Terabyte is equivalent to
 - A. 10^4 GB
 - B. 10^3 GB
 - C. 10^2 GB
 - D. 10^{-2} GB
 - E. 10^{-3} GB

6. Which of the following is **NOT** a pointing device used on computers?
 - A. Light pen
 - B. Joy stick
 - C. USB mouse
 - D. Finger-print scanner
 - E. Serial mouse

7. Which of the following is **NOT TRUE** about input devices?
 - A. They are used for entering data into the CPU
 - B. They are connected to the CPU through a communication port
 - C. They work with software running in the CPU
 - D. They control the software running in the CPU
 - E. They are external to the CPU

8. The functions of the CPU include
 - A. Storing instructions for safe keeping
 - B. Fetching instructions in order to take action
 - C. Coding instructions
 - D. Resetting storage to hold instructions
 - E. Monitoring users' instructions

9. The cabinet housing all components that are responsible for processing is known as
 - A. System cabinet
 - B. System unit
 - C. Processing unit
 - D. Central processing unit
 - E. System housing

10. Semi conductor memory is made from
 - A. Silicon chips
 - B. Mercury chips
 - C. Memory chips

INSIGHT

- D. Core chips
 - E. RAM
11. Which of the following is **NOT** a single-user Operating System?
- A. DOS
 - B. Windows XP
 - C. Windows server
 - D. Windows millennium
 - E. Windows Vista
12. Which of the following is a function of a single-user operating system?
- A. Resource sharing
 - B. Memory management
 - C. Application debugging
 - D. Data transfer
 - E. Data encoding
13. An off-the-shelf application package is
- A. Application package sold by vendors
 - B. A customised application package
 - C. A standard application package
 - D. A registered application package
 - E. Application package not found on the shelf of the organisation
14. A criterion for selecting an application package is
- A. Usefulness of the package
 - B. Availability of technical support by vendors
 - C. Availability of error-reporting facility
 - D. Smooth functionality
 - E. Availability of debugging facility
15. A customised application package is a package
- A. Developed by indigenous tailor
 - B. Developed for customs office
 - C. Developed specifically for an organisation
 - D. That is open to organisations
 - E. That is closed to all organisations
16. Which of the following is a method for collecting data during system investigation?
- A. Observation

INSIGHT

- B. Reading computer books
 - C. Browsing internet
 - D. Chatting with friends
 - E. Consulting Library
17. A second generation programming language is language
- A. Machine
 - B. Assembly
 - C. High-level
 - D. Query and database
 - E. Natural
18. Programming languages used to create artificial intelligence applications are called..... language
- A. Object orientation
 - B. Fourth-generation
 - C. Expert system
 - D. Fifth-generation
 - E. Visual
19. Which of the following is **NOT TRUE** for an extranet?.
- A. Network links that use Internet technology
 - B. Can connect the intranet of business with the intranets of customers, suppliers or other business partners
 - C. Makes use of a browser
 - D. All internet users are allowed access
 - E. Enables company to offer new kinds of interactive web-enabled service to their business partners
20. Which of the following is **NOT** true of file server architecture?
- A. All end user's applications are run on the file server
 - B. The application and database reside on the host computer
 - C. The database management system runs on the end user's personal computer
 - D. Some data that reside on the file server may be sent to the end-user's computer when requested for
 - E. Downloaded data can be analysed, manipulated, formatted and displayed by the program that runs the user's personal computer
21. A type of Network topology that is a combination of some other network types is called.....network
- A. Hybrid

