THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

PATHFINDER

NOVEMBER 2017 DIET
FOUNDATION LEVEL EXAMINATIONS

Question Papers

Suggested Solutions

Marking Guides

Plus

Examiner's Reports

FOREWARD

This issue of the **PATHFINDER** is published principally, in response to a growing demand for an aid to:

(i)   Candidates preparing to write future examinations of the Institute of Chartered Accountants of Nigeria (ICAN);

(ii)   Unsuccessful candidates in the identification of those areas in which they lost marks and need to improve their knowledge and presentation;

(iii)   Lecturers and students interested in acquisition of knowledge in the relevant subject contained herein; and

(iv)   The professional; in improving pre-examinations and screening processes, and thus the professional performance of candidates.

The answers provided in this publication do not exhaust all possible alternative approaches to solving these questions. Efforts had been made to use the methods, which will save much of the scarce examination time. Also, in order to facilitate teaching, questions may be edited so that some principles or their application may be more clearly demonstrated.

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.

NOTES

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

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THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

FOUNDATION LEVEL EXAMINATION - NOVEMBER 2017

FINANCIAL ACCOUNTING

Time Allowed: 3¼ hours (including 15 minutes reading time)

SECTION A: **MULTIPLE - CHOICE QUESTIONS**   **(20 MARKS)**

INSTRUCTION: YOU ARE REQUIRED TO ANSWER ALL QUESTIONS IN THIS SECTION

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

1. Each component of the financial statements must be properly identified with the following information displayed prominently **EXCEPT**
   A. The name of the entity
   B. A description of the nature of the entity's operations and its principal activities
   C. The date of the end of the reporting period covered by the statements
   D. The presentation currency
   E. The level of rounding used in presenting amounts in the financial statements

2. Which of the following documents, designed to account for sales, impacts the double entry principle?
   A. Sales order
   B. Customer's Statement
   C. Delivery note
   D. Goods despatched note
   E. Credit note

3. Which of the following is **NOT** a cost item of Property, Plant and Equipment?

   A. Site Preparation
   B. Installation and assembly
   C. Repairs and maintenance
   D. Testing cost
   E. Architect's fee

4. Which of the following is **NOT** considered in determining the useful life of an asset?

   A. Expected usage of the asset
   B. Expected physical wear and tear
   C. Technical or commercial obsolescence
   D. Legal or similar limit on the use of the asset
   E. Ownership and possession of the asset

5. Identify which of these items would be included in the purchase cost of inventory

   I. Purchase price.
   II. Transport costs.
   III. Other costs directly attributable to the acquisition.
   IV. Import duties.

   A. (I) and (II)
   B. (II) and (III)
   C. (I), (II) and (IV)
   D. (II), (III) and (IV)
   E. (I), (II), (III) and (IV)

6. Accounting standards provide guidance on

   A. Recognition, measurement, presentation and disclosure
   B. Recording, measurement, presentation and interpretation
   C. Recognition, classification, presentation and interpretation
   D. Recording, classifying, aggregating and interpretation
   E. Recognition, measurement, interpretation and recording

7. Which of the following is **NOT** a measurement basis used for elements of financial statements under IASB Conceptual Framework?

   A. Present value
   B. Current cost or current value
   C. Fair value
   D. Realisable value
   E. Historical value

8. Which of the following are the reasons for the differences between the bank balance in the cash book and the bank statement?

   I. Cash sales banked
   II. Cheques deposited but not cleared
   III. Cheques issued but not presented
   IV. Interest or dividend collected by the bank
   V. Contra entry in the cash book

   A. (I) and (V)
   B. (I), (II), and (III)
   C. (III), (IV) and (V)
   D. (II), (III), and (IV)
   E. (I), (II), (III), (IV) and (V)

9. The payment made to creditors was not recorded in the books of the company. What type of error is it?

    A.   An error of principle
    B.   An error of commission
    C.   A transposition error
    D.   An error of omission
    E.   A complete reversal of entry

10. Which of the following is the role of control accounts?

    I.   Simplifies and organises the general ledger
    II.   Facilitates quick discovery of errors
    III. Combines subsidiary accounts for a specific type
    IV.   Serves as memorandum records

    A.   (I) and (II)
    B.   (I) and (III)
    C.   (II) and (IV)
    D.   (I), (II), and (III)
    E.   (II), (III) and (IV)

11. Which of the following will **NOT** prevent the trial balance from balancing?

    I.   Error of omission
    II.   Error of principle
    III. Error of commission
    IV.   Casting error

    A.   (I) and (II)
    B.   (I), (II) and (III)
    C.   (III) and (IV)
    D.   (IV)
    E.   (I) and (III)

12. The following information is extracted from the records of Pass Motive Limited as at 31 December, 2016. Opening inventory ₦495,000; purchases ₦1,870,000; carriage inwards; ₦11,000; sales ₦2,640,000. The gross profit recorded is 25% of sales. What is the closing inventory as at 31 December, 2016?

    A.   ₦385,000
    B.   ₦396,000
    C.   ₦618,750
    D.   ₦660,000
    E.   ₦792,000

13. End of period adjusting entries are made in order to satisfy the application of .... concept

   A.   Periodicity
   B.   Realisation
   C.   Adjustment
   D.   Going concern
   E.   Matching

14. Rent paid in advance is

   I.   Credit balance in rent account
   II.   Current asset in the statement of financial position
   III. Liability in the statement of financial position
   IV.   Debit balance in the rent account
   A.   (I) and (II)
   B.   (II) and (IV)
   C.   (III) and (IV)
   D.   (I)
   E.   (IV)

15. In reconciliation of the bank statement with the entity's bank balance, which of these items will **NOT** require an entry in the adjusted cash book?

   A.   Direct debit to the entity's bank account
   B.   Bank charges
   C.   Amount incorrectly credited to the entity's bank account
   D.   Cheque paid in by the entity and dishonoured
   E.   Direct credit to the entity's bank account

16. A company recognised goods received before the year end for which invoices are not received until after the year end. This is in accordance with:

   A.   The consistency concept
   B.   The accrual concept
   C.   The going concern concept
   D.   The historical cost convention
   E.   The monetary concept

17. Which of the following expenses should be included in prime costs in a manufacturing account?

   A.   Depreciation of office equipment
   B.   Repairs of office machinery
   C.   Direct production wages
   D.   Administrative expenses
   E.   Lighting and heating costs

18. Which of the following errors would cause a suspense account to be raised?

   A. A computer purchased for resale was recorded as item of non-current asset
   B. An amount owed to Otuba Steve was recorded in Otunba Steve's account
   C. A cash received from a credit customer was debited to trade receivables ledger account.
   D. An invoice for goods sold was omitted from the books
   E. A wrong amount from the purchases day book was posted to the relevant ledger accounts

19. When preparing statement of cash flows, which of the following items may **NOT** be classified as investing activities?

   A. Proceeds from the issue of shares, debentures and loan stock
   B. Dividends and interest received on investments
   C. Purchase of non - current assets
   D. Proceeds from sale of non-current assets
   E. Purchase of investments

20. A club received the following life membership fees in each of its first two years:

   Year 1   ₦3,000,000
   Year 2   ₦11,600,000

   The club's policy is to take credit for life membership fees in equal amount over 10 years. What will be the membership fees recognised in the Income and Expenditure account for year 2?

   A. ₦1,080,000
   B. ₦1,460,000
   C. ₦2,200,000
   D. ₦8,600,000
   E. ₦14,600,000

SECTION B: OPEN - ENDED QUESTIONS   (80 MARKS)

INSTRUCTION: YOU ARE REQUIRED TO ANSWER ANY FOUR OUT OF SIX QUESTIONS IN THIS SECTION

QUESTION 1

Bravo Enterprises started business on the 3 January with ₦20 million cash from his personal savings. The following transactions took place in the month of January:

Jan
4   Paid ₦18 million into bank account opened for the business

Bought office building paying by cheque ₦8 million
6   Bought delivery van ₦3 million from ANAMCO paying by cheque
7   Purchased goods worth ₦2 million paying by cheque
9   Cash sales ₦2million
     Goods sold on credit to Bayo for ₦1.5 million
11   Purchased goods on credit from Gubio Plc ₦900,000
     Cash sales banked ₦1.5 million
12   Purchases: cash ₦500,000; Bank ₦1.5 million
14   Returned goods to Gubio Plc ₦5,000
15   Received cheques from Bayo ₦800,000
16   Paid electricity expenses ₦120,000 by cheque.
17   Purchased power plant worth ₦4 million making an initial payment of ₦2.5
     million by cheque to Jaico Power Solutions Nigeria Limited
18   Sold goods on credit to Bayo ₦1 million
21   Received cheque from Bayo ₦660,000 in full settlement of his first purchase.
25   Salaries paid by cash ₦540,000
     Withdrew cash for personal use ₦160,000

You are required to prepare the ledger accounts of the Bravo Enterprises and bring down the balances   **(Total 20 Marks)**

QUESTION 2

Musa and Etim have been together in partnership for several years in a newspaper publishing business, sharing profits and losses in the ratio 3:2 after charging salaries of ₦3,000,000 per annum for each partner.

On 31 December 2016 the following balances were extracted from the partnership books of Musa and Etim:

	₦'000	₦'000
Capital accounts		
- Musa		28,000
- Etim		18,000
Current accounts		
- Musa		4,000
- Etim		2,800
Revenue		272,000
Purchases	190,000	
Wages	20,000	
Salaries	25,000	
General expenses	10,000	
Plant & machinery	25,000	
Motor vehicles	15,000	
Receivables	20,000	
Telephone expenses	3,750	
Payables		24,350

Inventory 1 Jan 2016	15,000	
Allowance for doubtful debts		1,500
Bank balance	15,300	
Drawings:		
- Musa	6,600	
- Etim	5,000	
	350,650	350,650

Additional information:

(i) Allowance for doubtful debts should be maintained at 5% of receivables.

(ii) Inventory at 31 December 2016 was valued at ₦12,000,000

(iii) Depreciation on plant and machinery to be 20% per annum and on motor vehicles 25% per annum.

You are required to prepare the following accounts:

a. Statement of Profit or Loss for the year ended 31 December 2016.

(10 Marks)

b. Partners' Current Accounts for the period. (10 Marks)

(Total 20 Marks)

QUESTION 3

The financial statements of the Etuk Limited for financial years 2015 and 2016 are given below:

Etuk Limited
Statement of Profit or Loss for the year ended 31 December, 2016 and 2015

	2016		2015	
	₦'000	₦'000	₦'000	₦'000
Revenue		8,389		7,980
Cost of Sales		(3,360)		(3,231)
Gross Profit		5,029		4,749
Distribution cost	1,676		1,676	
Administrative expenses	2,514		2,486	
		(4,190)		(4,162)
		839		587
Finance cost		(559)		(279)
Profit before tax		280		308
Income Tax expense		(140)		(151)
Profit for the year		140		157

Etuk Limited

Statement of Financial Position as at 31 December, 2016

	2016		2015	
	₦'000	₦'000	₦'000	₦'000
Non-Current Assets (Note 1)	-	5,978		4,302

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Inventory	358		207	
Trade receivables	335		223	
Cash and cash equivalent	<u>84</u>	<u>777</u>	<u>112</u>	<u>2</u>
Total Assets		**6,755**		**4,844**

Equity & Liabilities Equity

Share capital		3,91		2,794
5% Irredeemable preference shares		438		670
Retained earnings		<u>140</u>		<u>67</u>
		4,488		3,531

Liabilities
Non-current liabilities

10% debentures		1,676		838

Current liabilities

Trade payables	184		179	
Tax payable	140		151	
Bank overdraft	<u>267</u>		<u>145</u>	
	<u>475</u>	591		<u>475</u>
Total Equity & Liabilities		**6,755**		**4,844**

Additional Information
Note 1   Property, Plant and Equipment

	Land and Building	Plant and Machinery	Other Equipment	Total
2016	₦'000	₦'000	₦'000	₦'000
Cost	3,910	2,514	1,397	7,821
Accum, Dep.	<u>(335)</u>	<u>(838)</u>	<u>(670)</u>	<u>(1,843)</u>
Carrying amount	<u>3,575</u>	<u>1,676</u>	<u>727</u>	<u>5,978</u>
2015				
Cost	2,793	1,676	1,117	5,586
Accum. Dep.	<u>(279)</u>	<u>(558)</u>	<u>(447)</u>	<u>(1,284)</u>
Carrying amount	<u>2,514</u>	<u>1,118</u>	<u>670</u>	<u>4,302</u>

2. In the year 2016, a plant costing ₦466,000 with accumulated depreciation of ₦335,000 was disposed of for ₦186,000

Required:
Prepare a statement of cash flows using the indirect method for the year ended 31 December, 2016.   **(Total 20 Marks)**

QUESTION 4

Individual transactions are not usually recorded directly in the ledger accounts as they occur, rather they are recorded initially in day books.

a. Define day books and state the main purpose they serve (2 Marks)

b. Explain each of the following:

 i. Sales day book; (2 Marks)
 ii. Purchases day book; (2 Marks)
 iii. Sales returns day book; and (2 Marks)
 iv. Purchases returns day book. (2 Marks)

c. Akinola, a trader in Kano passes all his transactions through the Journal before posting to the ledger.

Akinola's balances as at January 1, 2017

			₦'000
Jan.	1.	Cash in Hand	50
"	1.	Cash at Bank	150
		Receivables	300
		Inventory	100

The transactions for the month:

"	2.	Purchased goods for cash	70
"	5.	Bought goods from Falaye	500
"	9.	Bought shop fittings and paid by cheque	27
"	15.	Sold goods to Dele	100
"	16.	Paid Falaye by cheque on account	400
"	20.	Bought goods from Bunmi B.	140
"	25.	Sold goods to J. Sola	150
"	28.	Bought old accounting machine by cheque	70

Required:

Open Akinola's books by means of a journal and pass the subsequent transactions therein. (10 Marks)

(Total 20 Marks)

QUESTION 5

a. Explain the concept of 'bank reconciliation'. (2 Marks)

b. List **FOUR** steps to be taken to carry out bank reconciliation. (4 Marks)

c. State **FOUR** reasons why there may be a difference between cash book balance and a bank statement balance of an entity for the same period. (4 Marks)

d. Josphat Plc has a debit balance of ₦11,720,000 in its bank column of the cash book at the end of March 2017 and the balance on the bank statement at the end of same month is ₦12,854,000.

On reconciling the account, the following were highlighted.
- Cheques amounting to ₦4,475,000 issued to suppliers have not been presented to the bank as at that date.
- A cheque with an amount of ₦1,500,000 issued to a supplier from the account was dishonoured by the bank and a replacement cheque from another account had been issued to the supplier.
- Bank charges totalling ₦265,000 are on the bank statement.
- A customer with whom direct lodgement was arranged paid into the account ₦2,674,000 and information on it is only on the bank statement.
- The account was overdrawn for about 10 days and the bank interest charged totalled ₦150,000.
- The bank transferred ₦4,500,000 to the insurance company for group personal accident insurance of staff based on previous standing order with the bank.
- The outstanding lodgements not yet credited by the bank at the end of the month totalled ₦2,600,000

Required:
i. Prepare an adjusted cash book balance for Josphat Plc, and   (5 Marks)

ii. Bank reconciliation statement for the month ended 31 March 2017.
(5 Marks)
(Total 20 Marks)

QUESTION 6

The following information was extracted from the books of Super Limited as at 1 July 2015

	Dr ₦	Cr ₦
Property at cost	6,000,000	
Plant and machinery at cost	2,419,000	
Motor vehicles at cost	585,000	
Accumulated depreciation on:		
Property		1,200,000
Plant and machinery		687,000
Motor vehicles		210,000

During the year, the following transactions took place:
(1) Additions to plant ₦231,000
(2) Plant which cost ₦415,500 with accumulated depreciation of ₦293,000 was sold for ₦129,000.

(3)   The company bought a new car costing ₦61,500 and was given in a part-exchange allowance against an old car at a value of ₦15,871. The car being part exchanged originally cost ₦55,548 and had an accumulated depreciation of ₦39,536.

(4)   Depreciation is charged at the following rates:
   i. Property 2% per annum straight line
   ii. Plant 20% per annum straight line
   iii. Motor vehicle 25% per annum reducing balance

Required:

a. i.   Calculate the gain or loss on disposal of plant and the old car.
                                                                          (4 Marks)
   ii.   Show the disclosure under IAS 16-Property, Plant and Equipment in relation to the non-current assets.   (8 Marks)

b.   IAS 2-Inventory states that inventory should be valued at the lower of cost and net realisable value.

      Required:
      i.   Explain cost and net realisable value in this context.   (4 Marks)

      ii.   Describe **TWO** methods of arriving at cost of inventory which are acceptable under IAS 2   (4 Marks)
                                                              (Total 20 Marks)

PART I- MULTIPLE CHOICE QUESTIONS

1.   B

2.   E

3.   C

4.   E

5.   E

6.   A

7.   C

8.   D

9.   D

10.   D

11.   B

12.   B

13. E

14. B

15. C

16. B

17. C

18. C

19. A

20. B

Tutorial

12. Closing Inventory

	N'000
Opening Inventory	495
Purchases	1,870
Carriage inward	11
	2,376
Closing inventory (balancing figure)	396
Cost of sales (*)	1,980

*Note: Cost of sales

	N'000
Sales	2,640
Gross profit (25% x 2,640)	(660)
Cost of sales	1,980

20. **Life membership fees**
Method 1

	N'000	N'000
Received in Year 1	3,000	
Recognised annually	3,000	
	10	300
Received in Year 2	11,600	
Recognised annually	11,600	
	10	1,160
		1,460

Method 2

Add (N3,000,000 and N11,600,000) since the life membership fees are

$$\frac{\text{Add (N3,000,000 and N11,600,000)}}{10}$$

recognised on straight line basis = N1,460,000

The questions cover all the areas of the syllabus. All candidates attempted the questions and performance was above average.

Candidates are advised to ensure coverage of the syllabus to enhance their performances in this section.

SOLUTION 1 In the books of Bravo Enterprises

Dr   **Capital Account**   **Cr**

		₦'000			₦'000
Jan. 31	Balance c/d	20,000	Jan 1	Cash	20,000
			Feb. 1	Balance b/d	20,000

Dr   **Office Building Account**   **Cr**

		₦'000			₦'000
Jan 4	Bank	8,000	Jan 31	Balance c/d	8,000
Feb 1	Balance b/d	8,000			

Dr   **Sales Account**   **Cr**

		₦'000			₦'000
Jan. 31	Balance c/d	6,000	Jan 9	Cash	2,000
			Jan 9	Bayo	1,500
			Jan 11	Cash	1,500
			Jan 18	Bayo	1,000
		6,000			6,000
			Feb 1	Balance b/d	6,000

Dr   **Bayo (Trade Receivables) Account**   **Cr**

	₦'000		₦'000

Jan 9	Sales	1,500	Jan 15	Bank	800
Jan 18	Sales	1,000	Jan 21	Bank	660
			Jan 21	Discount allowed	40
		_____	Jan 31	Balance c/d	1,000
		2,500			2,500
Feb 1	Balance b/d	1,000			

Dr		Delivery Van Account			Cr
		N'000			N'000
Jan 6	Bank	3,000	Jan 31	Balance c/d	3,000
Feb 1	Balance b/d	3,000			

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Dr		Purchases Account				Cr
		N'000				N'000
Jan 7	Bank	2,000	Jan 9	Balance c/d		4,900
Jan 11	Gubio	900				
Jan 12	Cash	500				
Jan 12	Bank	1,500				____
		4,900				4,900
Feb 1	Balance b/d	4,900				

Dr		Electricity Expenses Account				Cr
		N'000				N'000
Jan 16	Bank	120	Jan 31	Balance c/d		120
Feb 1	Balance b/d	120				

Dr		Power Plant Account				Cr
		N'000				N'000
Jan 17	Cash	2,500	Jan 31	Balance c/d		4,000
Jan 17	Jaico Power Solution	1,500				____
		4,000				4,000
Feb 1	Balance b/d	4,000				

Dr		Drawings Account				Cr
		N'000				N'000
Jan 25	Cash	160	Jan 31	Balance c/d		160
Feb 1	Balance b/d	160				

Dr   **Salaries Account**   **Cr**

		₦'000			₦'000
Jan 25	Cash	540	Jan 31	Balance c/d	540
Feb 1	Balance b/d	540			

Dr   **Gubio (Trade Payable) Account**   **Cr**

		₦'000			₦'000
Jan 14	Returns	5	Jan 11	Purchases	900
Jan 31	Bal c/d	895			
		900			900
			Feb 1	Balance b/d	895

Dr   **Jaico Power Solutions (Other payables) Account**   **Cr**

		₦'000			₦'000
Jan 31	Balance c/d	1,500	Jan 17	Power plant	1,500
			Feb 1	Balance b/d	1500

Dr   **Return Outwards Account**   **Cr**

		₦'000			₦'000
Jan 31	Balance c/d	5	Jan 14	Gubio	5
			Feb 1	Balance b/d	5

Dr   **Discount Allowed Account**   **Cr**

		₦'000			₦'000
Jan 21	Bayo	40	Jan 31	Balance c/d	40
Feb 1	Balance b/d	40			

Bravo enterprises

Cash Account for the Month of January

Date Jan	Particulars	folio	Cash ₦'000	Bank ₦'000	Date Jan	Particulars	Folio	Cash ₦'000	Bank ₦'000
3	Capital		20,000		4	Bank	©	18,000	
4	Cash	©		18,00	4	Office			8,000
9	Sales		2,000	0	6	building			3,000
11	Sales		1,500		7	Delivery van			2,000
11	Cash	©			11	Purchases	©	1,500	
15	Bayo			1,500	12	Bank		500	1,500
21	Bayo			800	16	Purchases			120
				660	17	Electricity			2,500
					25	Power plant		540	
					25	Salaries		160	3,840
					31	Drawings		2,800	
			23,500	20,96 0		Balance c/d		23,500	20,960
Feb									
1	Balance b/d		2,800	3,840					

EXAMINER'S REPORT

The question tests candidates' understanding of posting of transactions to appropriate ledger accounts, adopting knowledge of double entry principles.

Over 90% of the candidates attempted the question and performance was above average.

Commonest pitfalls are:

a.   Some candidates omitted thousand Naira "₦'000" on top of their solution where applicable.

b.   Posting debit entries for credit entries and vice-versa.

These errors resulted in loss of marks for candidates involved.

Candidates are advised to be careful and ensure currency used in the question are replicated in their solutions. They should also practise double-entry principles with past question papers and ICAN Study Texts.

	Marks
Capital account	1
Sales account	2
Bayo account	1
Office building	1
Delivery van account	1
Purchases account	2
Electricity	1
Power plant account	1
Drawings account	1
Salaries account	1
Gubio (Payables) account	1
Jaico power solution (Payable)	1
Returns outwards	1
Discount allowed	1
Cash account	2
Bank account	2
Total	**20**

SOLUTION 2

Musa and Etim Partnership Accounts
Statement of profit or loss for the year ended 31 December, 2016

	N'000	N'000
Revenue		272,000
Cost of sales(w1)		(213,000)
Gross profit		59,000
Other income (w4)		500
Operating expenses (w2)		(47,500)
Profit for the year	(3,000)	12,000
Appropriation of profit:	(3,000)	
Partners' Salaries-Musa		
-Etim	3,600	(6,000)
		6,000
Share of profit- Musa $^3/_5$ x N6m		
- Etim $^2/_5$ x N6m		(6000)
	2,400	

Partners' Current Accounts

	Musa	Etim		Musa	Etim

	₦'000	₦'000		₦'000	₦'000
Drawings	6,600	5,000	Balance b/d	4,000	2,800
Balance c/d	4,000	3,200	Salaries	(3,000)	(3,000)
			Share of profits	(3,600)	(2,400)
	10,000	7,800		10,600	8,200
			Balance b/d	4,000	3,200

WORKINGS

1. COST OF SALES

	₦'000
Opening inventory	15,000
Purchases	190,000
Wages	20,000
	225,000
Closing inventory	(12,000)
Cost of sales	213,000

2. OPERATING EXPENSES

		₦'000
Salaries		25,000
General expenses		10,000
Telephone expenses		3,750
Depreciation:		
Plant	20% x ₦25m	5,000
Motor vehicles	25% x ₦15m	3,750
		47,500

3. ALLOWANCES FOR DOUBTFUL DEBT

	₦'000
Balance b/f	1,500
For the year 5% x ₦20m	1,000
Decrease	500

4. OTHER INCOME

	₦'000
Decrease in Allowances for doubtful debts (w3)	500

EXAMINER'S REPORT

The question examines candidates' understanding of the preparation of Partnership's Statement of Profit or Loss and Partner's current accounts.

