THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

PATHFINDER

MAY 2019 DIET
FOUNDATION LEVEL EXAMINATIONS

Question Papers

Suggested Solutions

Examiner's Reports

Plus

Marking Guides

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 – MAY 2019

FINANCIAL ACCOUNTING

Time Allowed: $3\frac{1}{4}$ 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.   A partner's current account was debited with ₦250,000 and the sales account credited with the same amount. What is the reason for this transaction?
   A.   Goods were returned to the partner
   B.   Goods have been purchased from the partner
   C.   Goods have been sold to the partner
   D.   The partner withdrew inventory
   E.   Goods were returned by the partner

2.   Which of the following is **NOT** An objective of International Accounting Standards Board (IASB)?
   A.   Review of accounting standards
   B.   Promotion of the use of accounting standards
   C.   Application of the accounting standards
   D.   Convergence of International Accounting Standards
   E.   Preparation of the financial statements of IASB

3.   End of period adjustment entries are made in order to satisfy the
   A.   Going concern principle
   B.   Entity principle
   C.   Double entry principle
   D.   Matching principle
   E.   Realisation principle

4.   Which of the following standards deal with the 'presentation of financial statements?'
   A.   IFRS 1
   B.   IAS 1
   C.   IFRS 2
   D.   IAS 2
   E.   IAS 7

5. Payments received in advance from customers are included in

   A. Revenue
   B. Assets
   C. Liabilities
   D. Shareholders' equity
   E. Expenses

6. Which of the following depreciation is required to arrive at the carrying amount of PPE in the statement of financial position?

   A. Accumulated depreciation
   B. Depreciation for the current year
   C. Depreciation relating to disposal of property, plant & equipment
   D. Provision for depreciation for two years
   E. Provision for depreciation for additional property, plant & equipment

7. Qualitative characteristics of useful financial information under IFRS may be fundamental or enhancing. Which **TWO** of the following qualitative characteristics are fundamental?

   I. Relevance
   II. Verifiability
   III. Understandability
   IV. Faithful representation

   A. I and IV
   B. II and III
   C. II and IV
   D. III and IV
   E. I and III

8. Which of the following is **NOT** posted to the credit side of the trade receivables control account?

   A. A cash refund to customers
   B. Cash received from customers
   C. Discount allowed
   D. Sales returns
   E. Dishonoured cheque

9. Which of the following cash transactions will result in cash outflow?

   A. The company sells a machine
   B. The company increases trade receivables
   C. The company receives a bank loan
   D. Proceed from issue of debenture
   E. Receipts from customers

10. Given the following information, calculate the company's non-current liability.

Current assets	₦130,000
Current liabilities	₦80,000
Carrying amount of PPE	₦250,000
Total equity	₦200,000

A. ₦50,000
B. ₦100,000
C. ₦285,000
D. ₦375,000
E. ₦660,000

11. In which of the following financial records or documents will trade discount be recorded?
A. Cash book
B. Purchases day book
C. Journal voucher
D. General ledger
E. Invoices

12. In a bank reconciliation statement, which of the following would be added to the balance as per bank statement?
A. Service charge
B. Direct transfer
C. Outstanding cheques
D. Uncredited cheques
E. Bank charges

13. For a not-for-profit organisation, the excess of income over expenditure is
A. Added to drawings
B. Added to bank overdraft
C. Added to accumulated fund
D. Deducted from the receipts and payments
E. Added to subscription

Use the following information to answer questions 14 and 15

Rates paid in advance 31 December, 2017	=	₦100,000
Rates paid during the year 2018	=	₦80,000
Rates paid in advance 31 December, 2018	=	₦16,000

14. The amount of rates taken to the statement of profit or loss for the year ended 31 December, 2018 is
A. ₦16,000
B. ₦36,000
C. ₦96,000
D. ₦164,000
E. ₦196,000

15. The amount of rate taken to the statement of financial position as at 31 December, 2018 is

    A.   ₦16,000
    B.   ₦36,000
    C.   ₦96,000
    D.   ₦164,000
    E.   ₦196,000

16. Which of the following statements is correct?

    A.   A trial balance reveals whether double entry principle has been complied with
    B.   A trial balance will always balance
    C.   A trial balance reports the financial position of a business
    D.   A trial balance reports the profit or loss made by a business
    E.   A trial balance always reveals errors in the ledger

17. Which of the following is **NOT** a non-current asset?

    A.   Assembly plant
    B.   Computer hardware
    C.   Finished products
    D.   Delivery vans
    E.   Factory building

18. Bravado Trading Company sold a galaxy handset at ₦250,000 to a customer and at cost plus a mark-up of 20%. How much profit did the company make from the sale?