INSIGHT

- B. Star
 - C. Hierarchical
 - D. Bus
 - E. Ring
22. **TWO** or more people may engage in online interactive ‘conversation’ over the Internet through
- A. Usenet
 - B. Hypermedia language
 - C. Chat rooms
 - D. Newsgroup
 - E. Content streaming
23. A person who obsessively uses a computer system is called
- A. Script bunny
 - B. Criminal
 - C. Social engineer
 - D. Cracker
 - E. Hacker
24. A crime in which an imposter obtains pieces of personal identification information in order to impersonate someone else is called
- A. Espionage
 - B. Identity theft
 - C. Fraud
 - D. Spamming
 - E. Data diddling
25. **ONE** way of providing security to prevent unauthorised persons gaining physical access to a company’s IT environment when computer personnel are on duty is by using
- A. Passwords
 - B. Firewall
 - C. Identity cards
 - D. Locks and keys
 - E. Fire extinguishers
26. The Repetitive Stress Injury (RSI) problems normally associated with computer users does **NOT** include
- A. Hepatitis B
 - B. Tendonitis

INSIGHT

- C. Tennis elbow
 - D. The inability to hold objects
 - E. Sharp pain in the fingers
27. A program which is capable of attaching itself to disks and other files and replicating itself repeatedly without users knowledge or permission is called
- A. Virus
 - B. Worms
 - C. Trojan Horse
 - D. Logic bomb
 - E. Variant
28. Which of the following is **NOT** a network operating system?
- A. Windows 98
 - B. Windows Server 2008
 - C. Novell Netware
 - D. Unix
 - E. Linus
29. Which of the following is **NOT** a computer error?
- A. Data entry error
 - B. Errors in a computer program
 - C. Adequate planning for and control of equipment malfunction
 - D. Failure to provide access to most current information by not adding and deleting old URL links
 - E. Not adequately planning for the control of environmental difficulties
30. A type of processing method that allows tasks to be gathered over a period of time and processed at the same time is
- processing
- A. Real-time
 - B. Batch
 - C. Decentralised
 - D. Centralised
 - E. Distributed

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

INSIGHT

ATTEMPT ALL QUESTIONS

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

1. is used to find, copy, delete, launch and configure programs and documents
2. When clients' staff use the bureau's facilities themselves, usually during peak periods, the service offered is referred to as service
3. A type of computer service bureaux formed specifically to render computing services to clients is referred to as..... companies.
4. A is a collection of data files which are integrated into a single file system
5. Software that usually accompany the operating system and often used for performing routine housekeeping tasks in the computer center, are referred to as
6. What is the general name for any device using digital circuits that assists in the input, processing, storage and output activities of an information system?
7. What is the process that involves transferring computer-readable data into computers for processing?
8. The eight bits coding scheme used as industry standard for representing characters.....
9. Computer hardware requires..... to perform tasks
10. Which of the "off-the-shelf" packages provides features for editing, formatting, proof-reading, indexing and referencing of text ?
11. In the needs assessment stage of System Development Life Cycle (SDLC) System Analysts focus on three types of needs, which are; Input, output and

INSIGHT

12. The four possible strategies for implementation during System Development Life Cycle technique are Direct change-over, Pilot change-over, Parallel change-over and
13. An electronic device that allows a single communication channel to carry simultaneously data transmission from many terminals is called.....
14. What name is given to a global network of multimedia Internet sites for information, education, e-commerce etc?
15. The device that captures digital video to upload to the web is called
16. A technology model in which any or all resources, such as application software, processing power, data storage etc, are delivered as a set of services via the Internet is called.....
17. A network topology where each end user is linked to a central computer on which all are depended is callednetwork
18. A short-range wireless technology is called
19. The program that finds and eliminates computer viruses is called
20. A computer system or related device that serves as a filter for access to and from other networks by a company's network computers is called.....

SECTION B
Marks)

ATTEMPT ANY FOUR QUESTIONS

(50

QUESTION 1

- a. The Open System Interconnection (OSI) model serves as a standard model for network architecture.

INSIGHT

List sequentially the **SEVEN** layers of the OSI model (8 Marks)

- b. List and describe the **THREE** data transmission modes (4^{1/2} Marks)

(Total 12^{1/2}

Marks)

QUESTION 2

- a. List and explain briefly any **FIVE** uses of the Internet (7^{1/2} Marks)

- b. State **FIVE** advantages that can be derived from using an e-mail system

(5 Marks)

(Total

12^{1/2} Marks)

QUESTION 3

- a. Computer input devices are computer components that allow data to be sent into the Computer.