About 80% of the candidates attempted the question and performance was average.

Few candidates lost marks to carelessness by not indicating the currency stated in the question as well as not stating it in thousands (₦'000).

Candidates performance will improve by exercising due care and patience before proffering solution to questions. Candidates should use ICAN materials (Study Text and Past Pathfinders) in practising related partnership questions.

Marking guide

	Marks	Marks
Revenue	$1/_3$	
Cost of sales	2	
Gross profit	$2/_3$	
Operating expenses	3	
Other income	1	
Appropriation of profits	<u>3</u>	
		10
Current accounts		<u>10</u>
Total		<u>20</u>

SOLUTION 3

<div align="center">

Etuk Limited
Statement of Cash Flows for the year ended 31 December, 2016
</div>

	₦'000	₦'000
Cash flow from operating activities:		
Profit before tax		280
Adjust for items not involving cash movement:		
Finance cost	559	
Depreciation Charged (wks 3)	894	
Profit on disposal of PPE (wks 4)	<u>(55)</u>	1,398
Movement in working capital:		
Increase in Inventory (358-207)	(151)	
Increase in Trade Receivables (335-223)	(112)	
Increase in Trade Payables (184-179)	<u>5</u>	<u>(258)</u>
Cash from operating activities		1,420
Finance interest paid	(559)	
Tax paid (wks 5)	<u>(151)</u>	<u>(710)</u>
Net cash from Operating activities		710
Cash flow from investing activities:		
Purchase of PPE (wks 2)	(2,701)	
Proceeds from sale of PPE (wk 4)	<u>186</u>	
Net cash used in investing activities		(2,575)
Cash flow from financing activities:		

Cash proceeds from issue of shares (wks 6)	1,116	
Dividend paid (wks 6)	(67)	
Cash paid to redeem pref. shares (wks 6)	(232)	
Cash received from issue of debenture (1676 -838)	838	
Net cash generated from financing activities		1,655
Net cash and cash equivalent for the year		(150)
Cash and cash equivalents Jan 1 (wks 1)		(33)
Cash and cash equivalents Dec 31 (wks 1)		(183)

Workings

1. Cash and Cash Equivalent

	Closing N'000	Opening N'000
Cash and Cash Equivalent	84	112
Bank Overdraft	(267)	(145)
	(183)	(33)

2. Property, Plant and Equipment

	N'000
Opening balance	5,586
Disposal	(466)
	5,120
Addition (balancing figure)	2,701
Closing balance	7,821

3. Depreciation

	N'000
Opening balance	1,284
Disposal	(335)
	949
Charge for the year (balancing figures)	894
Closing balance	1,843

4. Disposal of PPE

	N'000
Sales proceed	186
Carrying amount	(131)
Profit on disposal	55

5. Taxation

	N'000
Opening balance	151
Charge for the year	140
	291
Tax paid (balancing figure)	(151)
Closing balance	140

6. Statement of Changes in Equity

	Ordinary shares	Irredeemable Preference share	Retained earnings	Total
	₦'000	₦'000	₦'000	₦'000
Opening balance	2,794	670	67	3,531
Profit for the year			140	140
Dividend paid			(67)	(67)
Issues of shares	1,116			1,116
Redemption of shares		(232)		(232)
	3,910	438	140	4,488

OR

		₦'000		₦'000
(a)	Issue of shares	3,920 – 2,794	=	1,116
(b)	Redemption of shares	438 – 670	=	(232)
(c)	Dividend paid	67 + 140 – 140	=	(67)

EXAMINER'S REPORT

The question tests candidates understanding of the preparation of statement of cash flow adopting indirect method.

About 10% of the candidates attempted the question and performance was below average.

Most candidates displayed lack of understanding of the principles adopted in the preparation of statement cash flows, especially where the figures to be used in the answer were derived from additional information given in the question e.g. disposal and depreciation of Property, Plant and Equipment.

Candidates are advised to use the ICAN Study Text to gain understanding of the principles involved in the preparation of statement of cash flows and practise with Institute's Pathfinders.

Marking guide

	Marks
Cash flow from operating activities	10
Cash flow from investing activities	2½
Cash flow from financing activities	4
Cash and cash equivalents	3½
	20

SOLUTION 4

a. Day books are memorandum records where financial transactions are recorded immediately they occur.

They are the books in which transaction are first recorded before they are transferred to the ledger. Day books are important and necessary for companies with large volume of transactions.

b. i. **Sales daybook** – This is the book that records daily credit sales. They are recorded from the duplicate of invoices issued to customers. Periodically the total in this book is transferred to the credit side of the sales ledger while individual accounts are debited in trade receivables accounts.

ii. **Purchases daybook** – This is the daybook used to record all daily credit purchases for which the total is debited to the purchases ledger at regular intervals and credited to each supplier's account in the trade payables ledger. The source document for the purchase day book is the incoming invoice from the supplier.

iii. **Sales returns daybook** – The sales returns book is written up from the copies of the credit notes sent to customers. At the end of the month, the total of the sales returns books is debited to the sales returns account in the nominal ledger. A credit is made in the personal account of the customer in the trade receivables ledger.

iv. **Purchases Returns daybook** – The purchases returns daybook is written up from the credit notes received from suppliers. At the end of the month, the total of the purchases returns book is credited to the purchases returns account in the nominal ledger. A debit entry is made in the personal account of the supplier in the trade payables ledger.

c. **Akinola**
   Journal Entries for the month of January, 2017

Date	Particulars	Dr.	Cr.
2017		₦'000	₦'000
Jan 1	Cash account	50	
	Bank account	150	
	Receivables account	300	
	Inventory account	100	
	Capital – Equity account		600
	Assets and equity as at January 1, 2017		
Jan 2	Purchases account	70	
	Cash account		70
	Purchase of goods by cash		
Jan 5	Purchases account	500	

25

	Trade payables – Falaye's account		500
	Purchases of goods on credit from Falaye		
Jan 9	Shop fittings account	27	
	Bank account		27
	Purchase of shop fitting by cheque		
Jan 15	Trade receivables – Dele's account	100	
	Revenue account		100
	Goods sold on credit to Dele		
Jan 16	Trade payables – Falaye's account	400	
	Bank account		400
	Cheque paid to supplier - Falaye		
Jan 20	Purchases account	140	
	Trade payables – Bunmi B's account		140
	Purchase of goods on credit from Bunmi		
Jan 25	Trade receivables – J. Sola's account	150	
	Revenue account		150
	Goods sold on credit to J. Sola		
Jan 28	Accounting Machine account	70	
	Bank account		70
	Purchases of accounting machine by cheque		

EXAMINER'S REPORT

The question examines the basic concepts of day books and also requires candidates to use journal entries to record opening balances and transactions and events for a particular period.

More than 96% of the candidates attempted the question and performance was above average.

However, few candidates did not know how to raise journals rather they prepared trial balance or ledger, while some others debited the accounts that ought to be credited and vice-versa.

Candidates are advised to study and understand journal entries including narration.

Marking guide

		Marks	Marks
(a)	i. Definition of day book	1	
	ii. Main purpose	1	2
(b)	Meaning of sales day book	1	
	Closed to sales ledger	1	2
	Meaning of purchases ledger	1	
	Closed to purchases ledger	1	2

Meaning of sales returned book		1	
Balance to sales returns ledger		<u>1</u>	2
Meaning of purchases returns day book		1	
Balance to purchase return ledger		<u>1</u>	<u>2</u>
			10
(c)	Journal entries	7	
	Narration	<u>3</u>	<u>10</u>
	Total		<u><u>20</u></u>

SOLUTION 5

(a)   Bank reconciliation

Bank reconciliation compares the balance on the cash book (bank column) with the balance on the bank statement at a given point in time and explain reasons for differences between them. Bank reconciliation is useful to check on the accuracy of accounting records for cash in the bank.

(b)   Steps to be taken to carry out bank reconciliation

i.   Tick items on the debit side of the cash book against items on the credit side of the bank statement. Outstanding items on the debit side of the cash book, but missing on the credit side of the bank statement are uncredited cheques. List them.

ii.   Tick items on the credit side of the cash book against items on the debit side of the bank statement. Outstanding items on the credit side of the cash book, but missing on the debit side of the bank statement are unpresented cheques. List them.

iii.   The remaining items on the debit side of bank statement are bank charges and standing order. List them.

iv.   The remaining items on the credit side of the bank statements are amounts paid into the bank directly by the entity customers (i.e direct credits). List them.

v.   After these adjustments, reconciliation should be possible unless there are errors which will be revealed by further investigations and traced back to their sources.

(c)   The following are the reasons why there may be differences between the cashbook balance and a bank statement balance of an entity for the same period:

i.   Unpresented cheque

ii. Uncredited lodgement

iii. Bank charges

iv. Standing order

v. Dishonoured cheque

vi. Commission on turnover

vii. Credit transfer

viii. Bank error

ix. Cashier error
x. Dividend received

xi. Direct transfers

D.

Josphat Plc
Adjusted Cashbook As At 31 March, 2017

	₦'000		₦'000
Balance b/f	11,720	Interest charge on Overdraft	150
		Standing order (Insurance	
Direct Lodgement	2,674	Premium)	4,500
Dishonoured cheque			
replaced	1,500	Bank charges	265
		Balance c/d	10,979
	15,894		15,894
Balance b/d	10,979		

Bank Reconciliation Statement As At 31 March, 2017

	₦'000
Balance as per bank statement	12,854
Add: Uncredited lodgement	2,600
	15,454
Less: Unpresented cheques	4,475
Balance as per Adjusted Cashbook	10,979

OR

	₦'000
Adjusted cash book balance	10,979
Add: Unpresented cheques	4,475
	15,454
Less: Uncredited lodgements	2,600
Balance as per bank statement	12,854

EXAMINER'S REPORT

The question examines candidates understanding and preparation of bank reconciliation statement.

About 86% of the candidates attempted the question and performance was fair.

The candidates' commonest pitfall includes the following:

- Failure to indicate presentation currency while preparing bank reconciliation statement.

- Some candidates could not state the procedures involved in carrying out bank reconciliation.

Candidates are advised to read their ICAN Study Text in order to learn and understand the steps involved in preparing bank reconciliation statement.

Marking guide

		Marks	Marks
(a)	Bank reconciliation cash book and bank statement balances	1	
	Bank reconciliation check accuracy of accounting records	1	2
(b)	Steps involved in carrying out bank reconciliation		4
(c)	Reasons for differences between bank statement and Cash book balances		4
(d) i.	Adjusted cash book	5	
ii.	Bank reconciliation statement	5	10
			20

SOLUTION 6

a.   **Super Limited**

      i. <u>Gain or loss on disposal of plant</u>

	₦	₦
Sales Proceed		129,000
Deduct Carrying value:		
Cost	415,500	
Accumulated depreciation	(293,000)	(122,500)
Gain on disposal		6,500

<u>Gain or loss on disposal of old car</u>

	₦	₦
Exchange value		15,871
Deduct Carrying value:		

Cost	55,548		
Accumulated depreciation	(39,536)		(16,012)
Loss on disposal			(141)

ii. Schedule of Property, Plant and Equipment

	Property ₦	Plant and Machinery ₦	Motor Vehicles ₦	Total ₦
Cost:				
Balance (01/07/15)	6,000,000	2,419,000	585,000	9,004,000
Addition	NIL	231,000	61,500	292,500
Disposal	NIL	(415,500)	(55,548)	(471,048)
Balance (30/06/16)	6,000,000	2,234,500	590,952	8,825,452
Depreciation:				
Balance (01/07/15)	1,200,000	687,000	210,000	2,097,000
Charge for the year (wks 1-3)	120,000	446,900	95,238	662,138
Disposal	NIL	(293,000)	(39,536)	(332,536)
Balance (30/06/16)	1,320.000	840,900	265,702	242,6602
Carrying Value (30/06/16)	4,680,000	1,393,600	325,250	6,398,850
Carrying Value (01/07/15)	4,800,000	1,732,000	375,000	6,907,000

Workings

Depreciation Charge for the year

1. Property = 2% x 6,000,000 = ₦120,000

2. Plant and Machinery = 20% x 2,234,500 = ₦446,900

3. Motor Vehicles   ₦
   Cost (30/06/16)   590,952
   Accumulated Depreciation   (210,000)
                                               380,952
   Depreciation @ 25%   95,238

b. i. **Cost**
    This comprises cost of purchase, cost of conversion, and other costs incurred in bringing inventories to their present location and condition.

    Net Realisable Value
    This is the estimated selling price in the ordinary course of business

less estimated costs necessary to make the sale, less estimated costs of completion (for work in progress).

ii.   Methods of arriving at cost of inventory according to IAS2 are:

- First In First Out (FIFO) Method
- Weighted Average Cost Method

- **FIFO Method**
  Under this method, it is assumed that inventory is consumed in the strict order in which it was purchased or manufactured. The first items that are received into store are the first items to go out.

- **Weighted Average Cost Method**
  Under this method, it is assumed that all units are issued at current weighted average cost per unit. A new average cost is calculated whenever more items are purchased and received into store.

EXAMINER'S REPORT

The question examines candidates' ability to prepare profit or loss on the sale of Property, Plant and Equipment (PPE) and the disclosure requirement of PPE in the financial statement.

About 30% of the candidates attempted the question and performance was below average.

Candidates' failure was due to their inability to prepare the profit or loss on disposal disclosure notes to PPE and their inability to prepare the schedule for PPE.

Candidates are advised to always study their ICAN Study Text and review past questions on Financial Accounting at their level to get a good understanding on how to account for PPE.

Marking guide

			Mark	Mark
(a)	i.	Gains or loss on disposal of plant	2	
		Gain or loss on disposal of old car	2	4
	Ii,	Disclosure of PPE under IAS 16		8
(b)	i.	Explanation of cost	2	
		Explanation of net realisable value	2	4
	ii.	FIFO method of arriving at cost	2	
		Weighted average method of arriving at cost	2	4
				20

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA
FOUNDATION LEVEL EXAMINATION - NOVEMBER 2017

MANAGEMENT INFORMATION
Time Allowed: 3¼ hours (including 15 minutes reading time)

SECTION A: **MULTIPLE - CHOICE QUESTIONS**   **(20 MARKS)**

INSTRUCTION: YOU ARE REQUIRED TO ANSWER ALL QUESTIONS IN THIS SECTION

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

1.   In process costing, normal loss means
    A.   Waste materials that employees are allowed to take home
    B.   A reasonable amount of materials which can be lost without investigation
    C.   Unavoidable losses arising from the nature of the production process
    D.   Materials reserved from each production run for distribution at year - end
    E.   Loss in production during power outages

2.   What are Joint Products?
    A.   The total number of products being manufactured by the same factory
    B.   Multiple products being generated by a single production process at the same time
    C.   Products which must be manufactured jointly because they are complementary
    D.   A major product and its secondary product
    E.   Products being manufactured by related companies

3.   What is Contribution?
    A.   Sales minus fixed costs
    B.   Sales minus gross profit
    C.   Sales minus variable costs
    D.   Gross profit minus net profit
    E.   Fixed costs minus variable costs

4.   Short-term decisions for which marginal costing techniques are employed do **NOT** include **ONE** of the following
    A.   Make or buy
    B.   Special order
    C.   Discontinuing a product line
    D.   Improving product quality
    E.   Optimum product mix

5. What is the main feature of a flexible budget?
   A. It adjusts for changes in the volume of activity
   B. It adjusts for changes in money supply
   C. It is reviewed every month
   D. It is concerned only with cost and not revenue
   E. It does not require comparison with actual at period end

6. At Break-Even Point, a company makes
   A. Much profit
   B. Much loss
   C. Little profit
   D. Little loss
   E. Neither a profit nor a loss

7. Margin of Safety can be explained simply as
   A. The amount of profit beyond the Break-Even Point
   B. The highest profit a company can make
   C. The amount of sales above the Break-Even Point
   D. The point where the company makes neither a profit nor a loss
   E. The point where it is safe to make extra investments

8. What is Abnormal Loss in process costing?
   A. Losses in production due to deliberate wastage
   B. Losses in production due to theft
   C. Production losses beyond the level regarded as normal wastage in the particular industry
   D. Production losses which cannot be explained
   E. Losses in production due to poor quality material

9. What is Differential cost?
   A. Cost of a material similar to the one presently in use
   B. Additional cost of introducing a new product line
   C. The difference between the cost of two alternative decisions, or of a change in output levels
   D. The difference between the cost of an existing product and a similar product being manufactured by a competitor
   E. The cost of closing down a business

10. Uniform Costing is the application of the same accounting and costing principles, methods or procedures uniformly
    A. Throughout a year
    B. Throughout all functions of the business
    C. By various undertakings in the same industry
    D. By companies under the same ownership
    E. By all industries operating within a country

11. Which costing method is most appropriate for use in a cement industry?
    A. Process costing
    B. Batch costing
    C. Job costing
    D. Contract costing
    E. Service costing

12. Which of the following costs is **NOT** associated with high labour turnover?
    A. Cost of hiring new employees
    B. Cost of training
    C. Cost of welfare packages
    D. Learning curve
    E. Possible loss of business

13. Which of the following is **NOT** a characteristic of Primary Storage?

    A. Directly accessible by the CPU
    B. Stores data and instruction for processing
    C. Larger than the secondary storage
    D. Content is erased when power is put off
    E. Much quicker to access

14. Which of the following reflects a high level of understanding that requires a sense of good and bad, right and wrong, and ethics?
    A. Knowledge
    B. Information
    C. Wisdom
    D. Decision
    E. Data

15. The network protocol used for exchange and manipulation of files over a computer network such as the internet is known as
    A. HTTP (Hypertext Transfer Protocol)
    B. FTP ((File Transfer Protocol)
    C. IMAP (Internet Message Access Protocol)
    D. TCP (Transmission Control Protocol)
    E. SOAP (Simple Object Access Protocol)

16. Which of the following categories is **NOT** among the results that may be obtained from data mining?
    A. Association
    B. Sequence
    C. Clustering
    D. Forecasting
    E. Frequency

17. The major components of information strategy are information management strategy, information systems strategy and
    A. Corporate strategy
    B. Business strategy
    C. Information technology strategy
    D. Automation strategy
    E. Information strategy

18. The type of processing where more than one job/task are processed using only one processor is known as
    A. Multi-tasking
    B. Multi-processing
    C. Multi-programming
    D. Distributed processing
    E. Decentralised processing

19. Which of the following computer and network issues determines network topology?
    A. Configuration or structure of the connection between computers
    B. Distance between communication nodes
    C. Network transmission rates
    D. Communication signal types between nodes
    E. Types of cable used for connection

20. When a new computer is developed and implemented, various costs are incurred. Which of the following costs is **NOT** classified as capital cost?
    A. Hardware costs
    B. Software costs
    C. Wiring and network installation costs
    D. Staff Training costs
    E. Other new equipment costs

SECTION B: **OPEN – ENDED QUESTIONS**   **(80 MARKS)**

INSTRUCTION: **YOU ARE REQUIRED TO ANSWER ANY FOUR OUT OF SIX QUESTIONS IN THIS SECTION**

QUESTION 1

MICRA Manufacturing Company makes a product named 'VATA'. The records of some of the manufacturing expenses are easily identified as fixed or directly variable with production. The Cost Accountant of the company is faced with the problem of preparing a budget for the coming year and wishes to determine the fixed and variable elements of the mixed factory overhead.

The following monthly information in respect of output and mixed factory overhead are provided as follows:

MONTH	NUMBER OF UNITS(x)	MIXED FACTORY OVERHEAD(y) ₦
JANUARY	150	80
FEBRUARY	200	100
MARCH	300	135
APRIL	250	125
MAY	300	130
JUNE	250	120
JULY	350	140
AUGUST	300	125
SEPTEMBER	250	115
OCTOBER	150	80

Required:
Calculate the fixed and variable elements of the above mixed factory overhead using:
i.   The high and low method   (5 marks)

ii. The linear regression analysis and determine the line of best fit.   (15 marks)
                                                                    (Total 20 Marks)

QUESTION 2

The following data represent the projections made by ROSCO LIMITED for the coming year:

• It plans to sell 300,000 units of Product A at a unit price of ₦30, 400,000 units of Product B at ₦25 per unit and 500,000 units of Product C at ₦20 per unit.

- To produce one unit of Product A, the company requires 2 units of Material X, 2 units of Material Y and 3 units of Material Z.
- To produce one unit of Product B, the company requires 3 units of Material X, 2 units of Material Y and 1 unit of Material Z.
- To produce one unit of Product C, the company requires 1 unit each of Materials X, Y and Z.
- Material X costs ₦1.50 per unit, while Material Y costs ₦1.80 each and Material Z costs ₦2 per unit.

You are required to prepare the following:

a. Sales Budget in Naira   (6 Marks)
b. Materials Budget in Units   (10 Marks)
c. Material Purchases Budget in Naira   (4 Marks)
                                                                                    (Total 20 Marks)

QUESTION 3

BAKA LIMITED has the following trading results:

	₦	₦
Sales : 500,000 Units at ₦40 per Unit		20,000,000
Variable Costs : 500,000 Units at ₦25 per Unit	12,500,000	
Fixed Costs	3,500,000	16,000,000
Net Profit		4,000,000

Due to acute competition, the company is contemplating a reduction in prices.

Required:
If the present level of profit is to be sustained, indicate the number of units to be sold under the different scenarios of 5%, 8% and 12% reduction in unit selling prices.

                                                                                    (Total 20 Marks)

QUESTION 4

a.   Write brief notes on each of the following:
   i.   Just- In-Time Systems   (2 Marks)
   ii.   Backflush Accounting   (2 Marks)
   iii.   Lifecycle Costing   (2 Marks)
   iv.   Cost Audit   (2 Marks)
   v.   Value Engineering   (2 Marks)

b.

       i.   List and explain **FOUR** output devices.   (8 Marks)

      ii   Explain **TWO** limitations of Disk Operating System (DOS).   (2 Marks)

                   (Total 20 Marks)

QUESTION 5

a.   Define On-line Real-Time Processing and state **TWO** examples.   (5 Marks)

b.   Explain the term "help desk"   (3 Marks)

c.   State **FIVE** advantages of using an Interpreter instead of a Compiler translation program.   (10 Marks)

d.   Define the term "firewall".   (2 Marks)

                   (Total 20 Marks)

QUESTION 6

a.   Describe Private Automatic Branch Exchange (PABX).   (5 Marks)

b.   List and explain briefly **FOUR** computer network protocols.   (6 Marks)

c.   List and explain **FOUR** components of a Local Area Network (LAN).   (6 Marks)

d.   Identify **THREE** differences between Internet and the World Wide Web.

                   (3 Marks)

                   (Total 20 Marks)

SECTION A – MULTIPLE CHOICE SOLUTIONS

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

EXAMINER'S REPORT

Section A

Multiple Choice Questions

The Multiple Choice Questions cover the entire syllabus.

Almost all the candidates attempted this section of the paper and performance was quite good as more than half of the candidates scored 50% or more of the marks allocated.

For future examination, candidates are advised to cover the entire syllabus, read ICAN Study Text and practice past questions.