    A.   ₦25,000
    B.   ₦41,600
    C.   ₦41,667
    D.   ₦50,000
    E.   ₦50,667

19. Which of the following equations calculates the profit of a sole trader?

    A. Closing net assets + drawings + capital introduced –opening net assets
    B. Closing net assets – drawings + capital introduced – opening net assets
    C. Closing net assets + drawings – capital introduced – opening net assets
    D. Closing net assets – drawings – capital introduced – opening net assets
    E. Closing net assets – drawings + capital introduced – opening net assets

20. Which of the following users is likely **NOT** to be interested in the financial statements of a sole trader and a partnership business?

    A. The federal government, state and the local tax authorities
    B. Auditors and financial analyst
    C. Banks and insurance companies
    D. The stock exchange and shareholders
    E. Employees and proprietors of the business

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. Explain the term "inventory" as defined by International Accounting Standard (*IAS* 2).   (3 Marks)

b. Kensington Limited buys used cars which it reconditions and sells to customers. The selling expenses are expected to absorb 5% of the expected selling price. The company's management had decided to value inventories in compliance with the requirements of *IAS* 2. Kensington Limited's inventory at the end of 31 December, 2018 is as follows:

Items	Purchase Price ₦'000	Reconditioning costs Incurred ₦'000	Expected further costs before sale ₦'000	Expected selling price ₦'000
Honda	10,500	650	400	13,500
Mercedes	17,600	850	1,100	20,500
Nissan	18,200	500	900	24,000
Toyota	8,500	-	900	9,500
	54,800	2,000	3,300	67,500

  i. Compute the value at which inventory of cars should be measured using both cost and net realisable value methods.
    (14 Marks)

  ii. Determine the value of each item of inventory to be included in Kensington's statement of financial position as at 31 December, 2018.
                (3 Marks)
                (Total 20 Marks)

QUESTION 2

You have been asked to prepare the financial statements of Tanimose Limited for the year ended 31 December, 2018.   A trial balance as at that date is shown below.

	DR N'000	CR N'000
Revenue		53,000
Purchases	32,200	
Property, plant and equipment - cost	59,000	
Property, plant and equipment - accumulated depreciation		25,000
Inventories as at 1 January, 2018	7,800	
Interest expense	200	
Accrued expenses		400
Distribution expenses	8,900	
Administrative expenses	7,000	
Retained earnings		23,500
Trade receivables	9,000	
Cash at bank	200	
8% bank loan repayable in 2021		5,000
10 Million ordinary share capital at ₦1 each		10,000
Share premium		5,000
Trade payables		2,400
	124,300	124,300

The following information is also available:

(i)   The revenue figure in the trial balance includes sales made on credit to Mr. Abdullahi amounting to ₦3,100,000 on 30 October, 2017.

(ii)   Closing inventory value was ₦8,400,000. Included in this figure are inventories that cost ₦500,000 but which can be sold for only ₦250,000.

(iii)   Carriage inwards amounting to ₦157,000 was not included in the trial balance.

(iv)   Interest on bank loan for the past six months remained unpaid as at 31 December, 2018. This was not included in the trial balance.

(v)   Depreciation of property, plant and equipment, for the year was charged at 10% using straight line method.

(vi)   Accrued distribution expenses amounted to ₦150,000 at 31 December, 2018.

You are required to prepare:

a. Statement of profit or loss and other comprehensive income for the year ended 31 December, 2018. (10 Marks)

b. Statement of financial position as at 31 December, 2018. (10 Marks)
(Total 20 Marks)

QUESTION 3

a. In relation to IAS 16 on Property, plant and equipment, define the following terms:
   i. Depreciation (1$\frac{1}{2}$ Marks)
   ii. Depreciable amount (1$\frac{1}{2}$ Marks)
   iii. Useful life (1$\frac{1}{2}$ Marks)
   iv. Residual value (1$\frac{1}{2}$ Marks)

b. On 1 January, 2014, a company acquired an item of equipment at a cost of ₦650,000. The item's useful life is expected to be five years with a residual value of ₦13,000.

   Calculate depreciation charges for each of the five years of the item's useful life, using:

   i. The straight line method (2 Marks)

   ii. The diminishing balance method (at the rate of 54%) (12 Marks)
(Total 20 Marks)

QUESTION 4

Okeke Limited's bank statement showed an overdrawn balance of ₦124,000,000 as at 30 June, 2018 which did not agree with the cash book balance at the same date. On investigation, you discovered the following:

(i) Bank charges of ₦350,000 shown on the bank statement have not been entered in the cash book.

(ii) A cheque drawn for ₦4,700,000 has been entered in error as a receipt.

(iii) A personal cheque of ₦800,000 for Mr. Okeke was wrongly paid into Okeke Limited's bank account, but the amount was not entered into the company's cashbook.

(iv) A cheque for ₦1,800,000 has been returned by the bank marked "refer to drawer", but it has not been written back in the cash book.

(v) The cheques issued to suppliers for ₦21,400,000; ₦7,000,000; and ₦3,000,000 have not yet been presented to the bank.