Required:

- i. Differentiate between Direct Input Devices and Indirect Input Devices

(2 Marks)

- ii. State **THREE** examples each of Direct Input devices and Indirect Input Devices

(3 Marks)

- iii. Explain briefly imaging input devices (1^{1/2} Marks)

INSIGHT

- iv. State **THREE** examples of imaging Input devices and their uses

(3

Marks)

- b. i. Define Information
(1 Mark)

- ii. State **FOUR** general characteristics of a good Information (2
Marks)

(Total 12¹/₂

Marks)

QUESTION 4

- a. What do you understand by the acronyms “ROM” and “RAM”?
(2 Marks)

- b. Write briefly on the following:

i. PROM

ii. E PROM

iii. Cache Memory (4¹/₂
Marks)

- c. State **ONE** difference each between the following storage media:

i. Digital Cassette Tape and Streaming Tape

ii. Rewritable CD and WORM

iii. Digital Video Disk (DVD) and CD-ROM (6
Marks)

(Total

12¹/₂ Marks)

QUESTION 5

INSIGHT

- a. Explain briefly the following computer system operating environments
- i. Single-user
 - ii. Multi-user
 - iii. Networking
- (6 Marks)
- b. List **FIVE** examples of utility programs (2½ Marks)
- c. Explain briefly **TWO** key areas to determine the feasibility of a project (4 Marks)
- (Total 12½ Marks)**

QUESTION 6

- a. State **THREE** differences between an interpreter and a compiler (4½ Marks)
- b. Explain briefly the following system software:
- i. Assembler
 - ii. Loader (3 Marks)
- c. State **FIVE** features of microcomputers which distinguish them from mini-computers (5 Marks)
- (Total 12½ Marks)**

INSIGHT

SOLUTIONS

MCQ

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

EXAMINER'S REPORT

This consists of 30 compulsory Multiple Choice Questions covering the entire syllabus. The performance was good.

INSIGHT

SAQ

1. Explorer
2. Do - it - Yourself
3. Independent
4. Database
5. Utility programs/Service programs
6. Computer system
7. Data Input
8. Extended Binary Coded Decimal Interchange Code (EBCDIC Code)
9. Software
10. Word Processing Package
11. Procedures
12. Phased Change - Over
13. Multiplexor
14. World Wide Web (WWW)
15. Webcam/Digital Camera
16. Cloud Computing
17. Star
18. Bluetooth
19. Antivirus software
20. Firewall

EXAMINER'S REPORT

This consists of 20 compulsory Short Answer Questions covering the entire syllabus. The performance was poor.

INSIGHT

SOLUTION 1

a. The seven layers of Open Systems Interconnection (OSI) Model in sequential order is:

- i. Application layer - (Level 7)
- ii. Presentation layer - (Level 6)
- iii. Session layer - (Level 5)
- iv. Transport layer - (Level 4)
- v. Network layer - (Level 3)
- vi. Data-link layer - (Level 2)
- vii. Physical layer - (Level 1)

b. i. Mode of data transmission are:

- 1. Simple
- 2. Half Duplex
- 3. Full Duplex

ii. Description of modes of transmission

- 1. **Simplex mode** allows transmission in one direction only e.g. loudspeaker, television broadcasting, etc.
- 2. **Half Duplex mode** allows transmission to take place in both directions but not simultaneously e.g. walkie - talkie
- 3. **Full Duplex mode** allows transmission to take place in both directions simultaneously e.g. telephone

EXAMINER'S REPORT

This question requires candidates to list sequentially the seven (7) layers of Open System Interconnection (OSI) model and to describe the three transmission modes.

50% of the candidates attempted this question and the performance is fair. Many candidates confused the transmission types with the transmission modes.