SOLUTION 1

MICRA MANUFACTURING COMPANY

(i)   **COMPUTATION OF FIXED AND VARIABLE ELEMENTS OF MIXED FACTORY OVERHEAD USING HIGH AND LOW METHOD**

	OUTPUT (X)	MIXED FACTORY OVERHEAD (₦)
Highest level	350	140
Lowest level	150	80
Difference	200	60
Variable rate = 60/200		= ₦0.30/unit

(ii)

SEPARATION OF FIXED AND VARIABLE COSTS FROM TOTAL COST

	Highest level		Lowest level
	₦		₦
Total mixed factory overhead	140		80
Total variable cost (₦0.30 x 350)	105	(₦0.30 x 150)	45
Fixed cost	35		35

Alternative Solution

Y = a + bx where

Y = Total cost

a = Fixed cost

b = Variable cost/unit

x = Activity level

   Y = a + ₦0.30 (150)

   80 = a + ₦0.30 (150)

   80 − 45 = a

   a = ₦35

Using Regression Analysis method

Line of Best fit

Month	X	Y	X²	XY
January	150	80	22,500	12,000
February	200	100	40,000	20,000
March	300	135	90,000	40,500
April	250	125	62,500	31,250
May	300	130	90,000	39,000
June	250	120	62,500	30,000
July	350	140	122,500	49,000
August	300	125	90,000	37,500
September	250	115	62,500	28,750
October	<u>150</u>	<u>80</u>	<u>22,500</u>	<u>12,000</u>

$$\sum x = 2,500 \quad \sum y = 1,500 \quad \sum x^2 = 665,000 \quad \sum xy = 300,000$$

Formula for the line of best fit

Y = a + bx where

Where y = Dependent variable
         x = Independent variable
         a = Fixed element
         b = Variable element

$$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2} = \frac{10(300,000) - (2,500x1,150)}{10(665,000) - (2,500)^2}$$

$$b = \frac{300,000 - 2,875,000}{6,650,000 - 6,250,000} = \frac{125,000}{400,000} == 0.3125$$

$$a = \frac{\sum y}{n} - \frac{b\sum x}{n} = \frac{1,150}{10} - \frac{0.3125(2,500)}{10}$$

a = 115 − 78.125

a = ₦36.875 − Fixed element

Therefore Y = a + bx, the line of best fit is

Y = ₦36.875 + 0.3125 (x)

EXAMINER'S REPORT

This question tests candidates' understanding of the High/Low and the Regression Analysis methods of splitting total costs into fixed and variable components.

This question appears popular as about 99% of the candidates attempted it.

Performance was very good with about 85% of candidates who attempted the question scoring 50% and above.

Common pitfalls include mix-up in the use of formulae and errors in addition.

For improved performance in future, candidates are advised to use ICAN Study Text.

		MARKS	MARKS
MARKING GUIDE			
i.	Heading	1	
	High Level Output	½	
	High Level Overhead	½	
	Low Level Overhead	½	
	Low Level Output	½	
	Variable Rate	½	
	Total Overhead High Level	½	
	Total Variable Cost	½	
	Fixed Cost	½	5
ii.			
	x^2 for January to October (10 Ticks)	5	
	xy for January to October (10 Ticks)	5	
	$\sum$ for x, y, x^2 and xy (4 Ticks)	2	
	Substitution of y = a + bx =		
	b (3 Ticks)	1½	
	a (3 Ticks)	1½	15
	Total		20

SOLUTION 2

(a) ROSCO LIMITED

Sales Budget (in Naira)

Product	Units	SP ₦	Sales (₦)
A	300,000	30	9,000,000
B	400,000	25	10,000,000
C	500,000	20	10,000,000
Budgeted sales			29,000,000

(b)

Materials Budget (in Units)

Product	Qty	Qty/Unit	MAT. X	Qty/Unit	MAT Y	Qty/Unit	MAT. Z
A	300,000	2	600,000	2	600,000	3	900,000
B	400,000	3	1,200,000	2	800,000	1	400,000
C	500,000	1	500,000	1	500,000	1	500,000
			2,300,000		1,900,000		1,800,000

Please note that there were neither opening nor closing stocks.

(c)

COMPUTATION OF
Material Purchases Budget (in Naira)

	QTY	CPU ₦	TOTAL ₦
MAT X	2,300,000	1.5	3,450,000
MAT Y	1,900,000	1.8	3,420,000
MAT Z	1,800,000	2.0	3,600,000
			10,470,000

EXAMINER'S REPORT

The question tests candidates' ability to prepare sales and material purchases budgets.

About 90% of the population attempted the question and performance was good.

Not less than 60% of the candidates scored 70% and above.

Common pitfalls of candidates that did not do well include poor presentation and inability to differentiate between sales budget and material purchases budget.

For future examinations, candidates are advised to use recommended texts.

		MARKS	MARKS
a.	Sale Budget:		
	Product A	2	
	Product B	2	
	Product C	2	6
b.	Materials Budget in Units		
	Material x	3	
	Material y	3	
	Material z	3	
	Product A,B & C	1	10
C	Materials Purchase Budget		
	Quantities	1	
	Unit Costs	1	
	Totals	1	
	Grand Total	1	
			4
	Total		20

SOLUTION 3

BAKA LIMITED
MARGINAL COSTING STATEMENT
UNDER DIFFERENT SCENARIOS

	Current	1	2	3
	₦	₦	₦	₦
Selling price	40	40	40	40
Percentage reduction in price	-	5%	8%	12%
Adjusted selling price	40	₦38	₦36.80	₦35.20

CALCULATION OF CONTRIBUTION
SCENARIOS

	Current	1	2	3
	₦m	₦	₦	₦
Selling price per unit	40	38	36.80	35.20
Less variable cost/Unit	25	25	25	25
Contribution per unit	15	13	11.80	10.20

COMPUTATION OF NUMBER OF UNITS TO BE SOLD TO ACHIEVE THE TARGETED PROFIT

FORMULA   No of units $= \dfrac{Fixed\ cost + Targeted\ Profit}{Contribution\ per\ unit}$

At 5% price reduction $= \dfrac{₦3,500,000 + ₦4,000,000}{₦13}$

$$= \underline{576,923 units}$$

At 8% price reduction $= \dfrac{₦3,500,000 + ₦4,000,000}{₦11.80}$

$$= \underline{635,593 units}$$

At 12% price reduction $= \dfrac{₦3,500,000 + ₦4,000,000}{₦10.20}$

$$= \underline{735,294 units}$$

Tabular Analysis
Under Different Scenarios

	PRESENT PRICE	5% PRICE REDUCTION	8% PRICE REDUCTION	12% PRICE REDUCTION
No of Units	500,000	576,923	635,593	735,294
	₦	₦	₦	₦
Unit Selling Price	40	38	36.80	35.20
Sales	20,000,000	21,923,074	23,389,822	25,882,349
Less Variable Costs	12,500,000	14,423,074	15,889,822	18,382,349
Contribution	7,500,000	7,500,000	7,500,000	7,500,000
Less Fixed Costs	3,500,000	3,500,000	3,500,000	3,500,000
Net Profit	4,000,000	4,000,000	4,000,000	4,000,000

EXAMINER'S REPORT

The question tests candidates' understanding of Marginal Costing.

About 75% of the candidates attempted this question.

Performance was poor with about one third of the candidates who attempted the question scoring 50% or above.

The common pitfall was poor presentation.

Candidates are advised to get acquainted with universally accepted formats for presentation of solutions in the future.

MARKING GUIDE	MARKS	MARKS
Formula for determination of no. of units	5	
5% Price Reduction	5	
8% Price Reduction		
12% Price Reduction	5	
Total	<u>5</u>	
		<u><u>20</u></u>

SOLUTION 4

a. i   **JUST-IN-TIME (JIT) SYSTEMS**

JIT System was developed in Japan to contribute to the country's success in manufacturing processes. It seeks to eliminate the need to keep inventories thereby saving stockholding costs. As the name suggests, the objective is to produce or procure inventory right at the time they are required without compromising quality.

The following are the main goals of JIT:

- No opening or closing inventory
- Elimination of non-value adding activities
- No production wastages
- 100% on-time deliveries
- Batch sizes of one
- Demand-pull manufacture i.e. the production chain is activated real-time by demand.

ii.   **BACKFLUSH ACCOUNTING**

This is a product costing system which is generally used in a Just-In-Time inventory environment. Backflush costing delays the costing process to allow for the completion of production of goods. Costs are then "flushed" back at the end of the production run and assigned to other goods.

iii.   **LIFE CYCLE COSTING**

Life Cycle Costing captures all costs incurred on a product from the beginning to its very end. This begins with costs of research and development, plant and equipment, manufacturing, product development and promotions. The purpose is to ensure that the company should recover all such costs over the estimated number of units that it expects to sell over the lifecycle of the product.

iv.   **COST AUDIT**

Cost audit is the process of ascertaining whether the production, marketing and sales processes as well as other aspects of a business are managed in the most cost effective way. As a form of internal audit, its objective is to act as a tool for optimizing management efficiency. It does this by exposing unseen leaks in revenues or wastages in the employment of resources.

v.   **VALUE ENGINEERING**

Value engineering is an organized approach to the identification and elimination of unnecessary cost. It functions by validating each item of cost without compromising on the quality of the product.

Unnecessary costs are costs which neither provide use, life, quality, appearance nor customer features. Some tools of value engineering are:

- Cost-benefit analysis
- Investment appraisal
- Cash flow forecasting
- Lifecycle costing
- Evaluating alternative designs

b.(i)   **Computer Output devices include:**

- **Monitor**
  A monitor is like a television screen. It provides visual output from   the computer for texts and graphics. It offers temporary output as the image is lost when power is removed. Monitors can be external, such as those found attached to PCs, or can be integrated into the computer such as those with laptops and notebooks. Monitor is also known as Visual Display Unit (VDU) and it can either be monochrome or colour. The information displayed on the screen of the monitor is called softcopy output.

- **Computer Output on Microfilm/Microfich (COM)**
  It is used for archival purposes. It has a large capacity and is used in libraries.

- **Plotter**
  This produces fine printer output. It is used for drawing graphs.

- **Punched card/tape**
  They are used as Input/Output devices, but are now obsolete.

- **Printer**
  It is a device that prints output to a page (on paper). Printing can be in colour or 'black and white' depending on the printer type. The information printed on paper is hardcopy output. A number of different types of printer exist such as Dot Matrix printer, Daisy Wheel printer, Character printer, Laserjet printer, Inkjet printers. Printers are either impact or non-impact.

- **Speaker**
  A speaker is an audio output device that produces sound from the computer. The sound output is produced by a sound card. Speakers also produce softcopy output.

- **Projector**
  A projector is a variation of monitor that translates the digital output into a visual display directly onto a screen. It magnifies computer output so that it can be viewed by a group of people. It also produces softcopy output.

ii.   **Limitations of Disk Operating System (DOS) include:**
- Most contemporary programs such as PowerPoint, Outlook Express etc do not run on DOS.
- Disk Operating System does not provide functions with the ability to produce texts in different styles
- Disk Operating System does not provide a broad range of graphical functions for drawing lines with different styles and geometric shapes with different colours
- Disk Operating System is not compatible with current "browsers" and most internet resources
- Lack of memory protection
- Not used for multi-tasking
- It is not suitable for networking services
- Not user friendly

EXAMINER'S REPORT

a.   The question tests new developments in Cost Accounting. About 75% of the candidates attempted the question but performance was poor with just about 10% of them scoring 50% and above.

The common pitfall among candidates was lack of understanding of the requirements.

Candidates are advised to always understand the requirements of a question before attempting it in future.

b. The question tests computer Output Devices and Disk Operating System. About 70% of the candidates attempted the question and performance was good as about 70% of those who attempted it scored 50% and above.

Candidates are advised to ensure an in-depth coverage of this topic in future.

MARKING GUIDE			MARKS	MARKS
a.		Brief Notes		
	i.	Just-In-Time Systems	2	
	ii.	Backflush Accounting	2	
	iii.	Lifecycle Costing	2	
	iv.	Cost Audit	2	
	v.	Value Engineering	2	
				10
b.	i.	1 mark each for listing 4 output devices 1x4 = 4	4	
		1 mark each for defining 4 output devices 1 x4 = 4	4	
	ii.	1 mark each for 2 limitations 1x2 = 2	2	10
		Total		20

SOLUTION 5

a. **On-line real time processing**

It is a method whereby the computer processes data as it is entered and alters or updates the required file immediately. It is the processing of individual transactions as they occur through equipment that operates under the control of the central processor. Terminals are utilized to enter data since they provide immediate and direct input to the data processing flow, eliminating the need for manual transmittal. The speed of data collection and input is usually increased.

Examples:

i. On-line tracking of inventories for production and sales

ii. Cash withdrawal from automated teller machine

iii. On-line mobile money transfer

iv. Flight booking system at a travel agency

v. International hotel reservation

vi. E-commerce

vii. E-business

viii. Airplane Traffic Control

ix. Space Exploration

b. **Help Desk**
A help desk is a resource intended to provide the customer or <u>end-user</u> with information and support related to a company's or institution's products and services. The purpose of a help desk is usually in <u>troubleshooting</u> problems and to provide guidance about products from the company such as computers, electronic equipment, food, apparel, or software. It provides a single (or multiple) <u>point of contact</u> for users to gain assistance in troubleshooting, get answers to questions, and solve known problems. A help desk generally manages its requests through the use of software such as <u>issue tracking systems</u>. These systems often involve the use of a "local bug tracker" (LBT). This system allows the help desk to track and sort user requests with the help of a unique number, and can frequently classify problems by user, computer program, or similar categories.

A help desk is usually operated by individuals that have an extensive background of the appropriate system, so that they can walk users through step-by-step solutions to their problems.

Corporations usually provide help desk support to their customers through various channels such as toll-free numbers, websites, instant messaging, or email.

c. **Advantages of using interpreter instead of compiler translation program**

  i. An interpreter runs the application during run time, whereas a compiler needs to process the application into binary first, which may take time depending on its size.
  ii. An interpreter usually allows for easier debugging as it is not getting compiled, and may even be changed while an application is running but compiler does not allow for easy debugging
  iii. With an interpreter, no intermediate object code is generated, hence are memory efficient while compiler generates intermediate object code
  iv. An interpreter takes less of time than the compiler takes a lot of time to analyse the source code
  v. An interpreter continues translating the program until the first error is encountered but when using compiler, errors can only be detected when the output is not correct
  vi. An interpreter translates program one statement at a time whereas the compiler translates the whole code.

d.   **Firewall**

A firewall is a software or a hardware in a network security system that controls the incoming and outgoing network traffic by analysing the data packets and determining whether they should be allowed through or not based on a set of rules. It is a security system intended to protect an organization's network against external threats, such as hackers coming from another network. It is usually a combination of hardware and software that prevents computers in the organisation's network from communicating directly with computers external to the network and vice versa.

The purpose of a firewall is to detect and prevent any attempt to gain unauthorised entry through the Internet into a user's computer or Intranet system.

A firewall:
i.   Will block suspicious messages from the Internet, and prevent them from entering the user's computer
ii.   May provide an on-screen report to the user whenever it has blocked a message, so that the user is aware of the existence of the messages.

There are four firewall techniques, which are:
* Packet filter
* Application gateway
* Circuit-level gateway
* Proxy server

EXAMINER'S REPORT

The question tests a number of IT concepts. About half of the candidates attempted the question and performance was good. About 65% of the candidates who attempted the question scored 50% or above.

Common pitfalls include poor communication and inability to distinguish concepts from one another.

Candidates are advised to ensure an in-depth coverage of the various IT concepts in future.

MARKING GUIDE		MARKS	MARKS
a.	3 marks for definition	3	
	1 mark each for 2 examples 1 x 2 = 2	<u>2</u>	5
b.	3 marks for definition		3
	2 marks each for 5 advantages 2 x 5 = 10		
c.	2 marks for definition		10
	Total		
d.			<u>2</u>
			<u>20</u>

SOLUTION 6

a. **Private Automatic Branch Exchange (PABX)**
It is an automatic telephone switching system within a private enterprise. It is a technology used by call centres and other large organizations that allows a single access number to provide several lines to outside callers while providing a range of external lines to internal callers or staff. PABX performs all the switching necessary for making internal calls between extensions within the organizations. It also provides a connection between extensions and external phone lines. The exchange is owned and managed by the private organization in which it is installed and relies on computer equipment to handle the switching of calls. This is why the system is considered both private and automatic.

With PABX, an operator is only required to supply information and to occasionally manual connections for callers who are unfamiliar with system or the organization.

Advantages of PABX
i.   Sharing of telecom resources
ii. **Internal Office calls and Call transferring**
iii. Efficient handling of multiple calls simultaneously
iv. An automated greeting for all incoming calls, alleviating the need for a receptionist
v.   Programming to code and route each call to the appropriate extension
vi. Standby (for next call)

b. i. **Internet protocol (IP)**
The Internet Protocol (IP) is a protocol used for communicating data across a packet-switched internetwork using the Internet Protocol Suite, also referred to as TCP/IP. IP is the primary protocol in the Internet Layer of the Internet Protocol Suite and has the task of delivering distinguished protocol datagrams (packets) from the source host to the destination host solely based on their addresses. It defines addressing methods and structures for datagram encapsulation.

ii. **User Datagram Protocol (UDP)**

The User Datagram Protocol (UDP) is one of the core members of the Internet Protocol Suite, the set of network protocols used for the Internet. With UDP, computer applications can send messages, in this case referred to as datagrams, to other computers on an Internet Protocol (IP) network without requiring prior communications to set up special transmission channels or data paths. UDP is sometimes called the Universal Datagram Protocol.

iii. **Transmission Control Protocol (TCP)**
TCP operates at a higher level, concerned only with the two end-systems, for example a Web browser and a Web server. It provides reliable, ordered delivery of a stream of bytes from one program on one computer to another program on another computer. Asides, the Web, other common applications of TCP include email and file transfer. Among its management tasks, TCP controls message size, the rate at which messages are exchanged and network traffic congestion. It is used extensively by many of the Internet's most popular application protocols and resulting applications, including the World Wide Web, email, File Transfer Protocol, Secure Shell and some streaming media applications.

iv. **Hypertext Transfer Protocol (HTTP)**
It is an application-level protocol for distributed, collaborative, hypermedia information systems. Its use for retrieving inter-linked resources led to the establishment of the World Wide Web. HTTP is a request/response standard of a client and a server. A client is the enduser; the server is the web site. The client making a HTTP request-using a web browser or other end-user tool is referred to as the user agent. The responding server which stores or creates resources such as HTML files and images is called the origin server. In-between the user agent and origin server may be several intermediaries, such as proxies and gateways.

v. **File Transfer Protocol (FTP)**
File Transfer Protocol (FTP) is a network protocol used to exchange and manipulate files over a TCP computer network, such as the internet. An FTP client may connect to an FTP server to have access to and manipulate files on that server as if the files are directly on the local storage medium.

The uses of FTP include the following:
- To promote sharing of files (computer programs and/or data);
- To encourage indirect or implicit use of remote computers;
- To shield a user from variations in file storage systems among different hosts
- To transfer data reliably, and efficiently.

vi. **Simple Object Access Protocol (SOAP)**
SOAP is a protocol specification for exchanging structured information in the implementation of Web Services in computer networks. It is a **protocol** specification for exchanging structured information in the implementation of web services in computer networks. ... SOAP allows processes running on different operating systems (such as Windows and Linux) to communicate using Extensible Markup Language (XML).

vii. **Internet Message Access Protocol (IMAP)**
It is an Internet standard protocol used by email clients to retrieve email messages from a mail server over a TCP/IP connection. It permits complete management of an <u>email box</u> by multiple email clients, therefore clients generally leave messages on the server until the user explicitly deletes them. Email messages are usually sent to an email server that stores received messages in the recipient's email mailbox. The user retrieves messages with either a web browser or an email client that uses one of a number of email retrieval protocols.

viii. **Simple Mail Transfer Protocol (SMTP)**
Simple Mail Transfer Protocol (SMTP) is an Internet standard for electronic mail (email) transmission across Internet Protocol (IP) networks. While electronic mail server software uses SMTP to send and receive mail messages, user-level client mail applications typically only use SMTP for sending messages to a mail server for relaying.

For receiving messages, client applications usually use either the Post Office Protocol (POP) or the Internet Message Access Protocol (IMAP) to access their mail box accounts on a mail server.

SMTP is a relatively simple, text-based protocol, in which one or more recipients of a message are specified (anp[d in most cases verified to exist) along with the message text and possibly other encoded objects. The message is then transferred to a remote server using a series of queries and responses between the client and the server.

ix. **Post Office Protocol (POP)**
It is an <u>application-layer</u> <u>Internet standard</u> <u>protocol</u> used by local <u>email clients</u> to retrieve <u>email</u> from a remote <u>server</u> over a <u>TCP/IP</u> connection. It supports download-and-delete requirements for access to remote mailboxes. Most **POP** clients have an option to leave mails on server after download, email clients using **POP** generally connect, retrieve all messages, store them on the user's **PC** as new messages, delete them from the server and then disconnect.

x. **Wireless Application Protocol (WAP):** It is a global standard or specification that allows mobile users with wireless devices such as

GSM to easily access and interact with information and services instantly.

xi. **Internet Relay Chat Protocol (IRCP):** It enables teleconferencing on internet which is well-suited to running on many machines in a distributed fashion. It allows communication (typically text) between two clients, one to many (all) Clients, Client to server and server.

It established the technical foundation for most of the internet instant message and chatting systems.

xii. **Serial Line Internet Protocol (SLIP):** It is a data link protocol that allows transmission of data packets over dial-up telephone connections thus enabling a computer or LAN to be connected to the internet or some other network.

xiii. **Simple Network Management Protocol (SNMP):** This protocol can be hardware or software, it monitors activities in the various devices on the network and report to the network console work station. Control information about each device is maintained in a structure known as a management information block

(c)   **Components of a Local Area Network (LAN) include:**

i.   **Computer system**
It serves as a node or terminal on a network. Computers exchange data with each other using a data link. The connections between nodes or computers are established using either cable media or wireless media.

ii.   **Network Adapter**
It is used for communicating over a network with another computer. It enables a computer to connect with another computer, server or any networking device over a LAN connection. A network adapter can be used over a wired or wireless network.

iii.   **Network Medium**
This refers to the physical channel used for transmission in the network. Wire, fiber and air are the three media.

iv.   **Cable Connectors**
It is the part of a cable that plugs into a port or interface to connect one device to another. Most connectors are either male (containing one or more exposed pins) or female (containing holes in which the male connector can be inserted).

v. **Power Supply**
It is a component that supplies power to at least one electric load. Typically, it converts one type of electrical power to another, but it may also convert a a different form of energy – such as solar, mechanical, or chemical - into electrical energy. A power supply provides components with electric power.

vi. **Network Hub**
A network hub, is a common connection point for devices in a network. Hubs are devices commonly used to connect segments of a LAN. The hub contains multiple ports. When a packet arrives at one port, it is copied to the other ports so that all segments of the LAN can see all packets.

vii. **Network Software**
Network software is designed to help set up, manage, and/or monitor computer networks. Networks software applications are available to manage and monitor networks of all sizes, from the smallest home to networks the largest enterprise networks.

viii. **Printer**
A *printer* is an output device that accepts text and graphic output from a computer and transfers the information to paper, usually to standard size sheets of paper.

d. **Differences between Internet and the World Wide Web (www)**

Internet	World Wide Web (WWW)
i. The Internet is the underlying global system of interconnected computer networks consisting of millions of private, public, academic, business and government networks. These networks are linked by an array of electronic, wireless and optical networking technologies.	The World Wide Web is a global collection of documents, images and other resources stored in millions of databases (sitting on computers) around the world. These documents, images and resources are interrelated by hyperlinks and referenced (indexed) through unique identifiers.
ii. The Internet supports different applications such as email (e.g. Microsoft Outlook), communications (e.g. Skype) and the World Wide Web (see below) by transporting information across the network.	World Wide Web is an example of an application that uses the Internet

iii.	It is a global network connecting millions of computers.	It is a system of Internet servers that supports specially formatted documents.
iv.	User can jump from one internet to another because it is only one global network	Users can jump from one document to another simply by clicking on hot spots (hyperlinks).
v.	It is Internet Protocol dependent	Hyper Text Transfer Protocol
vi.	It is independent of the World Wide Web	It depends on Internet to work

EXAMINER'S REPORT

The question tests candidates understanding of a number of computer terminologies.

About 70% of the candidates attempted this question. Performance was very poor as about 20% of the candidates who attempted the question scored 50% and above.

Most common pitfall was inadequate understanding of the requirements of the question.

Candidates are advised to cover the syllabus in detail when preparing for future examinations.

MARKING GUIDE		MARKS	MARKS
a.	5 marks for description	<u>5</u>	5
b.	1 mark each for listing 4 protocols 1 x 4 = 4	4	
	$\frac{1}{2}$ mark each for explaining 4 protocols $\frac{1}{2}$ x 4 = 2		
c.	1 mark each for listing 4 components 1 x 4 = 4	<u>2</u>	6
	$\frac{1}{2}$ mark each for explaining 4 components $\frac{1}{2}$ x 4 = 2		
d.	1 mark each for three differences 1 x 3 = 3	4	
	Total		
		<u>2</u>	<u>6</u>
		3	<u>3</u>
			<u>20</u>

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

FOUNDATION LEVEL EXAMINATION – NOVEMBER 2017

QUANTITATIVE TECHNIQUES IN BUSINESS

Time Allowed: 3¼ hours (including 15 minutes reading time)

SECTION A: **MULTIPLE - CHOICE QUESTIONS**   **(20 MARKS)**

INSTRUCTION: **YOU ARE REQUIRED TO ANSWER ALL QUESTIONS IN THIS SECTION**

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

1. The solution of an inequality is different from that of an equation because it:

   A. is always above a whole number
   B. lies within an interval
   C. is a negative number
   D. is a real number
   E. is a positive number

2. The returns from a business for the first three years are ₦100,000.00, ₦500,000.00 and ₦800,000.00 respectively. If the initial cost of the business is ₦555,000.00 and the discount rate for the three years is 15%, then the Net Present Value of the business, calculated to three significant figures is

   A. ₦430,000.00
   B. ₦436,000.00
   C. ₦436,040.00
   D. ₦436,041.00
   E. ₦440,000.00

3. If the total cost of 3 units of item X and 4 units of item Y is ₦6,000.00 while the total cost of 2 units of item X and 3 units of item Y is ₦4,100.00, then the unit cost of item Y is

   A. ₦150.00
   B. ₦200.00
   C. ₦250.00
   D. ₦300.00
   E. ₦350.00

4. Dividing $\dfrac{5x^4h}{12y^5}$ by $\dfrac{10x^3}{3hy^2}$, gives

A. $\dfrac{8y^3}{xh^2}$

B. $\dfrac{xh^2}{8y^3}$

C. $\dfrac{8y^2}{x^2h}$

D. $\dfrac{x^2h}{8y^2}$

E. $\dfrac{x^2h}{8y^3}$

5. If a, b & c are in arithmetic progression, then

A. $b - a = c + b$
B. $b + a = c + b$
C. $b - a = c - b$
D. $b + a = c - b$
E. $b - c = b + a$

6. If $4 - x \geq 4x + 8 \geq x$, then

A. $x \leq -2\frac{2}{3}$ and $x \geq -\frac{4}{5}$

B. $-\frac{4}{5} \geq x \geq -2\frac{2}{3}$

C. $x \leq \frac{4}{5}$ and $x \geq 2\frac{2}{3}$

D. $-2\frac{2}{3} \leq x \leq \frac{4}{5}$

E. $2\frac{2}{3} \geq x \geq -\frac{4}{5}$

7. How much would an investor need to invest now in order to have ₦250,000.00 after one year if the compound interest on the investment is 0.75% each month?

A. ₦282,595.54
B. ₦282,559.54
C. ₦228,955.54
D. ₦228,595.54
E. ₦228,559.54

8. For the following numbers: 21, 19, 19, 26, 19, 21 and 15, the mean deviation is

   A. $2\frac{1}{7}$

   B. $2\frac{2}{7}$

   C. $2\frac{3}{7}$

   D. $2\frac{4}{7}$

   E. $2\frac{5}{7}$

9. Which of the following statistical diagrams can be used to estimate the mode?
   A. Cumulative frequency curve
   B. Bar chart
   C. Pie chart
   D. Frequency polygon
   E. Histogram

10. The values of orders in the book of a firm have been analyzed, and the following group frequency table is available:

Outstanding orders by value (₦'00)	
Value of orders (₦'00)	Number of orders outstanding
5 < 7	16
7 < 9	29
9 < 11	55
11 < 13	48

If the lower quartile (Q_1) value of orders is ₦744.83, then the quartile deviation of the values of orders is

   A. ₦190.50
   B. ₦200.50
   C. ₦210.50
   D. ₦215.50
   E. ₦220.50

11. The standard deviation of the combination of distributions X and Y is 15.62. If the standard deviation of distribution X is 10, then the variance of distribution Y is

   A.   113.98
   B.   123.98
   C.   133.98
   D.   143.98
   E.   153.98

12. If the value of a property is increased by 9.75%, 48.5%, 37.75% and 25.75% in years 1, 2, 3 and 4 respectively, then the average growth rate over the four-year period is

   A.   21.21%
   B.   26.04%
   C.   26.40%
   D.   30.04%
   E.   30.44%

13. The probability that an integer x chosen at random from $(1 \leq x \leq 25)$ is divisible by both 2 and 3 is

   A.   6/25
   B.   3/4
   C.   1/25
   D.   1/5
   E.   4/25

14. If a coin is tossed three times and X is defined as the number of tails appearing, what is the expected value of X?

   A.   4.5
   B.   3.5
   C.   2.5
   D.   1.5
   E.   0.5

15. If an unbiased die numbered 1, 2, 4, 5,5, 6 and a fair coin are tossed together, what is the probability of obtaining a tail and a number greater than 3?

   A.   0.23
   B.   0.30
   C.   0.33
   D.   0.34
   E.   0.35

16. A young man picked two cards from a pack of cards. The probability that both are Hearts is

    A. $\dfrac{5}{17}$

    B. $\dfrac{4}{17}$

    C. $\dfrac{3}{17}$

    D. $\dfrac{2}{17}$

    E. $\dfrac{1}{17}$

17. Daily demand of soya bean is normally distributed with a mean of 58 packs per day and standard deviation of 3 packs. The proportion of days during which the demand was between 53 and 60 packs is

    A. 40.11%
    B. 50.11%
    C. 60.11%
    D. 70.11%
    E. 80.11%

18. A company operates for three days each week. If sales data (in units) for the most recent two weeks are given as follows:

Sales	Monday	Wednesday	Friday
Week 1	77	82	88
Week 2	87	92	97

    then the moving average for Monday of week 2 is

    A. 86
    B. 87
    C. 88
    D. 89
    E. 90

19. The probability distribution of service rate in queuing theory is

    A. Poisson distribution
    B. Exponential distribution
    C. Normal distribution
    D. Binomial distribution
    E. Service rate distribution

20. Which of the following statements is **NOT** true about Network Planning?

A. All events including the first and the last must have at least one activity starting with it and one activity finishing with it

B. When there are two or more paths to an event, the earliest time for the event is the time taken by the longest path

C. The activities on non-critical paths except those shared with the longest path can be delayed without affecting the duration of the project

D. When there are alternative paths from an event, the latest time for an event is the lowest figure

E. Independent float is the amount of time within which an activity can expand without affecting the floats of both the previous and following activities

SECTION B: OPEN-ENDED QUESTIONS   (80 MARKS)

INSTRUCTION: YOU ARE REQUIRED TO ANSWER ANY FOUR OUT OF SIX QUESTIONS IN THIS SECTION

QUESTION 1

a. JABYES Ventures is saving towards buying a warehouse worth ₦1,600,000. In the nearest future, if the savings every month follow the sequence ₦50,000, ₦75,000, ₦112,500 …….., how many months will it take JABYES to buy the warehouse? Give your answer to the nearest month.   (10 Marks)

b. The members of staff of the marketing department of a bank were able to attract some customers to open current accounts with the following amounts of money (₦'m):

10, 20.5, 55, 30, 41.5, 56, 44, 32, 25.4, 13.7, 31.5, 42, 11.4

57.5, 26, 18.7, 26.6, 36, 34.8, 43.5, 38, 59.9, 35.4, 47, 34.5, 53

35, 12, 37.2, 27, 36.5, 54, 48, 35, 49.8, 38.8, 22, 29.9, 39

24.4, 55.5, 33, 21.5, 15.1, 46, 35.5, 28, 31, 25, 32, 28, 16.6

    i. Use class intervals of 10 but less than 20, 20 but less than 30, etc. to construct the frequency distribution table for the data.   (4 Marks)

    ii. Use your table to calculate the quartile deviation for the data.

                                                            (6 Marks)

QUESTION 2

(a)   i.   From a bowl containing 100 red balls, 40 green balls, 35 white balls and 25 blue balls, four balls are drawn at random one at a time without replacement, what is the probability that the first two draws are red, the third and fourth draws are respectively white and blue balls?   (6 Marks)

      ii.   The following network diagram is for a building construction: All the activities' durations are in weeks.
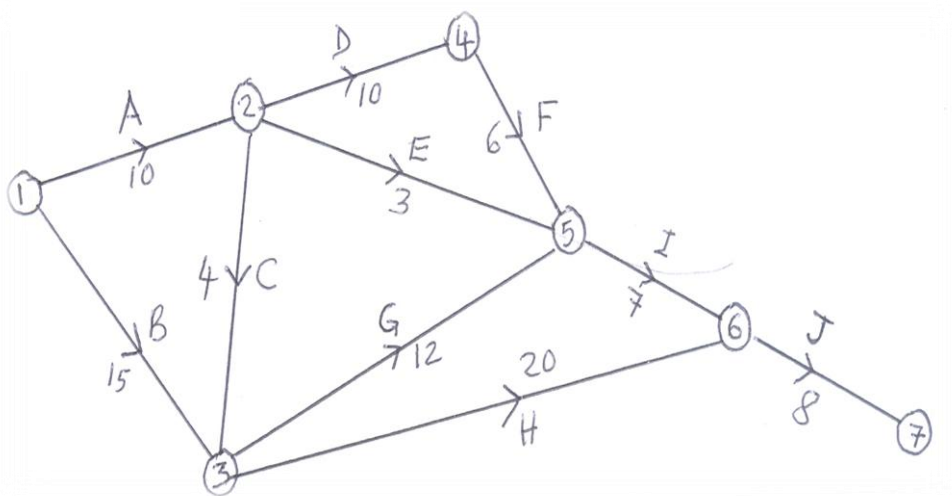
Determine the critical path and the corresponding time of completion.
(4 Marks)

b.   A university lecturer wishes to buy a plot of land in a choice area of a capital city. He plans to save ₦150,000.00 at the end of each of the next 15 years. The account pays interest of 8% per annum.

    i.   Determine the balance in the account at the end of the 15-year period.   (4 Marks)

    ii.   If this lecturer prefers to be saving ₦210,000.00 at the end of each year at the same interest rate as above, determine the number of years it will take him to achieve the same balance as in (i) above.   (6 Marks)

(Total 20 Marks)

QUESTION 3

a. The table below shows the annual turn-over of a chain of supermarkets in Nigeria:

Annual Turn-over (₦'000)	Branches of Supermarket
0 and under 10	6
10 and under 20	10
20 and under 30	8
30 and under 40	4
40 and under 50	5
50 and under 60	7
60 and under 70	9
70 and under 80	11

You are required to:

Compute the coefficient of variation   (10 Marks)

b. After a sporting event, a group of participants consisting of 60 men, 42 women and 18 children decided to watch a table tennis competition inside a sports hall. At the end of the game, they went for a snack and were served three persons at a time.

Determine the probability that the first three persons served consists of:
i.   one man, one woman and a child.   (3 Marks)
ii.   men only or women only   (4 Marks)
iii.   two children and a woman   (3 Marks)
                                        (Total 20 Marks)

QUESTION 4

a.   i.   A financial house makes use of 25,000 units of an item per quarter.

The cost of a unit of the item is ₦200 while the cost of placing an order is ₦10,000. If the cost of holding a unit of the item is 10% of its unit cost, determine the Economic Order Quantity.   (4 Marks)

ii.   The monthly target savings of Yendam for the first three months are ₦20,000, ₦30,000 and ₦45,000. What will his total target savings be for eight months?   (6 Marks)

b.   At the close of business on successive week-ends, the price (in Naira) of ordinary 50 kobo shares of ABC Plc. a recently quoted company, on the Stock Exchange is as follows:

130	137	140	136	138
135	131	123	122	119
121	111	114	112	105
122	127	126	127	120
142	128	127	134	131
116	116	120	130	129
106	114	117	113	122
127	124	128	125	126

i.   Arrange the above data into a grouped frequency distribution with classes 104-113,114-123, etc using the TALLY method.   (3½ Marks)

ii.   Calculate the mean price of the ordinary 50 kobo share.   (6½ Marks)

(Total 20 Marks)

QUESTION 5

a. The population census carried out in an area within a Local Government revealed the following ages (in years) of inhabitants:

```
20  22  28  64  48  37  37  17  74  37  23  18
16  64  60  33  23  85  67  19  17  26  24  40
61  62  74  29  27  18  19  23  37  42  31  65
18  33  50  21  26  42  22  50  55  40  44  17
```

   i. Use the TALLY method to group the above data into a grouped frequency distribution using classes 15-25, 26-36, etc.   (3 Marks)

   ii. Use the appropriate class boundaries to draw the histogram for the data.   (4½ Marks)

   iii. Hence, determine the mode of the distribution.   (2½ Marks)

b. Spare parts of motor vehicles supplied by dealers X, Y & Z contain 22%, 20% and 18% defectives respectively. Dealers X and Y respectively supplied $\frac{1}{2}$ and $\frac{2}{5}$ of all the spare parts while dealer Z supplied the rest.

   i. Draw the appropriate probability Tree Diagram to represent the above information.   (3 Marks)

   Calculate the probability that, if:

   ii. A defective spare part is discovered, it is from the ones supplied by dealer Y.   (3½ Marks)

   iii. A good spare part is discovered, it is from the ones supplied by dealer Z.   (3½ Marks)

   (Total 20 Marks)

QUESTION 6

a. The heights of electric poles produced by a company are normally distributed with a mean of 8.08m and a standard deviation of 4cm.

   i. How many standard deviations is 8m below the mean?   (2½ Marks)

   ii. Calculate the probability of picking a pole that is shorter than 8m.   (2½ Marks)

b. The specification for the length of a footmat is a minimum of 109mm and a maximum of 114.4mm. A batch of footmats produced is normally distributed with a mean of 112mm and a standard deviation of 2.196mm. Find the percentage of parts that are

   i.   Shorter   (2½ Marks)

   ii.   Longer   (2½ Marks)

c. If y = $4x^2 - 16x + 15$

   i.   Plot the graph of y against x for the following range of $x : 0 \le x \le 5$. with 1cm to represent 0.5 unit on x-axis and 1cm to represent 2.5 units on y-axis.   (2$^{1}/_{2}$ Marks)

   ii.   Use your graph to estimate the values of x when y = 0 and y = 10.
                                                                    (2 Marks)

   iii. Use the method of completing the square to calculate the values of x when y = 0 and when y = 10.   (5 Marks)

   iv.   Compare the results of the graph with the results obtained when the method of completing the square is used?   (½ Mark)

   (Total 20 Marks)

Formulae

PROBABILITY

A ∪ B = A or B   A ∩ B = A and B (overlap).

P(B |A) =   probability of B, given A

Rules of Addition

If A and B are mutually exclusive: P(A ∪ B) = P(A) + P(B)

If A and B are not mutually exclusive: P(A ∪ B) = P(A) + P(B) − P(A ∩ B)

Rules for Multiplication

If A and B are independent: P(A ∩ B) = P(A) * P(B)

If A and B are not independent: P(A ∩ B) = P(A) * P(B |A)

$E(X)$ = ∑ (probability * payoff)

Quadratic Equations

If $aX^2 + bX + c = 0$ is the general quadratic equation, the two solutions (roots) are given by:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

DESCRIPTIVE STATISTICS

Arithmetic Mean

$$\bar{x} = \frac{\sum x}{n} \qquad \bar{x} = \frac{\sum fx}{\sum f} \quad \text{(frequency distribution)}$$

Standard Deviation

$$SD = \sqrt{\frac{\sum(x - \bar{x})^2}{n}} \qquad SD = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2} - \quad \text{(frequency distribution)}$$

INDEX NUMBERS

Price relative = $100 \times P_1/P_0$ Quantity relative = $100 \times Q_1/Q_0$

Price:

$$\frac{\sum w \ x \ \left(\frac{P_1}{P_0}\right)}{\sum w} \ x \ 100$$

Quantity:

$$\frac{\sum w \ x \ \left(\frac{Q_1}{Q_0}\right)}{\sum w} \ x \ 100$$

TIME SERIES:

Additive Model   Series = Trend + Seasonal + Random

Multiplicative Model   Series = Trend * Seasonal * Random

LINEAR REGRESSION AND CORRELATION

The linear regression equation of Y on X is given by:

$$Y = a + bX \quad \text{or} \quad Y - \bar{Y} = b[X - \bar{X}]$$

Where

$$b = \frac{Covariance\ (XY)}{Variance\ (X)} = \frac{n\sum XY - (\sum X)(\sum Y)}{n\sum X^2 - (\sum X)^2}$$

and $a = \bar{Y} - b\bar{X}$

or solve

$$\sum Y = na + b\sum X$$
$$\sum XY = a\sum X + b\sum X^2$$

Coefficient of Correlation

$$r = \frac{Covariance\ (XY)}{\sqrt{Var(X).\ Var(Y)}} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{\left\{n\sum X^2 - (\sum X)^2\right\}\left\{n\sum Y^2 - (\sum Y)^2\right\}}}$$

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

FINANCIAL MATHEMATICS

Compound Interest (Values and Sums)

Future Value S, of a sum of X, invested for n periods, compounded at r% interest

$$S = X\ (1 + r)^n$$

Annuity

Present value of an annuity of ₦1 per annum receivable or payable for n years, commencing in one year, discounted at r% per annum

$$PV = \frac{1}{r}\left[1 - \frac{1}{(1 + r)^n}\right]$$

Perpetuity

Present value of ₦1 per annum, payable or receivable in perpetuity, commencing in one year, discounted at r% per annum.

$$PV = \frac{1}{r}$$

Annuity Table

Present value of an annuity of 1 i.e.

$$\frac{1 - (1 + r)^{-n}}{r}$$

Where   r = discount rate

   n = number of periods

Discount rate (r)

Periods (n)	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0·990	0·980	0·971	0·962	0·952	0·943	0·935	0·926	0·917	0·909	1
2	1·970	1·942	1·913	1·886	1·859	1·833	1·808	1·783	1·759	1·736	2
3	2·941	2·884	2·829	2·775	2·723	2·673	2·624	2·577	2·531	2.487	3
4	3·902	3·808	3.717	3·630	3.546	3.465	3·387	3·312	3·240	3·170	4
5	4·853	4·713	4·580	4·452	4·329	4·212	4·100	3·993	3.890	3·791	5
6	5·795	5·601	5·417	5·242	5·076	4·917	4·767	4·623	4.486	4·355	6
7	6·728	6.472	6·230	6·002	5·786	5·582	5·389	5·206	5·033	4·868	7
8	7·652	7·325	7·020	6·733	6·463	6·210	5·971	5·747	5·535	5·335	8
9	8·566	8·162	7·786	7.435	7·108	6·802	6·515	6·247	5·995	5·759	9
10	9·471	8·983	8·530	8·111	7·722	7·360	7·024	6·710	6.418	6·145	10
11	10·368	9·787	9·253	8·760	8·306	7·887	7·499	7·139	6·805	6.495	11
12	11·255	10·575	9·954	9·385	8·863	8·384	7·943	7·536	7'161	6·814	12
13	12·134	11·348	10·635	9·986	9·394	8·853	8·358	7·904	7·487	7·103	13
14	13·004	12·106	11·296	10·563	9·899	9·295	8·745	8·244	7·786	7·367	14
15	13·865	12·849	11·938	11·118	10·380	9·712	9·108	8·559	8·061	7·606	15

(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0·901	0·893	0·885	0·877	0·870	0·862	0·855	0·847	0·840	0·833	1
2	1·713	1·690	1·668	1·647	1·626	1·605	1·585	1·566	1·547	1·528	2
3	2.444	2.402	2·361	2·322	2·283	2·246	2·210	2·174	2·140	2·106	3
4	3·102	3·037	2·974	2·914	2·855	2·798	2·743	2.690	2·639	2.589	4
5	3·696	3·605	3·517	3·433	3·352	3·274	3·199	3·127	3·058	2·991	5
6	4·231	4·111	3·998	3·889	3·784	3·685	3·589	3.498	3.410	3·326	6
7	4·712	4·564	4.423	4·288	4·160	4·039	3·922	3·812	3·706	3·605	7
8	5·146	4·968	4.799	4·639	4.487	4·344	4·207	4·078	3·954	3·837	8
9	5·537	5·328	5·132	4·946	4·772	4·607	4.451	4·303	4·163	4·031	9
10	5·889	5·650	5.426	5·216	5·019	4·833	4·659	4.494	4·339	4·192	10
11	6·207	5·938	5·687	5.453	5·234	5·029	4·836	4·656	4.486	4·327	11
12	6·492	6·194	5·918	5·660	5·421	5·197	4·988	4·793	4·611	4.439	12
13	6·750	6.424	6·122	5·842	5·583	5·342	5·118	4·910	4·715	4·533	13
14	6·982	6·628	6·302	6·002	5·724	5.468	5·229	5·008	4·802	4·611	14
15	7·191	6·811	6.462	6·142	5·847	5·575	5·324	5·092	4·876	4·675	15

NORMAL DISTRIBUTION

This table gives the area under the normal curve between the mean and a point Z standard deviations above the mean. The corresponding area for deviations below the mean can be found by symmetry.
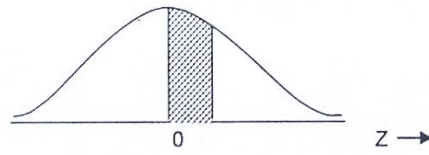
$Z= \dfrac{(x - \mu)}{\sigma}$	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	.0000	.0040	.0080	.0120	.0159	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1408	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2518	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4430	.4441
1.6	.4452	.4463	.4474	.4485	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4762	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4865	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4980	.4980	.4981
2.9	.4981	.4982	.4983	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.49865	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	.49903	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
3.2	.49931	.4993	.4994	.4994	.4994	.4994	.4994	.4995	.4995	.4995
3.3	.49952	.4995	.4995	.4996	.4996	.4996	.4996	.4996	.4996	.4997
3.4	.49966	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4998
3.5	.49977									

SECTION A – MULTIPLE CHOICE QUESTIONS

1. B

2. B

3. D

4. B

5. C

6. B

7. E

8. B

9. E

10. B

11. D

12. B

13. E

14. D

15. C

16. E

17. D

18. D

17. B

20. E

Workings

2. $\text{₦}100{,}000 \times \dfrac{1}{1.15} = \text{₦}86{,}956.52$

       $\text{₦}500{,}000 \times \dfrac{1}{(1.15)^2} = \text{₦}378{,}071.83$

       $\text{₦}800{,}000 \times \dfrac{1}{(1.15)^3} = \underline{\text{₦}526{,}012.99}$

              $\therefore$ Total $= \text{₦}991{,}041.34 - \text{₦}555{,}000.00$

                     $= \underline{\text{₦}436{,}041.34}$

                     $= \text{₦}436{,}000.00$ (3 S.F) (B)

3. $3x + 4y \quad = \quad 6{,}000$ (i)

       $2x + 3y \quad = \quad 4{,}100$ (ii)

       Multiply (i) by 2 $6x + 8y = \quad 12{,}000$ (iii)

       Multiply (ii) by 3 $6x + 9y = \quad 12{,}300$ (iv)

       (iii) − (iv) $\Rightarrow - y = \quad -300$

          $\therefore y = \quad 300$ (D)

4. $\dfrac{5x^4 h}{12y^5} \div \dfrac{10x^3}{3hy^2}$

    $= \dfrac{5x^4 h}{12y^5} \times \dfrac{3hy^2}{10x^3}$

    $= \dfrac{xh^2}{8y^3}$ (B)

5.   a, b, c are in A. P

       Common difference $= d = b - a = c - b$ (c)

6. $4 - x \geq 4x + 8 \geq x$

$4 - x \geq 4x + 8$

$- x - 4x \geq 8 - 4$

$- 5x \geq 4$

$x \leq \dfrac{-4}{5} \Rightarrow \dfrac{-4}{5} \geq x$ (i)

$4x + 8 \geq x$

$4x - x \geq - 8$

$3x \geq -8$

$x \geq \dfrac{-8}{3} \Rightarrow x \geq -2\dfrac{2}{3}$ (II)

Combing (I) & (II) $\Rightarrow \dfrac{-4}{5} \geq x \geq -2\dfrac{2}{3}$ (B)

7. A = ₦250,000.00, r = 1 year = 12 months, n =0.75% $\Rightarrow$ n= .0075

$A = P (1 + r)^n$

$P = \dfrac{A}{(1+r)^{\,n}}$

$P = \dfrac{250{,}000}{(1.0075)^{12}}$

P = ₦228,559.54   (E)

8. $\bar{x} = \dfrac{21+19+19+26+19+21+15}{7}$

$\bar{x} = \dfrac{140}{7} = 20$

Mean Deviation $= \dfrac{\sum \left| x - \bar{x} \right|}{n}$

$MD = \dfrac{\left|21-20\right| + \left|19-20\right| + \left|19-20\right| + \left|26-20\right| + \left|19-20\right| + \left|21-20\right| + \left|15-20\right|}{7}$

$MD = \dfrac{1+1+1+6+1+1+5}{7} = \dfrac{16}{7} = 2\dfrac{2}{7}$ (B)

10.