INSIGHT

INSIGHT

SOLUTION 2

a. The uses of Internet include:

- i. Surf:
Point and click your way to thousands of hyperlinked website and resources for information, entertainment, etc.
- ii. Email
For messaging to exchange electronic messages with colleagues, organizations and friends
- iii. Discuss
Participate in discussion forum of special interests, conferences, and newsgroup or hold real time conversation in website chat room.
- iv. Publish
Post your opinion, subject-matter or creative work to a website.
- v. Buy and sell
Buy and sell practically anything via, e-commerce, retailers, wholesalers, service providers, etc.
- vi. Download
Transfer data, files, software, reports, articles, pictures, etc. to your computer.
- vii. Compute
Log on and use thousand of internet computer system around the world.
- viii. Social activities
Make friends via, internet.
- ix. Advertisement
- x. EDI – Electronic Data Interchange
- xi. Teleconferencing
- xii. E-commerce
- xiii. E-business

INSIGHT

- xiv. Telecommuting
- xv. Online Ticket Booking
- xvi. Online Freelancer
- xvii. E-banking

b. Advantages of email system

- i. Faster to transmit.
- ii. More convenient and ecologically friendly as it does not require paper to transmit messages.
- iii. There is an automatic record of when the email is sent.
- iv. It is possible to send same email to a number of recipients.
- v. Messages that are not time critical can be sent by email, since the recipient can read then at their own convenience.
- vi. Attachments or important text documents as well as multimedia items such as video, pictures, sound, music, etc can be sent via the email.
- vii. An organization can use email to communicate to its employees and other organizations or business partners.
- viii. It provides a form of backup facility.
- ix. Economy – cheaper than fax or ordinary mail.
- x. Time shifting – email is one of the best media for time shifting of communication. It allows people on different schedules or even time zones to communicate at their leisure.
- xi. Follow-up – email can be a powerfully documentation mail. Unlike text messages or phone calls, email provides a very concrete audit trail of past actions and messages when there is a clear history.

EXAMINER'S REPORT

INSIGHT

This question tests candidates' knowledge on the uses of the Internet and the advantages of the email.

95% of the candidates attempted this question and the performance is very good.

INSIGHT

SOLUTION 3

a.

i. Differences between Direct Input Devices and Indirect Input Devices

- **Direct Input Devices:**

These are input devices which can read the data without any intermediate devices from the source documents for conversion and transfer to the CPU.

- **Indirect Input Devices:**

It requires data to be converted from the form which people can read through an intermediary like the keyboard, into the processor.

ii. Examples of

- **Direct input devices**

1. Optical character Reader (OCR)
2. Optical mark reader/Mark sensing devices (OMR)
3. Magnetic ink character Reader (MICR)
4. Scanner
5. Bar codes, punched cards ,Magnetic stripes and plastic card

- **Indirect input devices**

1. Keyboard and screen
2. Mouse
3. Joystick
4. Ports
5. Light pen

iii. **Imaging Input Device:** This is an input device that is used to capture or video digitise images or video into the computer system. The information can be stored in several formats depending on the user's requirement.

iv. The imaging devices include:

INSIGHT

- **Digital camera** – This is used for snapping pictures and images into the computer digital camcorder.
- **Webcam** – This is used to snap pictures and images into the computer system. It can either be fixed with hardware or handle.
- **Image scanner** – This is like scanner, it is used to scan images for upload into the computer system.
- **Fingerprint scanner** – This is use to scan the palm or fingers for upload into the computer system.
- **Barcode reader** – This is mostly used in the supermarket.

b.

- i. **Information** can be defined as processed data, it is obtained after subjecting data to a series of processing operations which convert related groups of data (raw facts) into a meaningful and coherent form.

- ii. The following are general characteristics of information:

It must be

1. Accurate
2. Complete
3. Economical
4. Flexible
5. Reliable
6. Simple
7. Timely
8. Verifiable
9. Accessible
10. Secure
11. Concise
12. Relevant
13. Well presented
14. Tailored to management needs

INSIGHT

EXAMINER'S REPORT

This tests candidates' knowledge on various computer input devices.
60% of the candidates attempted this question and the performance is fair

SOLUTION 4

a.