Class Interval	F	CF
5 < 7	16	16
7 < 9	29	45
9 < 11	33	100
11 < 13	48	148

$Q_1 = $ 744.83

$$Q_3 = LQ_3 + - \left(\frac{\frac{3N}{4} - \sum FQ_3}{FQ_3} \right) C$$

Q3 position $= \frac{3N}{4}$ th $= \frac{3 x 148}{4} = 11 1th$

$Q_3 = 11 + \left(\frac{111 - 100}{48} \right) 2$

$Q_3 = 11 + 0.4583 = 11.4583 \times 100$

$Q_3 = 1,145.83$

Quartile deviation $= \frac{Q_3 - Q_1}{2}$

$= \frac{1,145.83 - 744.83}{2}$

$= \frac{401.00}{2}$

$= $ **200.50**   (B)

11. Sum of variances of X and Y $= \sigma_x^2 + \sigma_y^2$

But $\sigma_x^2 + \sigma_y^2 = 15.62^2$

$$\sigma_x^2 = 15.62^2 - \sigma_x^2$$

$$\sigma_y^2 = 15.62^2 - 10^2$$

$$\sigma_y^2 = 243.98 - 100$$

$$\sigma_y^2 = 143.98 \qquad\qquad (D)$$

12. Average growth rate = Geometric mean of 9.75, 48.5, 37.75 and 25.75

Average growth rate $= \sqrt[4]{9.75 \times 48.5 \times 37.75 \times 25.75}$

$$= \sqrt[4]{459664.0547}$$

$$= 26.04\% \qquad\qquad (B)$$

13. S $= \{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25\}$

$n(S) = 25$

D = integer divisible by both 2 and 3

i.e. D = $\{6, 12, 18, 24\}$

$\therefore n(D) = 4$

P(D) $= \dfrac{n(D)}{n(s)} = \dfrac{4}{25} \qquad\qquad (E)$

14. S $= \{HHH, HHT, HTH, HTT, THH, THT, TTH, TTT\}$

X = No of tails appearing

X = 0,1,2,3

The probability table for x is

X	0	1	2	3
P(X = x)	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{8}$

E(x) $= \sum x P(x)$

$= (0 \times \frac{1}{8}) + (1 \times \frac{3}{8}) + (2 \times \frac{3}{8}) + (3 \times \frac{1}{8})$

$= \frac{3}{8} + \frac{6}{8} + \frac{3}{8} = \frac{12}{8} = \frac{3}{2} = 1.5$ (D)

15. Sample Space is given as

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

$$n(S) = 12$$

E = event of a tail and number greater than 3 = $\{(4, T), (5, T), (5, T), (6, T)\}$

$$n(E) = 4$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{4}{12} = \frac{1}{3} = 0.33 \text{ (C)}$$

16. $n(S) = 52$, no of hearts = 13

P(both are hearts) = $\frac{13}{52} \times \frac{12}{51} = \frac{1}{17}$ (E)

17. X ~ N(58, 3^2)

$$Z = \frac{x - \mu}{\sigma} = \frac{x - 58}{3}$$

$$P(53 < x < 60) = P\left(\frac{53 - 58}{3} < Z < \frac{60 - 58}{3}\right)$$

=	P(- 1.67 < Z < 0.67)
=	P(Z < 0.67) − P(Z < - 1.67)
=	(0.5000 + 0.2486) − P(0.5000 − 0.4525)
=	0.7486 − 0.0475
=	0.7011
=	70.11% (D)

18.

Week	Day	Sales	3-Day Moving Total	3-Day Moving Average
1	Monday	77		
	Wednesday	82	247	
	Friday	88	257	
2	Monday	87	267	267 ÷ 3 = 89
	Wednesday	92		
	Friday	97		

(D)

SOLUTION 1

(a) $a = ₦50,000, r = 1.5, S_n = ₦1,600,000, n = ?$

Now $S_n = \frac{a(r^n - 1)}{r - 1}$

i.e. ₦1,600,000 $= \frac{₦50,000((1.5)^n - 1)}{0.5}$

$\frac{800,000}{50,000} = (1.5)^n - 1$

$(1.5)^n = 16 + 1 = 17$

$\log (1.5)^n = \log 17$

$n \log 1.5 = \log 17$

$n = \frac{\log 17}{\log 1.5}$

$= 6.99$

$\cong 7$ months

(b)

Amount(₦'m)	Tally	Frequency(f)	Cum freq
10<20	H̶H̶ II	7	7
20<30	H̶H̶ H̶H̶ II	12	19
30<40	H̶H̶ H̶H̶ H̶H̶ III	18	37
40<50	H̶H̶ III	8	45
50<60	H̶H̶ II	7	52

Q_1 is in the $\left(\frac{52}{4}\right)^{th}$ position i.e. 13th position, i.e. Q_1 class is $20 < 30$

$\therefore \ Q_1 = 20 + \frac{13 - 7}{12} x 10 = 25$

Q_3 is in the $\left(3 \times \dfrac{52}{4}\right)^{th}$ position i.e. 39th position, i.e. Q_3 class is $40{<}50$

$\therefore Q_3 = 40 + \dfrac{39-37}{8} \times 10 = 42.5$

Quartile deviation $= \dfrac{42.5-25}{2} = 8.75$

$$= ₦8,750,000$$

EXAMINER'S REPORT

The question tests candidates' knowledge of the application of Geometric Progression and measures of dispersion for business data. Less than 50 percent of the candidates attempted the question out of which about 30 percent scored 3 marks or above. The major pitfall of most of the candidates was their inability to interpret the question correctly.

Candidates are advised to prepare for examination very well by reading the relevant ICAN Study Text on QTB and other relevant textbooks.

MARKING GUIDE

		Marks	Marks
(a)	For correct value of r	1	
	For correct S_n formular	½	
	For correct substitution into S_n formular	½	
	For correct simplification to get $\dfrac{800,000}{50,000} = (1.5)^n - 1$	1	
	For correct further simplification to get $(1.5)^n = 16 + 1$	1	
	For correct further simplification to get $(1.5)^n = 17$	1	
	For taking log of both sides to get $\log (1.5)^n = \log 17$	1	
	For getting $n \log 1.5 = \log 17$	1	
	For making n the subject of formular	1	
	For correct value of n i.e. 6.79	1	
	For correct approximation i.e. 7	<u>1</u>	
			<u>**10**</u>

(b)(i) For correct tally column ($\frac{-1}{2}$ *each error*)   2

For correct frequency column ($\frac{-1}{2}$ *each error*)   <u>2</u>

                                                                              4

    (ii) For correct cumulative frequency column (any 2 correct)   1

For correct Q_1 class   ½

For correct substitution into Q_1 formular   ½

For correct value of Q_1 1

For correct Q_3 class   ½

For correct substitution into Q_3 formular   ½

For correct value of Q_3 1

For correct substitution into quartile deviation formular   ½

For correct answer (i.e. 8.75million Naira)   <u>½</u>

                                                                                     <u>6</u>

                                                                                     <u>20</u>

SOLUTION 2

(a)(i) The probability of first draw being red $= \dfrac{100}{100+40+35+25} = \dfrac{100}{200} = \dfrac{1}{2}$

It now remains 99 red balls, 40 green, 35 white and 25 blue balls all totalling 199.

Probability of the second draw being red $= \dfrac{99}{199}$

It now remains 98 red, 40 green, 35 white and 25 blue balls all totalling 198.

Probability of the 3rd draw being white $= \dfrac{35}{198}$

It now remains 98 red, 40 green, 34 white and 25 blue balls all totalling 197.

Probability of the 4th draw being blue $= \dfrac{25}{197}$

∴ Since all the draws are dependent, then the probability of the first two draws being red, the next two draws being white and blue respectively

$$= \frac{100}{200} \times \frac{99}{199} \times \frac{35}{198} \times \frac{25}{197} = \frac{8,662,500}{1,552,438,800} = 0.0056$$

(ii)   The network diagram is here
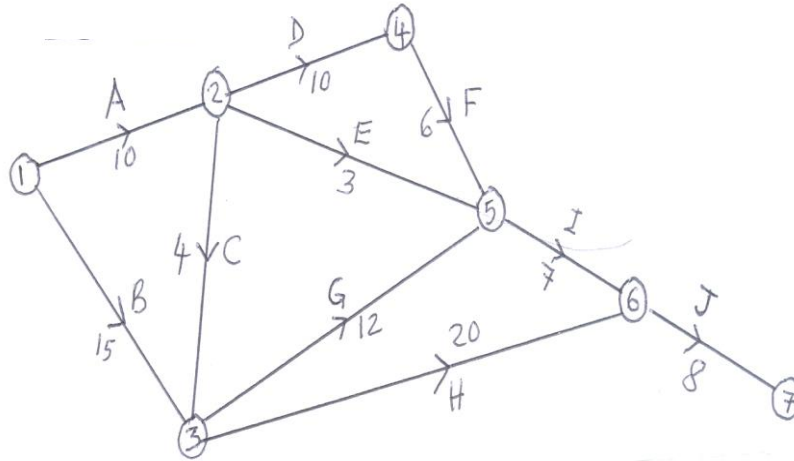
The possible paths and their corresponding durations are

A – D – F – I – J: 10 + 10 + 6 + 7 + 8 = 41 weeks

A – E – I – J: 10 + 3 + 7 + 8 = 28 weeks

A – C – G – I – J: 10 + 4 + 12 + 7 +8 = 41 weeks

A – C –H - J: 10 + 4 + 20 + 8 = 42 weeks

B – G - I – J: 15+12 + 7 + 8 = 42weeks

B – H – J: 15 + 20 + 8 = 43 weeks

∴ From the above, the critical path is B − H − J with a duration of 43 weeks

(b)(i)   Generally $S_n = \dfrac{x\left[(1+r)^n - 1\right]}{r}$

$$= ₦ \frac{150,000\left[(1 + 0.08)^{15} - 1\right]}{0.08} = ₦ \frac{150,000\left[(1.08)^{15} - 1\right]}{0.08}$$

$$= ₦\,4,072,817.09$$

(ii) $r = 0.08, S_n = ₦4,072,817.09, \ x = ₦210,000, \ n = ?$

82

$$S_n = \frac{x\left[(1+r)^n - 1\right]}{r}$$

$$\text{₦}4{,}072{,}817.09 = \text{₦}210{,}000\left[\frac{(1.08)^n - 1}{0.08}\right]$$

$$\frac{\text{₦}4{,}072{,}817.09\ (0.08)}{210{,}000} = \text{₦}1.08^n - 1$$

$$1.08^n = 2.5515$$

$$\text{Log } 1.08^n = \log 2.5515$$

$$n = \frac{\log 2.5515}{\log 1.08}$$

$$= 12.17 \text{ years}$$

ALTERNATIVE SOLUTION TO b(ii)

b.   (ii) $r = 0.08, S_n = \text{N}4{,}072{,}500,\ x = \text{N}210{,}000,\ n = ?$

$$S_n = \frac{x\left[(1+r)^n - 1\right]}{r} \Rightarrow x\left[(1+r)^n - 1\right] = r.S_n$$

$$\Rightarrow (1+r)^n - 1 = \frac{r.s_n}{x} \Rightarrow (1+r)^n = 1 + \frac{r.S_n}{x} = \frac{x + r.S_n}{x}$$

$$\Rightarrow n\log(1+r) = \log\left(\frac{x + r.s_n}{x}\right)$$

$$\therefore n = \frac{\log\left(\frac{x+r.S_n}{x}\right)}{\log(1+r)} = \frac{\log\left(\frac{210{,}000 + (0.08 \times 4{,}072{,}500)}{210{,}000}\right)}{\log(1.08)}$$

$$n = \frac{\log\left(\frac{210{,}000 + 325{,}500}{210{,}000}\right)}{\log(1.08)} = \frac{\log\left(\frac{535{,}500}{210{,}000}\right)}{\log(1.08)} = \frac{0.40654}{0.03342}$$

$$= 12.16 \text{ years}$$

EXAMINER'S REPORT

The question tests candidates' understanding of the application of the elementary probability theory, network analysis and present value to business environment. About 85% of the candidates attempted the question out of which about 75% of them performed below average. Misinterpretation of the question is one of the major pitfalls in answering the question.

Relevant textbooks are recommended in addition to the ICAN Study Pack on QTB for the improvement of candidates' performance.

MARKING GUIDE

			Marks	Marks
a. (i)	For correct probability of first draw i.e. P(red) $\frac{1}{2}$ or 0.5		1	
	For correct probability of second draw i.e. P(red) = $\frac{99}{199}$ or 0.497		1	
	For correct probability of third draw i.e. P(white) = $\frac{35}{198}$ or 0.176		1	
	For correct probability of fourth draw i.e. p(green) = $\frac{25}{197}$ or 0.127		1	
	For correct multiplication of all the probabilities i.e. for the 4 draws		1	
	For correct answer		<u>1</u>	6
(ii)	For the correct 6 possible paths and corresponding durations ($\frac{1}{2}$ mark each)		3	
	For correct critical path		$\frac{1}{2}$	
	For correct critical path duration		$\frac{1}{2}$	
				4
b (i)	For correct S_n formular		$\frac{1}{2}$	
	For correct substitution into S_n formular		$\frac{1}{2}$	
	For correct simplification		$\frac{1}{2}$	
	For further simplification		$\frac{1}{2}$	
	For correct answer		2	4
(ii)	For correct substitution into S_n		1	
	For correct simplification		1	
	For getting $1.08^n = 2.5515$		1	
	For taking log for both sides		1	
	For making n subject of formular		1	
	For correct value of n		<u>1</u>	
				<u>6</u>
				<u>20</u>

ALTERNATIVE SOLUTION
QUESTION 2 B (II)

For correct cross multiplication i.e. $r.S_n$		$\frac{1}{2}$
For making $(1 + r)^n$ the subject of formular		$\frac{1}{2}$
For taking the log of both sides		1
For making n the subject of formular		1
For correct substitution into the new derived formular		$\frac{1}{2}$
For simplification		$\frac{1}{2}$
For further simplification		1

SOLUTION 3

(a)

Class	Frequency (f)	X	fX	$f(X - \bar{X})^2$
0 – 10	6	5	30	8,361.1734
10 – 20	10	15	150	7,469.2890
20 – 30	8	25	200	2,402.6312
30 – 40	4	35	140	214.9156
40 – 50	5	45	225	35.6445
50 – 60	7	55	385	1,123.7023
60 – 70	9	65	585	4,625.3601
70 – 80	11	75	825	11,740.6179
	60		2,540	35,973.34

Mean $(\bar{X}) = \dfrac{\sum fX}{\sum f} = \dfrac{2,540}{60}$

$\qquad = 42.33$

Variance $= \dfrac{\sum f(X - \bar{X})^2}{\sum f} = \dfrac{35,973.334}{60}$

$\therefore$ Standard Deviation (S.D) $= \sqrt{var\,iance} = \sqrt{599.5556}$

$\qquad\qquad = 24.4858$

Hence, Coefficient of variation is given by

$\qquad$ C. V. $= \dfrac{S.D}{\bar{x}} X\ 1,000$

$\qquad = \dfrac{24.4858}{42.33}$

$\qquad = 57.85\%$

(b) Total no of participants $= 60M + 42W + 18C = 120$

$\qquad$ i. P (1M, 1 W & 1C) $= 60/120 \times 42/119 \times 18/118$

$$= \quad 0.5 \times 0.3529 \times 0.1525$$

$$= \quad 0.0269$$

ii.   P (M only or W only)

P (M only)

$$= 60/120 \times 59/119 \times 58/118$$

$$= 0.5 \times 0.4958 \times 0.4915$$

$$= 0.1218$$

P (W only) $= 42/120 \times 41/119 \times 40/118$

$$= 0.35 \times 0.344 \times 0.3390$$

$$= 0.0409$$

P(M only or W only)

$$= 0.1218 + 0.0409$$

$$= 0.1627$$

iii.   P(2 C & 1 W) $= 18/120 \times 17/119 \times 42/118$

$$= 015 \times 0.1429 \times 0.3559$$

$$= 0.00763$$

EXAMINER'S REPORT

The question tests the candidates' knowledge of computing the coefficient of variation as a measure of variability and the candidates' ability to apply probability rules in solving management problems.

About 80% of the candidates attempted the question with an average score of 9 marks out of 20 marks allocated to the question.

Inability to correctly apply probability rules seems to be the greatest pitfall which the candidates encountered in answering the question. Also, the candidates seem to lack the ability to compute accurately the coefficient of variation.

The performance of the candidates could have been improved upon if the section 'b' of the question had been made clearer by stating the position which each person can assume to be served.

Candidates are advised to study past question papers and the ICAN study Texts.

MARKING GUIDE   **MARK**   **MARK**

a   For correct $\sum f = 60$ ½

           For correct x column   ½

           For correct fx column $(- ½ \text{ each error})$ 1

           For correct f $(x - \bar{x})^2$ column $\left(-\frac{1}{2} \text{ each error}\right)$ 3

           For correct $\sum fx = 2,540$ ½

           For correct $\bar{x}$ ½

           For correct $\sum f (x - \bar{x})^2 = 35,973.334$ ½

           For correct substitution into variance formular   ½

           For correct variance   ½

           For correct substitution of variance into
           standard deviation formula   ½

           For correct standard deviation   ½

           For correct coefficient of variation (CV)
           formular   ½

           For correct substitution into the CV formular   ½

   For correct CV   ½
                                                                                    ⎯⎯⎯⎯⎯⎯
                                                                                                    10

b. i   For obtaining total number of participants as
           120   1

           For correct multiplication of the three
           probabilities for 1M, 1W & 1C   1

           For correct answer   _1_   3

   ii   For correct multiplication of the three
           probabilities for M only   1

           For correct probability of M only   ½

           For correct multiplication of the three
           probabilities for W only   1

           For correct probabilities of W only   ½

           For summing the probabilities of m only and
           w only   ½

           For correct answer   _½_   4

iii   For correct multiplication of the three

probabilities for two Cs & W	1	
For simplification	1	
For correct answer	<u>1</u>	<u>3</u>
		<u>20</u>

Q3a   **ALTERNATIVE SOLUTION**

For correct $\sum f = 60$	½
For correct x column	½
For correct fx column (-½ each error)	1
For correct fx² column (-½ each error)	3
For correct $\sum f x$	½
For correct $\sum f x^2$	½
For correct mean	½
For correct substitution into the Standard Deviation formular	½
For simplification	½
For correct Standard Deviation	½
For correct CV formular	½
For correct substitution into CV formular	½
For correct CV	<u>1</u>
Total	<u>10</u>

SOLUTION 4

a.   i. $d = 25,000 x 4 = 100,000$, $h = 10\% \, of \, ₦200 = ₦20$

Now, $Q = \sqrt{\dfrac{2cd}{h}}$

$= \sqrt{\dfrac{2 x 10,000 x 100,0000}{20}}$

$= 10,000$

(ii) $a = 20,000$, $r = \dfrac{30,000}{20,000} = \dfrac{45,000}{30,000} = 1.5$

$S_n = \dfrac{a(r^n - 1)}{r-1}$

$S_8 = \dfrac{20,000(1.5^8 - 1)}{1.5 - 1} = ₦985,156.25$

b.i.

Price of ordinary 50 kobo shares (₦)	Frequency		X	FX
	TALLY	F	X	FX
104 – 113	H̶H̶	51	108.5	542.5
114 – 123	H̶H̶H̶H̶ III	13	118.5	1,540.5
124 – 133	H̶H̶H̶H̶H̶H̶	15	128.5	1,927.5
134 – 143	H̶H̶ II	7	138.5	969.5

$$\Sigma F = 40 \quad \Sigma FX = 4,980$$

ii)   The mean price of the ordinary 50 kobo share $= \dfrac{\Sigma fx}{\Sigma f} = \dfrac{4,980}{40} = 124.5$

$$= ₦124.50$$

EXAMINER'S REPORT

The question tests the candidates' understanding of the use of Inventory control, Geometric progression and preparation of frequency distribution table from raw data.

About 90% of all the candidates who sat for this paper attempted the question. Out of which about 50% scored between 10 marks and 20 marks. Inability of the candidates to convert the quarterly data to annual data and to correctly use the Tally method in the frequency table amongst others constitute their major pitfalls.

Candidates should be encouraged to read ICAN study pack on QTB and other relevant textbooks.

MARKING GUIDE				MARK	MARK
A	i	For correct value of d		1	
		For correct value of h		1	
		For correct EOQ formular		½	
		For correct substitution into EOQ formular		½	
		For correct answer		1	4
	ii	For correct expression to get r		1	
		For correct value for r		1	
		For correct S_n formular		1	
		For correct substitution into S_n formular		1	
		For correct answer		2	6

B   i   For correct Tally column (-½ each error)   2
        For correct f column (-½ each error)   1½   3½
    ii For correct x column (-½ each error)   1
        For correct fx column (-½ each error)   2
        For correct $\sum f$ ½
        For correct $\sum f x$ 1
        For correct substitution into the Mean
        formular   ½
        For correct answer   1
        For correctly expressing the answer in Naira
        form   ½   6½
                                                                      20

SOLUTION 5

a. (i) Grouping the ages using the TALLY method:

Ages (year)	Frequency		Class boundaries
	Tally	F	
15 - 25	~~HHI~~ ~~HHHHI~~ II	17	14.5 – 25.5
26 – 36	~~HHI~~ III	8	25.5 – 36.5
37 – 47	~~HHI~~IIII	9	36.5 – 47.5
48 – 58	IIII	4	47.5 – 58.5
59 - 69	~~HHI~~ II	7	58.5 – 69.5
70 – 79	II	2	69.5 – 9.5
80 – 90	I	1	79.5 – 90.5

SOLUTION 5

(ii)   The histogram is as shown on the graph sheet
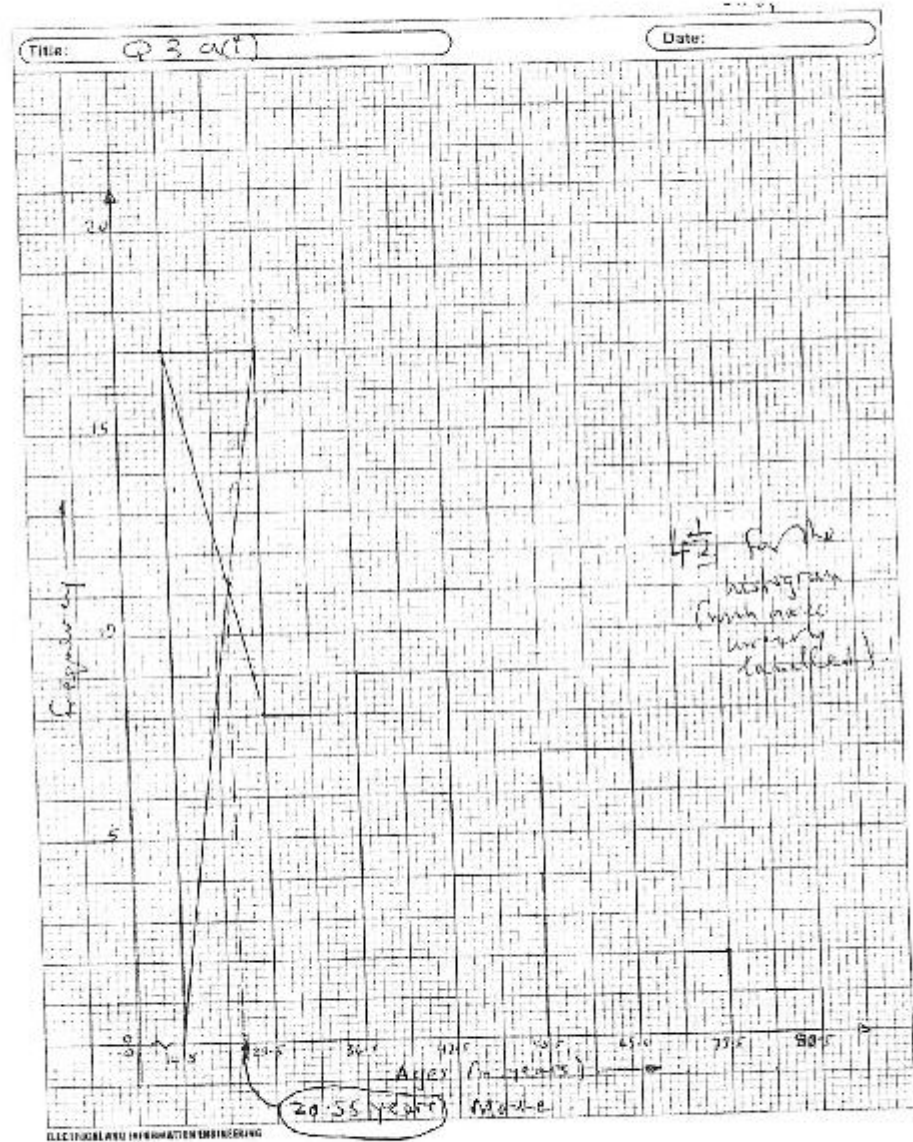
5a. iii) Mode = 14.5 + (1.1 x 5.5)= 20.55 years.

b. i) The appropriate probability tree diagram is as shown

5 a.

$= \frac{1}{2}(0.22) = 0.11$

$= \frac{1}{2}(0.78) = 0.39$

$= \frac{2}{5}(0.20) = 0.08$

$= \frac{2}{5}(0.80) = 0.32$

$\frac{1}{10}(0.18) = 0.018$

$= \frac{1}{10}(0.82) = 0.082$
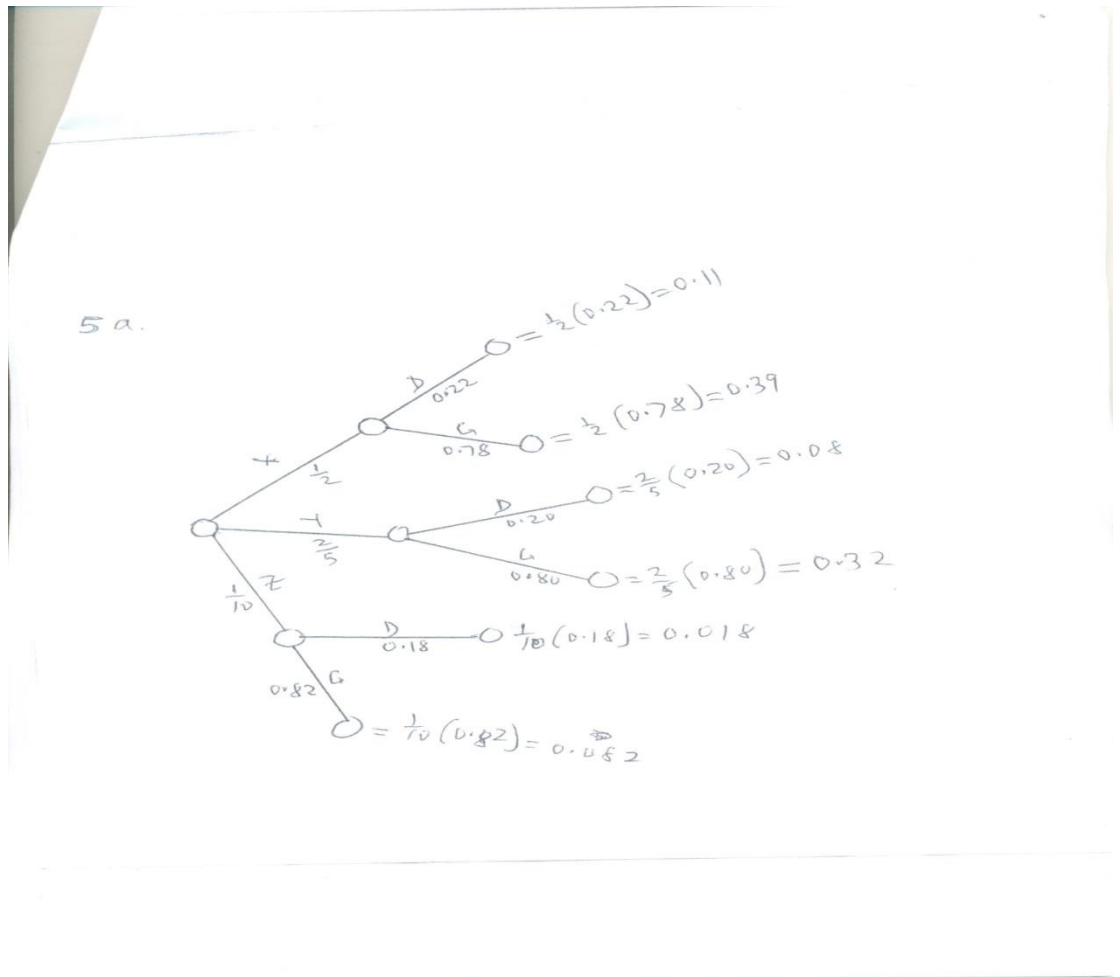
ii) Parts supplied by dealer Z

$$= 1 - \left(\frac{1}{2} + \frac{2}{5} \right)$$

$$= 1 - \frac{9}{10}$$

$$= \frac{1}{10}$$

- Proportion of defective spare parts in the whole supply

$$= 0.11 + 0.08 + 0.018 = 0.208$$

$\therefore$ Probability of discovering a defective component from the ones supplied by dealer Y is

$$\frac{0.08}{0.208} = 0.328$$

(iii)   Proportion of good spare parts in the whole supply

$$= 0.39 + 0.32 + 0.082 = 0.792$$

$\therefore$ Probability of discovering a good spare part from the ones supplied by dealer Z is

$$\frac{0.082}{0792} = 0.104$$

EXAMINER'S REPORT

The question tests the candidates' knowledge of the presentation of data in a frequency distribution table, construction of histogram, determination of mode from the histogram and representing probability on a decision tree diagram. About 95% of the candidates attempted the question out of which about 45% scored above average.

One of the major pitfalls is the inability of most candidates to represent probability on a decision tree diagram. In order to improve on their performance, the candidates are advised to adequately prepare for better performance by consulting the ICAN Study Pack on QTB and other relevant text books.

MARKING GUIDE			MARK	MARK
a	i)	For /correct Tally column (-½ each error)	2	
		For correct f column (at least 2 correct values)	<u>1</u>	3
	ii)	For correct class boundaries column	½	
		For correct 7 bars for the histogram (½ mark each)	3½	
		For correct axis (either axis)	½	
		For correct 2 lines for identification of mode (½ mark each line)	1	
		For correct identification of the point at which the 2 lines intersect for the estimation of the mode	½	
		For correct mode	<u>1</u>	7
b	i.	For correct probability tree diagram showing all the probabilities for all the branches		3
	ii	For correct expression to get probability of Z	½	
		For correct value for the probability of Z	½	
		For correct proportion of defective spare parts from x,y and z i.e 0.11, 0.08 and 0.018 (½ mark each)	1½	
		For correct proportion of defective part in the whole supply	½	
		For correct answer	<u>½</u>	3½
	iii	For correct proportion of good spare part from x,y and z i.e 0.39, 0.32 and 0.082 (½ mark each)	1½	
		For correct proportion of good parts in the whose supply	1	
		For correct answer	<u>1</u>	<u>3½</u>
		Total		<u>20</u>

SOLUTION 6

a. (i) $Z = \dfrac{x - \mu}{\sigma}$

$= \dfrac{8 - 8.08}{0.04} = -2$

This means 8m is TWO standard deviations below the mean.

(ii) From the table, the two standard deviations are equivalent to 0.4772.

Probability of picking pole shorter than 8m

$= P(x < -2) = 0.5 - 0.4772 = 0.0288$

∴ The probability of a pole shorter than 8m is **0.0288 or 2.88%**

b. (i) For footmats that are shorter in length

$Z = \dfrac{x - \mu}{\sigma} = \dfrac{109 - 112}{2.196} = -1.37$

From the table, 1.37 standard deviations are equivalent to 0.4147

∴ The proportion of footmats that are shorter than 109mm in length

$= P(x < -1.37) = 0.5 - 0.4147$

= 0.0853

= 8.53%

ii) For footmats that are longer in length

$Z = \dfrac{114.4 - 112}{2.196} = 1.09$

From the table, 1.09 standard deviations are equivalent to 0.3621.

∴ The proportion of footmats that are longer than 114mm in length is

= P(x > 114.4)

= 0.5 − 0.3621 = 0.1379

= 13.79%

c. (i)   Table of values for the graph

X	0	1	2	3	4	5
$4x^2$	0	4	16	36	64	100
-16x	0	-16	-32	-48	-64	-80
15	15	15	15	15	15	15
Y	15	3	-1	3	15	35

The plot of y against x is as shown below:
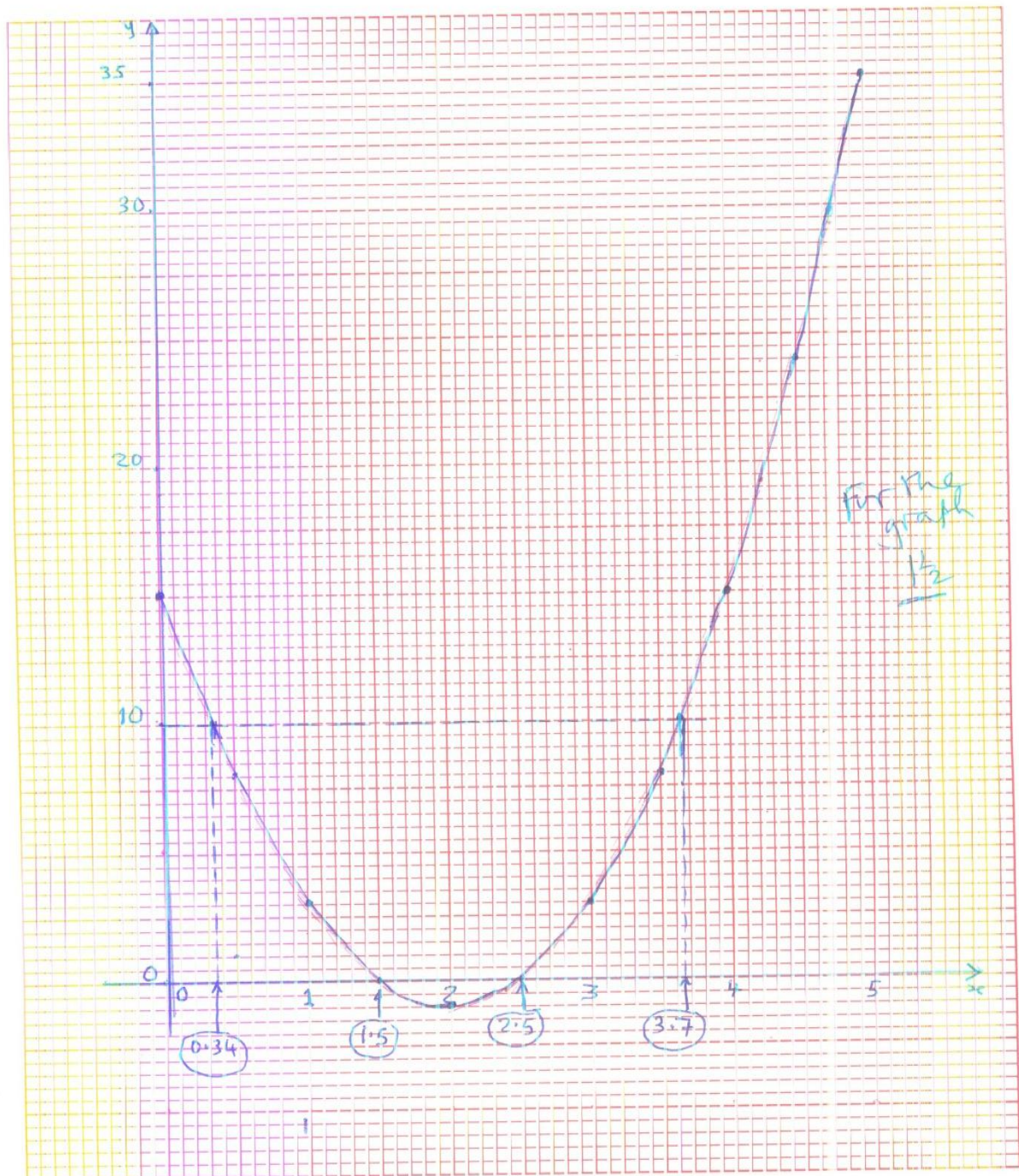
- From graph, when y = 0, x = 1.5 or 2.5
  when y = 10, x = 0.34 or 3.7

(i) Using the Completing the Square Method:

- $y = 0 = 4x^2 - 16x + 15$

i.e. $4x^2 - 16x + 15 = 0$

$x^2 - 4x + \frac{15}{4} = 0$

$x^2 - 4x = -\frac{15}{4}$

$(x-2)^2 - 4 = \frac{-15}{4}$

$(x-2)^2 = 4 - \frac{15}{4} = \frac{1}{4}$

$\therefore x - 2 = \pm\sqrt{\frac{1}{4}} = \pm\frac{1}{2}$

$\therefore x = 2 \pm \frac{1}{2}$

i.e $x = 2\frac{1}{2}$ or $1\frac{1}{2}$

- $y = 10 = 4x^2 - 16x + 15$

i.e $4x^2 - 16x + 15 = 10$

$x^2 - 4x = \frac{10-15}{4} = \frac{-5}{4}$

$(x-2)^2 - 4 = \frac{-5}{4}$

$(x-2)^2 = 4 - \frac{5}{4} = \frac{11}{4}$

$x - 2 = \pm\frac{1}{2}\sqrt{11}$

$x = 2 \pm \frac{\sqrt{11}}{2} = 2 \pm 1.66$

= 3.66 or 0.34

The calculated values compare favorably well with the results obtained from the graph

EXAMINER'S REPORT

The question tests the candidates' knowledge of the application of basic probability theory and quadratic equation to solve management problems. About 95% of those who attempted the question performed below average. Majority of the candidates did not understand how to plot graphs of quadratic expression and to use the method of completing the square became a problem to them.

The major and commonest pitfall in answering the question is the candidates' inability to convert the unit of measurement from centimetre to meters. In order to improve on their performance, candidates are advised to prepare adequately for the examination by reading the relevant ICAN Study Pack on QTB and other relevant textbooks.

MARKING GUIDE			MARK	MARK
a	i	For correct substitution into Z formular	½	
		For correct value of $Z = -2$	1	
		For correct conclusion	<u>1</u>	2½
	ii	For correct table value of of 0.4772	½	
		For subtracting the table value from 0.5	1	
		For correct answer of 0.0288	½	
		For correct conclusion	<u>½</u>	2½
b	i	For correct Z value of -1.37	½	
		For correct table value of 0.4147	½	
		For subtracting the table value from 0.5	½	
		For correct answer of 0.0853	½	
		For correct percentage of 8.53%	<u>½</u>	2½
	ii	For correct Z value of 1.09	½	
		For correct table value of 0.3621	½	
		For subtracting the table value from 0.5	½	
		For getting the correct answer of 0.1379	½	
		For correct percentage i.e 13.79%	<u>½</u>	2½
c	I	For 6 correct values in the table for y (-½ each error)	1½	
		For correct plotting of the 6 points on the graph (-½ each error)	<u>1</u>	2½
	ii	For correct solution for $y = 0$ from the graph i.e. $x = 1.5$ or $x = 2.5$ (½ mark each)	1	
		For correct solution for $y = 10$ from the graph i.e. $x = 0.34$ or $x = 3.7$ (½ mark each)	<u>1</u>	2
	iii	For dividing the equation (i.e $y = 0$) throughout by 4	½	
		For expressing the left hand side as a perfect square	½	
		For making $x - 2$ the subject of the formular	½	
		For $x = 2½$	½	
		For $x = 1½$	½	
		For dividing the equation (i.e $y = 10$ through		

	out by 4	½	
	For expressing the left hand side as a perfect square	½	
	For making x – 2 the subject of formular	½	
	For x = 3.66	½	
	For x = 0.34	<u>½</u>	**5**
iv	For correct conclusion	<u>½</u>	
	Total		<u>**20**</u>

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

FOUNDATION LEVEL EXAMINATION - NOVEMBER 2017

BUSINESS AND FINANCE

Time Allowed: 3¼ hours (including 15 minutes reading time)

SECTION A: **MULTIPLE - CHIOCE QUESTION**   **(20 MARKS)**

INSTRUCTION: **YOU ARE REQUIRED TO ANSWER ALL QUESTIONS IN THIS SECTION**

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

1. Which of these is **NOT** a financial instrument traded in the money market?
   A. Treasury Bills
   B. Call Money
   C. Development Stock
   D. Stabilization Securities
   E. Bill Finance Scheme

2. The decision rule for the acceptance of an investment proposal using Net Present Value (NPV) method is, accept if the
   A. NPV $\geq$ 0
   B. NPV $>$ 0
   C. NPV $<$ 0
   D. NPV $\leq$ 0
   E. NPV $=$ 0

3. A manager representing his/her organisation at events as a "public face" of the organisation is performing?
   A. Leadership role
   B. Spokesman role
   C. Liaison role
   D. Figurehead role
   E. Initiator role

4. The management approach called "Management By Objectives (MBO)" was developed by
   A. Elton Mayo
   B. Fredrick Taylor
   C. Michael Porter
   D. Henri Fayol
   E. Peter Drucker

5. Members of a formal work team are appointed by
   A. Workgroups
   B. Team leaders
   C. Management
   D. Labour union
   E. President

6. The following are required to incorporate a limited liability company **EXCEPT**

   A. Memorandum of Association
   B. Articles of Association
   C. Statement of authorised share capital
   D. Notice of the registered office
   E. Source of Finance

7. Which of the following is **NOT** recognised as a type of unemployment?
   A. Transitional unemployment
   B. Fictional unemployment
   C. Structural unemployment
   D. Economical unemployment
   E. Regional unemployment

8. Which of the following sources of finance available to business is the most frequently used for short-term financing?
   A. Bank borrowing
   B. Rights issues
   C. New share issues
   D. Retained earnings
   E. Trade credit

9. Which of the following is **NOT** a feature of Theory Z?
   A. Long term employment
   B. Collective decision making
   C. Individual responsibility
   D. Non-specialised career path
   E. Slow promotion

10. In Ashridge Leadership Model, which of the following is an equivalent of *laissez-faire* style?
    A. Tells
    B. Bells
    C. Joins
    D. Consults
    E. Free

11. In which of the following management functions is **"NOISE"** a critical challenge?

A. Planning
B. Organising
C. Directing
D. Communication
E. Controlling

12. Which of the following is **NOT** the generic type of industry as suggested by Porter?

A. Fragmented industries
B. Emerging industries
C. Specialised industries
D. Mature industries
E. Global industries

13. The financial structure of a firm is made up of the following components **EXCEPT**

A. Ordinary shares
B. Preference shares
C. Debentures
D. Undistributed profits
E. Dividends

14. The act of reporting suspicious, illegal or improper behaviour to the person in authority is known as

A. Professional ethics
B. Ethical threat
C. Warning
D. Grapevine communication
E Whistleblowing

15. The threat that a professional accountant will promote a client's or employer's position to the point that the professional accountant's objectivity is compromised is known as a/an

A. Advocacy threat
B. Self review threat
C. Self interest threat
D. Familiarity threat
E. Intimidation threat

16. A practice whereby workers deliberately cut down on their output is called

A. Taylorism
B. Systematic soldering
C. Mass production
D. Darwinism
E. Output reduction

17. The principle that says that employees should have only **ONE** direct supervisor is known as
A. Authority
B. Unity of command
C. Discipline
D. Order
E. Subordination of individual interests to the general interest

18. Mayo concluded that lack of attention to _____ was a major weakness in earlier theories of management
A. Materials
B. Methods
C. Work
D. People
E. Machinery

19. Which of the following is a cashflow item?
A. Depreciation of fixed assets
B. Loss on disposal of fixed assets
C. Profit on disposal of investments
D. Surplus on revaluation of fixed assets
E. Proceeds from disposal of fixed assets

20. The process of giving responsibility and authority to an individual worker, instead of relying on managers to tell their workers what to do is known as
A. Delegation of authority
B. Restructuring
C. Management by objective
D. Empowerment
E. Unity of command

SECTION B: OPEN - ENDED QUESTION   (80 MARKS)

INSTRUCTION: YOU ARE REQUIRED TO ANSWER ANY FOUR OUT OF SIX QUESTIONS IN THIS SECTION

QUESTION 1

a.   Companies can raise equity capital externally by issuing new shares for cash. State and explain the **FOUR** main methods of issuing new shares for cash.
                                                                                  (12 Marks)
b.   Explain the following terms:
    i.   Redeemable debts;   (2 Marks)
    ii.   Secured debts;   (2 Marks)
    iii. Committed funds; and   (2 Marks)
    iv.   Straight debts.   (2 Marks)
                                                                      (Total 20 Marks)

QUESTION 2

a.   Finance lease is an option that is open to companies to acquire assets. Explain the concept of finance lease.   (5 Marks)

b.   Explain briefly, any **FIVE** features of a finance lease.   (10 Marks)

c.   Chakibim Limited obtained a quarry machine worth ₦2,500,000 under a finance lease arrangement. The company agreed to make five annual lease payments of ₦600,000 over the life of the lease agreement. Compute the annual interest payment made by Chakibim Limited and state where the interest payment should be recorded in the financial statement.   (5 Marks)
                                                                      (Total 20 Marks)

QUESTION 3

a.   State **FOUR** differences between Accounting Rate of Return (ARR) and Internal Rate of Return (IRR).   (8 Marks)

b.   Explain the term "convertible bonds" .   (4 Marks)

c.   State **TWO** advantages of convertible bonds to:
    i.   Investors; and   (4 Marks)
    ii.   The company.   (4 Marks)
                                                                      (Total 20 Marks)

QUESTION 4

a. Management are expected to provide reasons for making investment decisions. Although most reasons presented to support investment decisions are financial, however, non-financial considerations are equally tenable.

State the **THREE** financial reasons that might be used to make a capital investment decision. (6 Marks)

b. XYZ Limited is considering investing in two mutually exclusive water processing plants. The following cashflows are considered relevant to the investment proposals.

Year		Plant 1(₦)	Plant 2(₦)
0	Initial outlay	(2,000,000)	(1,850,000)
1	Net cashflows	900,000	950,000
2	Net cashflows	850,000	800,000
3	Net cashflows	600,000	450,000
4	Net cashflows	350,000	300,000
5	Net cashflows	200,000	150,000

Assuming the company's cost of capital is 18%, you are required to advise management on the best choice of plant to invest in, using the NPV.