ROM – stands for Read Only Memory. This is a type of memory containing information that is permanently written and can be read

RAM – stands for Random Access Memory. It is a temporal storage location within the primary storage unit. It is volatile because its contents are wiped off when current is off. The content of RAM is transient.

b.

i. PROM – Programmable Read Only Memory

It is the memory that can be programmed by the user. A special device is required for this. It can be written onto only once and after it cannot be changed.

ii. E PROM – Erasable Programmable Read Only Memory

When data are recorded on E PROM, they are just like ROM in behaviour, but the contents of the ROM can be changed by the use of an ultraviolet light to revert all the cells to 1s. Then new programs and data can be written on the chip.

iii. Cache Memory – This is a high-speed memory capable of keeping up with the processing speed of the processor. It acts as a buffer between the processor and the slower primary memory.

c. Differences between

i. Digital Cassette tape and Streaming tape

- Digital Cassette tape has lower storage capacity compared to a streaming tape
- Cassette tape is slower in operation compared to streaming tape

INSIGHT

- ii. Rewriteable CD and WORM
 - WORM media allow data to be written onto them, but once written the data cannot be changed while data written on a rewritable CD can be deleted and another one written
 - Access to data written on WORM media is sequential whereas, access to data is direct on a rewritable CD.
- iii. Digital Video Disk (DVD) and Compact Disc Read Only Memory (CD-ROM)
 - DVD has higher capacity than a CD-ROM
 - DVD is a disk used to store digital video. It can be written onto while CD-ROM contains data/information that can be read but cannot be written onto

EXAMINER'S REPORT

This tests candidates' knowledge on various computer external storage devices

40% of the candidates attempted this question and the performance is poor.

SOLUTION 5

- a.
 - i. Single user environment.

In this computing environment only, a single user is able to work on the computer. The computer can only handle one task at a time.
 - ii. Multi-user environment

This allows access to computer system by multiple users of a computer. Time sharing systems are multi-user systems.
 - iii. Networking environment

INSIGHT

In this environment, many users work on the computer at the same time. Each user has processing capacity at his end and is also connected to other users.

- b. Examples of Utility Programs include:
 - i. Disk copying and formatting
 - ii. File copy
 - iii. Sorting
 - iv. Dumping routines
 - v. Housekeeping operations such as programs to clear areas of storage, writing file labels,

- c. Key areas in which a project must be feasible are:
 - i. Technical feasibility - The system requirements as defined in the feasibility study must be technically achieved. This means that any proposed solution must be capable of being implemented using available hardware, software and other equipment.

 - ii. Operational feasibility - Any option worth considering should not lead to inefficiencies or ineffectiveness in the operations of the organisation.

 - iii. Economic feasibility - A system which satisfies all of the above must still be economically feasible; in other words it must be a good investment.

EXAMINER'S REPORT

This question tests candidates' knowledge on certain processing modes. 50% of the candidates attempted this question and the performance is poor.

SOLUTION 6

- a. Differences between an Interpreter and a Compiler
 - 1. Interpreter does not produce an object code but a compiler does.
 - 2. Each time a program is to be run, interpreter is required, this is not the case with a compiler.

INSIGHT

3. Interpreter translates line by line, if one line is not correct, it will not go to the next line but a compiler translates all lines at once.
- b.
- i. Assembler
 - Assembler is a system program that is used to translate programs written in assembly language to the machine language.
 - The purpose of the assembler is to simplify and speed up the task of programming and enabling the programmer to write programs in a language much simpler than machine codes.
 - ii. Loader
 - Before an instruction can be executed, it must have been placed somewhere in the primary memory. It is the loader that places the program segments into the appropriate locations in the memory ready for execution.
- c. Features of microcomputer that distinguishes it from a mini computer include
1. Smaller in size.
 2. It is portable.
 3. Easy to use.
 4. Easy to learn.
 5. Versatile in application.
 6. Uses Very Large Scale Integration (VLSI).
 7. Can be used as workstation on a network

EXAMINER'S REPORT

This question tests candidates' knowledge on computer translators and the differences between micro-computers and mini-computers
70% of the candidates attempted this question and the performance is fair.