(14 Marks)
(Total 20 Marks)

QUESTION 5

Culture is the set of dominant beliefs, attitudes, values and norms that is shared by several people.

ai. Explain briefly how culture differs between informal and formal organisations.
(4 Marks)

ii. Describe briefly **TWO** factors that shape organisational culture. (4 Marks)

b. Johnson and Scholes suggested the cultural web approach to analysing corporate culture. Describe briefly **FOUR** cultural web elements. (12 Marks)
(Total 20 Marks)

QUESTION 6

To make decisions in a scientific manner, accountants sometimes need to apply operations research techniques.

a. List and describe briefly **FOUR** operations research techniques that accountants can use for effective and efficient decision-making. (16 Marks)

b. State **FOUR** real-world examples of areas where operations research may be applicable. (4 Marks)
(Total 20 Marks)

SECTION A – MULTIPLE CHOICE QUESTIONS

1. C

2.   A

3.   D

4.   E

5.   C

6.   E

7.   D

8.   E

9.   D

10.   C

11.   D

12.   C

13.   E

14.   E

15.   A

16.   B

17.   B

18.   D

19.   E

20.   A

EXAMINER'S REPORT

Questions in this section covered the entire syllabus and are of professional standard. All the candidates attempted the questions and performance is highly commendable as most of the candidates scored above average marks.

SECTION B

SOLUTION 1
(a)   Main methods of issuing new shares to raise capital in cash are:

   i.   **Public offer:** This method entails offering new shares of a Company to the general investing public for cash.

       Public offers are of two types viz: Initial Public Offers (IPO) and Seasoned Equity Offers.

   ii.   Initial Public Offers entails offering the shares of an unlisted company to the capital market for the first time. It attracts a very high cost and for this reason, it may not be a suitable method for small issues.

   iii.   **Seasoned Equity Offer** entails offering the shares of a listed company to the public. It may take the form of an offer for sale or placing.

   iv.   **Private Placement:** A private placement involves the sale of shares to a selected group of persons or institutional investors. It is suitable for small issues.

   v.   **Offer for sale by tender:** Under this method, investors are invited to purchase any amount of shares at a specified price during the specified period of time. The actual issue price for the new shares will be fixed at the minimum price tendered by investors that will be sufficient for all the shares in the issue to be sold.

   vi.   **Right issues:** Rights issue is a large issue of new shares by a company whose shares are already traded on the stock market. It involves offering new shares to existing shareholders in proportion to their existing shareholding.

(b)   i.   **Redeemable debts**
       A debt is redeemable if the borrower receives the capital for a specific period of time and is expected to pay back at the expiration of the period. This implies that the capital issued will be paid back in full at the expiration of the loan period.

   ii.   **Secured debts**
       Secured debt is debt backed or secured by collateral to reduce the risk associated with the repayment. If the borrower defaults on repayment, the collateral is appropriated for repayment of the debt. Thus, the collateral provides an alternative source of repayment if the first source fails

   iii.   **Committed funds**

Fund is committed if the lender has undertaken to provide the finance until the agreed maturity of the debt. The borrower does not have the risk that the lender will demand immediate repayment of the debt without notice before the agreed maturity date.

iv. **Straight debts**

A debt is said to be straight if it is a fixed amount of redeemable debt at a fixed rate of interest. This implies that no matter the prevailing rate of interest, only the initial interest at issue of debt will be paid through the entire life of the debt. It is an option-free debt(i.e it is not callable, not convertible, not putable, not refundable, etc)

EXAMINER'S REPORT

The question tests methods of issuing new shares for cash and types of debts. About 81% of the candidates that sat for this paper attempted the question. The question is straightforward and of professional standard, but candidates performed poorly. Common pitfalls include the transposition of one concept for another and poor communication skills.

Wider coverage of the syllabus is advised for future examination.

Marking Guide

		Marks
a.	1 mark each for methods identified and 2 marks each for correct explanation	12
b.	2 marks each for well explained terms	_8_
		<u>**20**</u>

SOLUTION 2

Finance lease

(a) A finance lease is a means by which a company can use non-current assets instead of outright purchase of the assets with equity or debt capital. This implies that a lease finance company called **the lessor** acquires the asset and leases it to the company (**the lessee**) who uses the asset for almost its entire expected economic life for a fee otherwise called 'rent'. This transaction must be covered by a lease agreement. The lessor charges rent for hiring the assets to the lease. The latter has exclusive use of the assets while the lessor retains ownership.

Assets acquired through a finance lease is usually recognised in the statement of financial position of the lessee. Such an asset is recognised in the non –

current asset column of the statement of financial position and depreciated appropriately while the remaining amount of the finance lease is recognised as a non – current liability.

(b) **Features of a finance lease are:**
  i.   A lease finance company (lessor) acquires a new non-current asset, such as a machine, an item of equipment, a motor vehicle, or even an aeroplane or ship.
  ii. The purchase cost of the leased asset is paid by a lease finance company (lessor).
  iii. The lease finance company (the lessor) and the lessee (lessor) enter into a lease agreement, which covers all or most of the economic life of the asset.
  iv. Under the terms of the lease agreement, the lessee agrees to make a number of regular payments to the lessor over the term of the lease. These payments are an allowable expense for tax purposes.
  v.   The lessee is responsible for insurance, running and maintenance costs for the asset.
  vi. For financial reporting purposes, the principle of 'substance over form' applies. The leased asset is reported in the statement of financial position (balance sheet) of the lessee as a non-current asset. This is matched (initially) by a long-term debt obligation to the lessor, which is gradually paid off over the term of the lease. This means that for financial reporting purposes, lease finance is actually reported in the statement of financial position (balance sheet) as a debt obligation, and the regular lease payments are reported as a mixture of finance costs (interest) and repayment of the obligation to the lessor.
  vii. Substantial risk and reward of ownership are transfer to the lessee.
  viii. The lessee has the option to purchase the asset from the lessor at a future date at an agreed price that is usually lower than the fair value of the asset at the date of option.
  ix. At the inception of the lease, the present value of all the future lease payments amounts substantially to all of the fair value of the leased asset, or more than.
  x.   The leased asset is of specialised nature that can only be used by the lessee without modification
  xi. Finance lease usually has specific period/tenor known as lease period
  xii. Ownership of the asset remains with the lessor while the lessee has exclusive use of the assets as long as the terms of the lease are complied with

(c) Chakibim Ltd
     Computation of annual interest payment

	N
Total lease amount paid (5 x N600,000)	3,000,000
Cost of machine	2,500,000
Interest paid for lease period (N3,000,000 - N2,500,000)	500,000
Number of lease years	5 years
Annual interest payment	**100,000**

The interest is recorded in the statement of comprehensive income as an expense.

EXAMINER'S REPORT

The question tests finance lease. About 60% of the candidates attempted the question. Performance was slightly above average.

Commonest pitfall was the inability of the candidates to list the features of finance lease. Candidates should acquire in-depth knowledge of lease in general and finance lease in particular for future examinations.

Marking Guide

		Marks
(a)	Explanation of finance lease	5
(b)	2 marks each for identified and explained features of finance lease	10
(c)	Marks are distributed as follows:	
	Stating appropriate amount paid on the lease	1
	Computing total interest paid for the lease period	1
	Computing annual interest paid for the lease	1
	Correct answer obtained	1
	Stating where the interest will be charged in the accounts	1
		20

SOLUTION 3

(a)   Differences between Accounting Rate of Return (ARR) and Internal Rate of Return (IRR) are:
  i.   ARR is based on financial profits while IRR is based on cash flows;
  ii. ARR does not recognise the time value of money while the IRR recognises the time value of money;
  iii. ARR does not depend on the investment cost of capital while IRR depends on the investment cost of capital;
  iv. ARR employs average annual accounting profit in its appraisal while IRR uses the actual annual cash flow;
  v.   ARR depends on accounting profits. Accounting profits may not be reliable because of varied accounting treatments that cashflows are subjected to whereas IRR depends on actual cashflows which presents a more reliable measurement;
  vi. ARR is a percentage value relating the average profit to the size of the investment while IRR is discounted using the prevailing cost of capital; and
  vii. ARR is influenced by accounting standards and procedures while IRR does not follow any accounting standard and procedures.

(b)   **Convertible bonds**
   Convertible bonds give their holders the right, but not the obligation, at a specified future date, to convert their bonds into a specific quantity of new equity shares. It is regarded as a financial instrument that has both element of debt and equity.

   If the bondholders choose to exercise the right, they will become shareholders in the company, and surrender their bonds. However, if the bondholders

   decide not to exercise their right to convert, then the bonds will be redeemed at maturity.

   Convertible bonds are always issued at less than the market value of the shares into which the bonds will be convertible at first issue.

   The amount by which the market value of the convertible exceeds the market value of the shares into which the bonds will be converted is called the **conversion premium**.

(c)   i.   Advantages of convertible bonds to the investors are as follows:
   •   Investors receive a minimum annual income up to the conversion date, in the form of fixed interest;
   •   In addition, investors in convertible bonds will be able to benefit from a rise in the company's share price, and hope to make an immediate capital gain on conversion;
   •   Convertible bonds combine some fixed annual income and

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the opportunity to benefit from a rising share price; and

- It gives the bondholder the opportunity to become a shareholder in future.

ii.   Advantages of convertible bonds to the company are as follows:
- The company can issue bonds now and receive tax relief on the interest charges, with the hope to convert the debt capital into equity in future;
- The interest rate on convertibles is lower than the interest rate on similar straight bonds. This is because investors in the convertibles are expected to accept a lower interest rate in return for the option to convert the bonds into equities in future;
- Occasionally, there is strong demand from investors for convertibles, and companies can respond to investors' demand by issuing convertibles in order to raise new capital;
- If a company is just starting up or is developing a new product, such that initial returns will be small, convertible loan stock may be a viable option which provides cheap fixed interest funding. The conversion date can be planned to coincide with the growing availability of profits sufficient to pay acceptable dividends;
- When money is in short supply, the incentive of a future share in profits may encourage lenders who would not otherwise invest in the company; and
- Issuing convertible bonds in periods of depression, in the hope that the conversion period will coincide with higher share prices can be used as a delaying tactic thus giving the company as much money as possible per share issued.

EXAMINER'S REPORT

The question tests Investment Appraisal Techniques and Convertible Bonds. The question is simple and straightforward. More than 80% of the candidates attempted the questions however, more than 50% of those that attempted the question scored poor marks.

Lack of preparation has been identified as one of the reasons for the poor performance. Candidates are advised to cover the syllabus and make use of ICAN Study Text for future examinations.

Marking guide: marks

SOLUTION 4

(a) The different financial reasons that might be used to make a capital investment decisions are:

     i. **Effect of the investment on ROCE**
         Management may consider the use of accounting rate of return (ARR) /return on investment (ROI) as alternative basis for making the decision

     ii. **Cash Recovery Period of the Investment**
         This emphasises the time it takes to recover initial cash invested in the project. Payback period might be a helpful basis for the investment decision.

     iii. **Expected Returns from the Project**
         Discounted cash flow (DCF) technique would be appropriate to aid investment decisions. This is because DCF considers size of future returns and length of time.

(b) **Computation of Net Present Value (NPV) of two mutually exclusive investment projects**

Year	Plant 1 (₦) Cash Flows	Plant 2 (₦) Cash Flows	Discount Factor @ 18%	Plant 1 Present Value	Plant 2 Present Value
0	(2,000,000)	(1,850,000)	1.000	(2,000,000)	(1,850,000)
1	900,000	950,000	0.847	762,300	804,650
2	850,000	800,000	0.718	610,300	574,400
3	600,000	450,000	0.609	365,400	274,050
4	350,000	300,000	0.515	180,250	154,500
5	200,000	150,000	0.439	87,800	65,850
N P V				**6,050**	**23,450**

Decision: The NPV of Plant 2 is ₦23,450 while that of Plant 1 is ₦6,050. Since the NPV of Plant 2 is greater than NPV of Plant, the management of XYZ Ltd Therefore, is advised to invest in Plant 2.

CONCLUSION
NPV decision rule:
The decision rule for NPV is to accept a project where the NPV is positive or equal to zero and reject where the NPV is negative.

The two projects have positive NPV, however, since the two projects are mutually exclusive, project B should be accepted since it has a higher NPV of ₦23,450.

EXAMINER'S REPORT

The question tests Capital Investment Decisions. More than 80% of the candidates that wrote the paper attempted the question. The question is of professional standard. Performance is good, but candidates can still improve on their performance by ensuring a wider coverage of the syllabus and good use of ICAN Study Text.

Marking Guide: marks

a.	2 marks for any three reasons given	6
b.	Layout and appropriate subheads	1
	Identifying cost of investment	1
	Calculating the discounted cash flows 2 marks for each project	4
	Calculating the NPV for each project 2 marks each	4
	Stating basis of decision rule	2
	Appropriate advice	2
		20

SOLUTION 5

(a)   **Brief explanation of how culture differs between informal and formal organisations**
       Culture differs from organizational culture because culture is deeply embedded within an organization and hence it is difficult to change. Also, a common culture might be shared by everyone in the organisation.

       Furthermore, once new employees join an organization, they are taught the culture of that organization and such learns to adopt it.

       On the other hand, informal organization is about the social interactions that exist at the work place. It emanates naturally from the interactions amongst people. Hence, it is not taught. Furthermore, the nature of the informal organization changes once people leave or join the organisation.

(ii)   The factors that shape organizational culture are:
        • Environment: The culture of an organization is shaped by the environment because culture develops as a way of responding and reacting to the environment within which an organisation operates;
        • Events: These shape culture because culture evolves from several events and how individuals, groups or organisations respond to such events;
        • Formal structure and size: The culture of an organisation is shaped by both the formal structure and size of that organisation; and
        • Leadership: Leadership is an influence that shapes organisational culture because it determines organisational values, goals and strategies.

(b)   **Cultural web elements as suggested by Johnson and Schoels**
       These are:
        • **Control Systems:** These comprise the performance measurement and reward systems in an organization. These systems establish the views about what is important and what is not so important. Therefore, individuals in organisations will focus on performance that earns rewards.
        • **Organisational Structure:** The organisational structure shows the important relationships that exist therein and also emphasises who and what is the most important parts of it. Hence, both organisation and management structure have tremendous impact on organisational culture.

- **Power Structure:** Though in many organisations, power is obtained from management position, power can also come from personal influence, or experience and expertise. Therefore, individuals who are in a position of power influence organisations.

- **Routines and Rituals:** Routines refer to 'the ways things are done around here'. While, rituals are special events in the 'life' of the organisation, which are an expression of what is considered important. Therefore, individuals get used to the established ways of doing things, and behave towards each other and towards 'outsiders' in a particular way.

- **Stories and Myths:** These are used to describe the history of an organisation and suggest the importance of certain individuals or events. Both stories and myths are passed by word of mouth and they help to create an impression of how the organisation got to where it is.

- **Symbols:** These are signs that can become a representation of the nature of the organisation. They could be in form of an edifice, a logo, a style of language, or common/familiar words and phrases ('jargon') that employees use.

EXAMINER'S REPORT
The question tests organistional culture and cultural web elements. More that 80% of the candidates attempted the question and their performance was poor. The candidates misunderstood the requirements of the question.

Candidates should ensure that they cover all aspects of the syllabus and make use of ICAN Study Text.

Marking Guide

		Marks	
(a)	Brief explanation of how culture differs from informal organisation at 1 mark for each of any four points	4	
(b)	Enumeration of any **TWO** factors attracts 1 mark each	2	
	Brief description of any **TWO** factors attracts 1 mark each	2	4
(c)	Identification of any **FOUR** cultural web elements at 1 mark each	4	
	Brief description of any **FOUR** cultural web elements attracts 2 marks each	8	
Total		**20**	

SOLUTION 6

(a)   Operations Research (OR) Techniques that accountants use for effective and efficient decision-making include:

- **Game theory**

  This is an OR technique used to solve problems involving conflict. It involves studying mathematical models of conflict and cooperation to help make strategic decisions. Rules are specified which represent the various choices of action available and help determine what the potential and likely outcomes of various courses of action will be.

- **Mathematical logic**

  This is integral to most of the OR techniques. Mathematical logic is used to reflect the relationships between the various components, variables and parameters within something that is being modelled. The logic is constructed to include an 'objective function' with which different solutions can be evaluated and constraints tested that restricts feasible values.

- **Mathematical modeling**

  A model is a simplified representation of a real-life system. Mathematical modelling is a way of describing a system using mathematical concepts and language. The use of mathematical modelling allows the researcher to better understand the content, the effects of different components and make predictions about behavior.

- **Mathematical optimization**

  This is a technique used to select the optical solution from a set of available alternatives. The solution is derived by either maximizing (e.g. profit) or minimizing (e.g. cost) a real function by systematically selecting input values from within a feasible range.

- **Network analysis**

  This is a project management technique. It involves identifying the different components of a project, how long each component will take to be completed, the earliest and latest start and finish times for each component and the order in which components can be completed. One of the main objectives of network analysis is to identify the critical path, that is, the series of components which sequentially represent the shortest potential duration of the project.

- **Queuing theory**

  This is a technique that involves using mathematical methods for analyzing as well as predicting the delays and congestion of waiting and queuing. The objective of queuing theory is to identify ways to improve the process to make it quicker.

- **Simulation**

This is one of the most widely used operational research techniques, which first became popular in the 1940's when 'Monte Carlo' simulation was used to simulate atomic bomb raids. It is an imitation technique that involves building a model that represents a real system then conducting experiments on the model. This allows the researcher to understand the behaviour and evaluate different strategies for operating the system.

- **Decision Tree**
  A decision tree is a graphical method of displaying the various parts of the decision – making process including the courses of action, risks involved and likely outcomes. A decision tree can also be defined as diagrammatic representation of the various alternatives involved in problems requiring sequential decisions so that all the possible alternatives could be properly evaluated.

- **Linear programming**
  Linear programming is a business decision technique which seeks to maximize an objective or goal, for example, profit, or minimize an objective or goal, for example, cost. It is an aspect of mathematical programming. It is called 'linear' because all the decision variables (X_j) involved are raised to power one (X^1). It is called a programming because it involves scheduling (mapping out) the activities.

- **Transportation model**
  This model is used in making decisions that involve the shipment of certain resources or outputs from one location to another.

- **Markov chain analysis**
  This is a technique that deals with the probabilities of future occurrences by analyzing presently known probabilities. It assumes that the systems we are looking at starts with an initial state or condition. According to Trueman R G. (1981), Markov process is a stochastic process which has the property that the probability of a transition from a given state to any future state depends only on the present state and not on the manner in which it was reached.

(b) The real-world examples of areas of application of Operations Research are:
  o critical path analysis for project planning;
  o routing (e.g. for transport or people);
  o supply chain management;
  o scheduling;
  o determining optimal prices; and
  o decision analysis

EXAMINER'S REPORT

The question tests candidates understanding of elementary concepts in Operations Research.

Less that 30% of the candidates attempted the question and performance was poor. Candidates did not have a clear understanding of the requirements of the question. Their responses revealed a vague understanding of the concepts and application areas of operations research.

Candidates should make use of the ICAN Study Text for future examination.

Marking Guide

		Marks
(a)	Any **FOUR** Operations Research Techniques accountants can use for effective and efficient decision-making at 1 mark each	4
	Brief description of any **FOUR** Operations Research Techniques accountants can use for effective and efficient decision-making at 3 marks each	<u>12</u> 16
(b)	Stating any **FOUR** real world examples of areas of application of Operations Research at 1 mark each	<u>4</u>
	Total	<u>20</u>

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

FOUNDATION LEVEL EXAMINATION – NOVEMBER 2017

BUSINESS LAW

Time Allowed: 3¼ hours (including 15 minutes reading time)

SECTION A: MULTIPLE-CHOICE QUESTIONS (20 MARKS)

INSTRUCTION: YOU ARE REQUIRED TO ANSWER ALL QUESTIONS IN THIS SECTION

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

1. Under the law of contract, which of the following circumstances would frustrate a contract?
   A. Performance of the contract
   B. Destruction of the subject-matter
   C. Breach of condition
   D. Agreement of the parties
   E. Mistake by the parties

2. In which of the following situations may an agency be terminated by operation of law?
   A. Disagreement
   B. Non commitment
   C. Discontent
   D. Separation
   E. Frustration

3. The liability imposed by law upon a person through the action of another person under his control is called
   A. Criminal enforcement
   B. Human right
   C. Bailment discharge
   D. Perversed injustice
   E. Vicarious liability

4. Under sale of goods contract, which of the following is a remedy of the seller for breach by the buyer?
   A. Imposition of penalty on buyer
   B. Persecution of the buyer
   C. Withholding delivery of goods to buyer
   D. Declaration of dispute with buyer
   E. Issuing an ultimatum to buyer

5. In which of the following ways may a hire purchase contract be discharged?

A.   Seizure of the goods by the owner
B.   Full payment of the instalments
C.   Rejection of the instalments by the owner
D.   Failure to use the goods
E.   Exercise of the right of lien by either party

6.   When an insurer undertakes to insure a risk with another insurer, there occurs
A.   Indemnity insurance
B.   Risk insurance
C.   Prudent assurance
D.   Re-insurance
E.   Full insurance

7.   The parties to a bill of exchange are
A.   Two
B.   Three
C.   Four
D.   Five
E.   Six

8.   Excess of manpower in an organisation may lead to
A.   Redundancy
B.   Dismissal
C   Resignation
D.   Incompetence
E.   Strike

9.   The person that superintends a unit trust investment scheme is called the
A.   Manager
B.   Superintendent
C.   Administrator
D.   Supervisor
E.   Executor

10.   The government agency empowered to regulate and enforce the Money Laundering (Prohibition) Act 2004 is
A.   Nigerian Drug Laundry Enforcement Agency
B.   National Drug Law Examination Agency
C.   Nigerian Drug Law Exemption Agency
D.   National Drug Law Enforcement Agency
E.   Nigeria Drug Laundry Empowerment Agency

11.   Which of the following is a remedy for civil wrong?

A. Injunction
B. Imprisonment
C. Appeasement
D. Fine
E. Conviction

12. The arrangement of courts in order of superiority is called
A. Superiority of judicial courts
B. Seniority of probate courts
C. Supremacy of international court
D. Hierarchy of courts
E. Coordinate jurisdiction of courts

13 The maximum authorised membership of a general partnership in Nigeria is
A. Ten
B. Twenty
C. Thirty
D. Forty
E. Fifty

14. The length of notice to be given to members for an Extra Ordinary General Meeting of a company is
A. 7 days
B. 14 days
C. 21 days
D. 28 days
E. 35 days

15. Under Insolvency Law, "Fixed Charge" means
A. Charge on intangible assets of a company
B. Charge on liquid assets of a company
C. Charge created over specific assets of a company
D. Charge on fixed assets of a company
E. Charge on current assets of a company

16. For a professional to be found guilty of an offence, the following **TWO** elements must be established: *Mens rea* and
A. *Obiter Dictum*
B. *Actus Reus*
C. *Non Est Factum*
D. *Animus Testandi*
E. *Stare Decisis*

17. Which of these is a type of e-contract?
A. E-Text

B. E-Cyber
C. E-Internet
D. E-Code
E. Shrink-wrap

18. Which of the following is a source of Nigerian Law?
    A. Special code
    B. Justice of peace verdict
    C. Enquiry pronouncement
    D. Judicial precedent
    E. Legal writs

19. Which of the following is charged with the responsibility of prosecuting financial crimes in Nigeria?
    A. Economic and Fraud Criminal Commission
    B. Economic and Funds Crime Commission
    C. Economic and Financial Crimes Commission
    D. Economic and Financial Charges Commission
    E. Economic and Finances Criminal Commission

20. Which of the following is a business of a deposit money bank?
    A. Promulgation of national fiscal policies
    B. Purchase and sale of bills of exchange
    C. Printing of monetary currencies
    D. Regulation of central bank operations
    E. Drafting of banking laws

SECTION B: OPEN-ENDED QUESTION (80 MARKS)

INSTRUCTION: YOU ARE REQUIRED TO ANSWER ANY FOUR OUT OF SIX QUESTIONS IN THIS SECTION

QUESTION 1

a. Bola proposed the sale of an acre of industrial land in Lagos metropolis for ₦10 million to Ayo, and both agreed to the price, the payment to be made within three weeks, subject to a written offer from Bola.

Bola immediately instructed his secretary to prepare and forward the offer document to Ayo. The secretary erroneously typed ₦1million as the offer price, which Ayo immediately accepted.

Bola refused to sell the land at ₦1million, claiming that the amount on the offer letter was a typographical mistake. Ayo decided to sue Bola for specific performance.

Required:

i.   Advise Ayo on the legal issues involved.   (7 Marks)

ii.   State **THREE** vitiating elements of a contract.   (3 Marks)

b.   Under the Doctrine of Equity, certain general principles of application are observed.

      Required:
      State **FIVE** "Maxims of Equity".   (5 Marks)

c.   In administration of estates and trust, representatives are appointed to manage the estate of the deceased.

      Required:

      Explain briefly:
      i.   Letters of Administration; and   ($2\frac{1}{2}$ Marks)

      ii.   Will.   ($2\frac{1}{2}$ Marks)
                                                      (Total 20 Marks)

QUESTION 2

a.   In the law of agency, there are obligations the principal and his agent must perform.

      Required:
      State **THREE** duties an agent owes his principal.   (3 Marks)

b.   Two friends, Chidi and Musa, are equal partners in a general partnership engaged in the buying and selling of vehicle tyres.

      Chidi borrowed ₦5million from a finance house to purchase tyre stocks for the firm, which were kept for sale in the firm's warehouse.

      Musa, on behalf of the firm, also obtained a loan of ₦2million from a bank to buy imported shoes, which were displayed for sale inside the firm's warehouse.

      The firm's warehouse was razed by fire and all the goods inside were lost. This made repayment of both loans impossible on due dates. The finance house and the bank separately intend to sue the firm to recover the loans granted to the partners.

Required:

i.   Explain the legal issues in the partners' transactions   (8 Marks)

ii. Advise the finance house and the bank accordingly.   (4 Marks)

c.   In the Banking Act, the banker and her customer have rights that may be exercised in the relationship.

Required:
State **FIVE** rights of a bank in the relationship.   (5 Marks)
(Total 20 Marks)

QUESTION 3

a.   Under the Criminal Code, there are various offences that are fraud-related.
     You are required to explain the following:
     i.   Bribery; and   (3 Marks)
     ii. Forgery   (3 Marks)

b.   Contract of employment is a voluntary agreement between an employer and employee.

Required:
i.   Distinguish between termination of employment and summary dismissal; and   (4 Marks)
ii. State **FOUR** duties of an employer to the employee.   (4 Marks)

c.   At Common Law, a company has implied power to borrow money through issue of debentures to the public.

Required:
Explain briefly the following:
i.   Floating Charge; and   (2 Marks)
ii. Two advantages of Floating Charge.   (4 Marks)
(Total 20 Marks)

QUESTION 4

a.   Fresh Foods Plc recently held its Annual General Meeting (AGM), where it declared a net profit of ₦2million for the year. The board of directors did not recommend payment of dividends in the agenda and notice of meeting, but

canvassed plough-back of the profit, to reduce the ₦20million trading losses accumulated over the past 10 years.

Shareholders at the AGM, however, unanimously passed a resolution approving dividend payment from the year's ₦2million profit, basing their decision on the fact that they had not received any returns on their investment in the past 10 years. The directors refused to pay the dividends and the shareholders have threatened to remove the directors from office at a proposed Extra Ordinary General Meeting to be convened soon.

Required:

i   Explain the issues involved;   (6 Marks)

ii.   Advise the directors and shareholders as appropriate.   (4 Marks)

b.   The Companies and Allied Matters Act LFN 2004 (as amended) provides that directors of every public company shall prepare Annual Financial Reports for each year of trading operation.

Required:
State **SIX** individual reports that should be contained in a public company's Financial Statements.   (6 Marks)

c.   Torts are classified into different categories.

Required:
State **FOUR** categories of torts.   (4 Marks)

                                                            (Total 20 Marks)

QUESTION 5

a.   The judicial system has hierarchy of courts.

Required:
i.   Explain briefly the meaning of "courts of coordinate jurisdiction".
                                                            (2 Marks)

ii.   State **THREE** examples of courts of coordinate jurisdiction.   (3 Marks)

b.   The Constitution of the Federal Republic of Nigeria has distinct characteristics.

Required:
State **FIVE** of the characteristics.   (5 Marks)

c.   There are various fraud-related offences under the Criminal Code.
Required:
i.   Explain briefly "False Pretences";   (3 Marks)

ii.   State **TWO** factors that are immaterial to the defendant's plea in a charge of false pretences.   (2 Marks)

d. The Money Laundering Prohibition Act, LFN 2004 (as amended) imposes stiff penalties on persons who convert, or transfer resources or property derived directly or indirectly from illicit traffic in narcotic drugs.

Required:
Explain briefly penalties for such offences committed by the following:
i.   An individual; and   (2¹/₂ Marks)

ii.   A body corporate   (2¹/₂ Marks)
                                                        (Total 20 Marks)

QUESTION 6

a. In January 2016, Bayo entered into a hire purchase contract with Shewu, the owner of a limousine, for ₦3million payable over 6 equal monthly instalments, commencing February 2016. Bayo paid four months' equal instalments on due dates, but stopped further payments thereafter.

    Bayo sold the car to Chike in August 2016, and armed robbers snatched it from Chike in September 2016. It was recovered by the police in October 2016. Both Shewu and Chike appeared at the police station to claim the car.

    Required:
    i. State the legal issues involved; and   (3 Marks)

    ii. Advise Shewu and Chike accordingly.   (2 Marks)

b. A contract of sale and hire purchase respectively resemble each other.

    Required:
    Distinguish between contract of sale and that of the hire purchase. (5 Marks)

c. Terrorism is an offence in Nigeria.

    Required:
    Explain briefly **TWO** acts classified as terrorism offences and the applicable penalties.   (6 Marks)

d. The Evidence Act 2011 provides that electronic evidence is admissible in the prosecution of computer fraud.

    Required:
    State **FOUR** ways to authenticate e-mail messages.   (4 Marks)
                                                        (Total 20 Marks)

SECTION A - MULTIPLE-CHOICE SOLUTIONS

1.   B

2.   E

3.   E

4.   C

5.   B

6.   D

7.   B

8.   A

9.   A

10.   D

11.   A

12.   D

13.   B

14.   C

15.   C

16.   B

17.   E

18.   D

19.   C

20.   B

EXAMINER'S REPORT

The questions cover the entire syllabus.
All the candidates attempted the questions and performance was very good with 80% pass rate.

SOLUTION 1

1(ai)   The issue in this case is a unilateral mistake of Bola, a party to the contract, and an awareness by the other party, Ayo, that a mistake was made. However, Ayo took advantage of Bola's mistake.

In the law of contract, "Mistake" is a vitiating element of an otherwise valid contract.

The legal effect of this type of mistake is to make the contract invalid and unenforceable against the party that made the mistake. Thus, the parties had no contract

Ayo, certainly was aware of Bola's mistake on the ₦1 million selling price wrongly quoted on the offer document. He is therefore advised that his legal action for specific performance against Bola will fail.

  ii. Vitiating elements in a contract are as follows:
- Mistake;
- Misrepresentation;
- Duress;
- Undue Influence; and
- Illegality

b.   The "Maxims of Equity" are as follows:
   i.   Equity will not suffer a wrong without a remedy;
   ii. He who comes to equity must come with clean hands;
   iii. He who seeks equity must do equity;
   iv. Where the equities are equal, the first in time prevails;
   v.   Equity follows the law;
   vi. Delay defeats equity;
   vii. Equity aids the vigilant and not the indolent;
   viii. Equity looks at the intent (substance), not the form;
   ix. Equity looks on that as done which ought to be done;
   x.   Equity inputs an intention to fulfil an obligation;
   xi. Where the equities are equal, the law prevails; and
   xii. Equity acts in "personam."

c.i. **Letters of Administration**

Letters of administration is a formal document issued by the Probate Registry of the High Court, authorising specified persons, known as administrators, to manage the estate of a person who died without leaving a Will, that is, a person who died intestate.

ii. **Valid Will**

A valid Will is a legal document, a testamentary declaration, made by a person called the testator, witnessed by two persons, by which he appoints at least two persons, called executors and directs how the testator's estate will be managed or distributed after his death.

EXAMINER'S REPORT

The question tests candidates understanding of
(a) Mistake and other vitiating elements under the Law for contract;
(b) Maxim dog equity; and
(c) Letters of Administration and Wills

About 90% of the candidates attempted the question and performance was quite good.

MARKING GUIDE		MARKS	MARKS
1a	• Explain Mistake as vitiating element in law of contract.	1	
	• Relate case to Unilateral Mistake as vitiating element.	2	
	• Legal effect: contract is unenforceable and void	2	
	• Advice to Ayo: suit will fail	<u>2</u>	7
	State 3 vitiating elements in law of contracts		3
b.	State 5 Maxims of Equity: - 1 mark each		5
c.i	Explain Letters of Administration (issued by court Under intestacy)	$2^{1}/_{2}$	
ii.	Explain basic elements of a valid Will	$2^{1}/_{2}$	<u>5</u>
			<u>20</u>

SOLUTION 2

a. The duties of an agent to his principal are duty
   i. To act in good faith;
   ii. Of obedience and loyalty;
   iii. Of care, skill and diligence;
   iv. Not to allow conflict of personal interest with agency duty;
   v. Of secrecy to protect official information;
   vi. Not to make secret profit; and
   vii. Of personal service or not to delegate his duties – "delegatus non-protest delegare".

b.i. The situation under review relates to the scope of a partner's implied authority to bind the firm and the partners in contractual transactions. Every partner is an agent of the firm and the other partners, and has the authority to enter into contracts on their behalf.

However, the authority is ONLY for the purposes of the partnership's business in the usual way. Thus, a partner involved in contracts outside the normal business of the firm will be personally liable for such transactions.

The ₦5 million loan that Chidi obtained from a finance house for the purchase of tyre stocks on behalf of the firm is valid, as being for the firm's usual business. The Finance House should sue the partner.

The partners, being general partners, will be jointly and severally liable for the loan Chidi obtained. (2 Marks)

The ₦2 million loan obtained by Musa to purchase shoes displayed for sale in the firm's warehouse is invalid "*ab initio*", as it was for a transaction outside the usual trading business of the firm. Thus, Musa will be personally liable for the loan he obtained from the bank and should be sued for it.

ii. The finance house is advised to sue the partners jointly and severally for the recovery of the ₦5 million loan given to Chidi on behalf of the firm.

The bank is advised not to institute legal action against the firm as the suit will fail because the firm has no legal standing or personality to purchase shoes.

The partners must be sued in person.

c. The rights of a bank in a banker/customer relationship are to:

    i.   Use money deposited with it without obtaining the customer's consent;
    ii.   Charge agreed interests on credits granted to its customer;
    iii.   Enforce lien on the customer's assets in its possession under the law;
    iv.   Close the customer's account after due notification;
    v.   Set-off balances on the customer's various accounts under the law;
    vi.   Refuse payment of inchoate cheques or other financial instruments;
    vii.   Be reimbursed for expenses properly incurred on behalf of the customer; and
    viii. Recall overdraft/loan granted the customer in appropriate circumstances.

EXAMINER'S REPORT

The question tests candidates' understanding of the:
(a) Duties of the principal in an agency relationship
(b) Limitation of partnership authority under the partnership law; and
(c) Rights of a bank in banker/customer relationship.

The question was well attempted by 90% of the candidates. Their commonest pitfall was their shallow knowledge of the rights of partners.

Candidates are therefore advised to read the ICAN Study Text.
On the whole, performance was fairly good as 60% of them passed.

MARKING GUIDE	MARKS	MARKS
a. Agency : State 3 duties of principal to agent		
-1 mark each		3
b. i Partnership:		
Explain partners' implied authority	2	
Partners' authority must be within usual firm's business.	2	
Finance house ₦5m loan to Chidi on behalf of the firm is valid	3	
Bank loan ₦2m loan to Musa, Musa not the firm, is personally liable	3	
ii. Advice;		
Finance house will succeed in claim against the partners jointly and severally	1	
Bank will fail in claim against the firm Partners jointly and severally	<u>1</u>	12
c. State 5 bankers' rights – 1 mark each		<u>5</u>
		<u>**20**</u>

SOLUTION 3

a. i. **Bribery**
Bribery is an offence of corruption by public servants.
The offence is presumed to have been committed if the public servant corruptly asks for, receives, obtains, agrees or attempts to be induced with favours to perform his official duty or pervert justice.

 ii. **Forgery**
Forgery is an offence which is committed when a person knowingly makes a false document or writing with intent that it may be used or relied upon as genuine. It is immaterial in what language a forged document or writing is. The offence is presumed committed if fraudulent intent is established.

b. i. The distinguishing features between termination of employment and summary dismissal are as follows:

- Termination of employment occurs when the contract of employment of an employee comes to an end at the instance of the employer by giving required notice to the employee without giving any reason, but paying the employee his due entitlements.

- Summary dismissal occurs when an employer terminates an employee's contract with immediate effect and without notice or benefit. The employer must however give reason(s) for the dismissal, which is often due to the employee's gross misconduct or crime.

 ii. The duties of an employer to his employee are to
- Provide work for the employee;
- Provide safe and conducive work environment for the employee;
- Indemnify the employee for approved expenses incurred;
- Pay the employee the agreed emoluments; and
- Give only lawful instructions to the employee.

c. i. **Floating Charge**
A floating charge is an equitable charge on all or any of a company's property or assets, consisting of assets which are constantly changing in the company's operations as a going concern.

 ii. **Advantages of Floating Charge**
- Floating charge is a valuable means by which a company could raise money on the security of its assets, while also preserving the company's power to deal with the assets in its ordinary course of business.

- It offers the most convenient way of creating security over a company's assets where the company has small or no fixed assets but has large current assets.

- Floating charge enables the trading stocks of a company to be turned over in the normal course of business and attaches to new assets as they are acquired by the company.

- It protects unsecured creditors before crystalisation of the charge, because the company may dispose of any of the assets when the company goes into operational financial difficulties.

- Floating charge is an incentive for creditors to grant larger credits to a going concern as the company expands its operations with consequent assured payment from the company.

EXAMINER'S REPORT

The question tests candidates understanding of:

a. Bribery and forgery under the criminal law;
b. Differences between termination and summary dismissal; and
c. Description and advantages of floating charge in company's borrowing.

About 80% of the candidates attempted the question and performance was impressive.

			MARK	TOTAL
MARKING GUIDE				
3. a. i.	Explain bribery as a criminal offence against indicted public officials.		3	
ii.	Explain forgery as a criminal offence committed when a person fraudulently falsifies written information.		<u>3</u>	6
3. b. i.	Explain the difference between termination and summary dismissal: Termination is by employer without giving reason, but with full payment of the employee's entitlements.		3	
	Summary dismissal is when an employer Terminates his employee without notice or benefit, but gives reasons.		3	

ii.	State 2 duties of the employer to the employee - (1 mark each)		<u>2</u>	8
c. i.	Explain floating charge as equitable charge by debenture holders on all the assets of a debtor-company.		2	
ii.	Explain 2 advantages of floating charge - 2 marks each		<u>4</u>	<u>6</u> <u>20</u>

SOLUTION 4

a. i.   The issue involved in this situation relates to declaration of dividends by a public company under the Companies and Allied Matters Act, 2004 (CAMA). The board of directors is the only organ of a public limited company that may recommend payment of dividends, which must be contained in the meeting agenda and presented for approval at the general meeting.

In this case, the board of directors of Fresh Foods Plc did not recommend payment of dividends to the general meeting. It was also not included in the meeting agenda.

The shareholders' resolution passed for payment of dividends is thus illegal, null, void and of no effect. The shareholders' threat to remove the directors at a proposed Extra-Ordinary General Meeting is unjustifiable.

ii.   The board of directors is therefore advised not to succumb to the shareholders' illegal resolution to pay dividends. If dividends are paid in the circumstances, the directors will be personally liable to make a refund.

The shareholders are advised against their proposed actions to remove the directors, as the dividend declaration resolution is illegal, null and void.

b.   Under section 334 of the Companies and Allied Matters Act, 2004, the annual financial reports of a public company must contain the following individual reports:

   i.   Corporate information (registered office, directors, auditors and bankers);
   ii.   Auditors' report on the financial statements;
   iii.   Directors' report on operations;
   iv.   Statement of accounting policies;
   v.   Statement of financial position;
   vi.   Statement of profit or loss and other comprehensive income;
   vii.   Notes to the financial statements;

viii.   Statement of cash flow;
ix.   Statement of value-added; and
x.   Five-year comparative financial summary

c. Torts are generally classified into the following categories:
i.   Tort affecting personal safety;
ii.   Tort affecting personal freedom;
iii.   Tort of trespass to personal properties;
iv.   Tort of negligence;
v.   Tort of nuisance;
vi.   Tort affecting personal reputation and integrity;
viii.   Tort affecting personal economic interests; and
Viii.   Tort of interference with judicial process.

EXAMINER'S REPORT

The question is testing candidates' understanding of the Law relating to dividend declaration and payment; content of Annual Financial Reports of Public Companies; and categories of tort.

Only 50% of the candidates attempted this question; and 80% of these passed.

Performance was, thus, very good.

MARKING GUIDE	MARK	TOTAL
a. Legal issue involved is power of directors to declare dividends by public companies	4	
Relate case to legal issues of powers of public company directors on dividend declaration.	2	
Advice: - The shareholders' resolution to declare dividend and threat to remove the directors are unjustifiable.	2	
- The directors should maintain stand against the dividend declaration.	2	10
b. State 6 statements to be contained in Directors' Financial Report of a public company. - 1 mark each		6
c. State 4 Categories of torts. - (1 mark each)		<u>4</u> <u>**20**</u>

SOLUTION 5

a. i.   In the judicial system, courts of coordinate jurisdiction are courts that are on the same level and status in the hierarchy of courts. Decisions of these courts are not binding on one another, but are merely persuasive.

   ii.   Courts of coordinate jurisdiction include the following:

   - Federal High Court;
   - High Court of a State;
   - National Industrial Court;
   - Sharia Court of Appeal; and
   - Customary Court of Appeal.

b.   The characteristics of the Constitution of the Federal Republic of Nigeria are as follows:

   i.   Supremacy over all other laws in the country;
   ii.   It is written and rigid;
   iii.   Federalism;
   iv.   Separation of powers;
   v.   Rule of Law;
   vi.   It enshrines Fundamental Human Rights.

c.   **False Pretences**
   False Pretence occurs by any representation made by a person in words, writing or by conduct of a matter of fact, which representation is false, and which the person making it knows to be false, with intent to defraud another of anything capable of being stolen. The offence is   presumed to have been committed if the victim has been induced to part with his property, or caused financial loss, even if the property is subsequently returned to the victim.

ii.   **Factors that are immaterial to the Defendant's Plea**

   - It is immaterial that the property, goods or money is obtained, induced or conducted through the medium of a third party;

   - It is not material that the defendant had no intention to cause pecuniary or economic loss to the victim; and

   - It is also immaterial that the defendant did not personally receive the benefits of the fraudulent act.

d. i. Under the Money Laundering (Prohibition) Act, 2004, an individual who is convicted for transferring or converting proceeds of traffic in narcotic drugs shall be liable to imprisonment for not less than 15 years and not more than 25 years. The money laundered or the property/goods acquired by the convict is also forfeited to the Federal Government.

ii. A corporate body acting through any of its agents, officers or servants, found guilty and convicted for the offence under the Money Laundering (Prohibition) Act 2004, shall be liable to a fine of ₦1 million.

The money laundered or the property/goods acquired by the convicted corporate body is also forfeited to the Federal Government.

EXAMINER'S REPORT

The question tests candidates' understanding of the legal principles involved in:
a. Courts of coordinate jurisdiction;
b. Characteristics of the 1999 Nigerian Constitution;
c. Description of False pretences in criminal Law; and
d. Penalties imposed by the Money Laundering Prohibition Act

90% of the candidates attempted the question but only about 60% passed.

The major pitfall was candidates' limited knowledge of the provisions of Money Laundering Prohibitions Act.

Candidates are advised to study ICAN's Study Text more in-depthly.

MARKING GUIDE	MARKS	MARKS
a. i. Explain 'courts of coordinate jurisdiction' as courts of equal level and status	2	
ii. State 3 examples of such courts.-1 mark each	<u>3</u>	5
b. State 5 characteristics of the Nigerian Constitution – 1 mark each		5
c. i. Explain ' False Pretences' as false statements made by a person in conduct or written, with fraudulent intent.	3	
ii State two pleas of defendant's which are considered immaterial – 1 mark each	<u>2</u>	5
d. i. Explain penalties for individual convicted under the Money Laundering Act	2½	
ii. Explain penalties for corporate body convicted under the Money Laundering Act	2½	<u>5</u>
		<u>20</u>

SOLUTION 6

a. i.   In a hire purchase contract, title to the goods passes to the hirer after he
            has paid the instalments in full and exercised his option to purchase
            the goods, which is the subject matter of the contract.

            Bayo had no title to the limousine which he sold to Chike, as Bayo
            did not complete payment of the instalments and also did not exercise
            the option to purchase the car.

    ii.   Shewu is advised to repossess the limousine car, as he still has
            ownership and title to the car.
            Chike's claim will fail because he has defective title from Bayo.

b.   The main distinguishing element between contract of sale and hire purchase
            contract is when title in the goods passes from the owner to the buyer.
            In contract of sale, title passes from the owner to the buyer immediately
            after the conclusion of the sale of the goods on agreed terms.

            Under a hire purchase contract, there is no passing of title from the
            owner to the hirer until the last instalment is paid and the hirer exercises
            his option to purchase the goods.

c.   Offences classified as terrorism under the EFCC Act and Money Laundering
            Prohibition Act.

    i.   Wilfully providing or collecting by any means, directly or indirectly,
            of any money, with intent that the money shall be used for any act of
            terrorism for which the person is guilty of the offence. The penalty is
            life imprisonment.

    ii.   Continuing or attempting to commit an act of terrorism or
            participating in or facilitating the commission of a terrorist act.
            The penalty is life imprisonment.

    iii.   Making funds, financial assets or economic resources or
            other related services available for use of any other person to commit
            or attempt to commit, facilitate or participate in the commission of a
            terrorism act. The penalty is life imprisonment.

d.   Under the Evidence Act, 2011, an e-mail message could be authenticated
            as electronic evidence in prosecution of computer fraud by:
    i.   The testimony of the author of the e-mail message;
    ii.   Comparing the e-mail message with other e-messages from same
            author to others;
    iii.   Some peculiar features of the disputed e-mail message;
    iv.   Examining the e-mail message print-out for details of the addressee;

v.   Evidence of a witness who has knowledge of the exchange of the e-mail correspondences between the author and addressee;

vi.   Oral evidence of the addressee of the e-mail message that he received the e-mail; and

vii.   Evidence that the e-mail message tallies with other admitted telephone or other discussions involving the parties.

EXAMINER'S REPORT

The question is testing candidates knowledge of fundamental legal issues involved in:

a)   Hire Purchase contracts;

b)   Distinction between contracts of sale and those of Hire Purchase;

c)   Acts classified as terrorism offences and applicable penalties; and

d)   Electronic evidence in computer fraud as they relate to e-mails.

Only 40% of the candidates attempted this question, while 50% of these passed.

Performance was average.

The commonest pitfall was their apparent lack of preparedness for this area of the syllabus; especially acts of terrorism and electronic evidence in computer frauds.

Candidates are advised to study ICAN's Study Texts to master this area of the syllabus.

MARKING GUIDE			MARKS	TOTAL
a.	I	Legal issue is hirer has no title to the goods until he has met all conditions	3	
	Ii	Advice:		
		• Shewu remains owner and will succeed to claim the car	1	
		• Chike has defective title and cannot claim the car	<u>1</u>	5
b.		• Main difference is when the title in the goods is transferred by the owner	1	
		• In contract of sale, title is transferred on conclusion of sale.	2	
		• In hire purchase, title is transferred after hirer has satisfied all conditions	<u>2</u>	5
c.		Explain 2 terrorism acts – 2 marks each		
		State the penalty for each – 1 mark each	<u>4</u>	6
d.		State 4 ways to authenticate e-mail evidence		<u>4</u>
				<u>20</u>