(vi)   The last page of the paying in book shows a deposit of ₦154,200,000 which has not yet been credited to the account by the bank.

(vii)   The bank has debited a cheque for ₦7,200,000 in error to the company's account.

(viii) A standing order for the payment of an annual subscription amounting to ₦800,000 had not been entered in the cash book.

(ix)   The debit side of the cash book was undercast by ₦1,000,000.

You are required to prepare:

a.   Adjusted cash book and   (10 Marks)

b.   Bank reconciliation statement as at 30 June, 2018   (10 Marks)
                                                                       (Total 20 Marks)

QUESTION 5

The following financial information relates to Johnco Limited

Johnco Limited
Statement of Profit or Loss
For the year ended 30 June, 2018

	₦'000
Revenue	25,530
Cost of sales	(18,140)
Gross profit	7,390
Distribution cost	(1,250)
Administrative expenses	(2,640)
Operating profit	3,500
Interest received	250
Interest paid	(750)
Profit before tax	3,000
Income tax	(2,400)
Profit for the year	600

Johnco Limited
Statement of Financial Position
as at 30 June, 2018

	2018 ₦'000	2017 ₦'000
Non-Current Assets:		
Property, plant and equipment	3,800	3,050
Intangible assets	2,500	2,000
Investments	-	250
	6,300	5,300
Current Assets		
Inventories	1,500	1,020
Short term investment	500	-
Accounts receivables	3,900	3,150
Cash and cash equivalents	20	10
	5,920	4,180
Total Assets	12,220	9,480
Equity and Liabilities		
Equity Interest		
Ordinary share capital of ₦1.00 each	2,000	1,500
Share premium	1,600	1,500
Revaluation surplus	1,000	910
Retained Earnings	1,600	1,000
Total Equity	6,200	4,910
Non-current Liability		
10% loan notes	1,000	-
Current Liabilities		
Account payables	1,270	1,190
Bank overdraft	850	980
Taxation	2,900	2,400
	6,020	4,570
Total equity and liabilities	12,220	9,480

The following information is also relevant:

(i)   ₦300,000 was realised from the sale of investment during the year.

(ii)   Property, plant and equipment with original cost of ₦850,000 and carrying amount of ₦450,000 were sold for ₦320,000 during the year.

(iii)   The short-term investment qualifies as cash and cash equivalent under IAS 7.

(iv)   The property, plant and equipment consist of:

	30/06/2018 ₦'000	30/06/2017 ₦'000
Cost	7,200	5,950
Accumulated depreciation	(3,400)	(2,900)
Carrying amount	3,800	3,050

Required:

In accordance with IAS 7, prepare statement of cash flows for the year ended 30 June, 2018 using the indirect method.   **(Total 20 Mark)**

QUESTION 6

a.   The preparation of control accounts requires information from different units, both within and outside the accounts department of an entity. Mr. Gogo, a partner in the partnership business of Winners Enterprises is worried over the absence of the information needed for the purpose of determining the accounts receivables and payables balances.

Required:

In a tabular form, highlight **THREE** sources of information required and the accounting records from which such information is obtained for the preparation of:

i.   Accounts receivables control account   (6 Marks)

ii.   Accounts payables control account   (6 Marks)

b.   A trial balance and its agreement are key to the preparation of financial statements. More often than not, an entity's trial balance fails to agree and the accountants are faced with the job of ensuring that any discrepancy is eliminated.

Additionally, the balancing of the trial balance may not even indicate that it is error free.

Required:

i.   Explain what is meant by a trial balance.   (2 Mark)

ii.   Highlight the reasons why the debit and credit sides of a trial balance may not agree.   (6 Marks)
                                        (Total 20 Marks)

SECTION A

1. C

2. E

3. D

4. B

5. C

6. A

7. A

8. E

9. B   ₦'000   ₦'000

10. B   250 + 130 – 200 – 80   =   100

11. E

12. D

13. C

14. D   Workings = 100 + 80 – 16   =   164

15. A

16. A

17. C

18. C   {(20/120) x 250,000}   =   ₦41,667

19. C

20. D

EXAMINER'S REPORT

The questions cover substantially all parts of the syllabus and they test candidates' knowledge of the basic principles of the subject matter and simple calculations of figures using the basic principles.

All candidates attempted the question and performance was above average.

The commonest pitfalls of the candidates were their inability to apply:

- the principle of double entry correctly; and

- the accrual basis of accounting.

Candidates are advised to study and understand both the principles and application of the accounting standards, concept and conventions at this level of the Institute's examination.

SECTION B
SOLUTION 1

(a)   Definition to inventory according to IAS 2

        The nature of inventories varies with the type of business. Inventories are:

        i.   Assets held for sale in the ordinary course of business. For a retailer, these are items that the business sells – its stock in trade. For a manufacturer, assets held for sale are usually referred to as 'finished goods'.
        ii.   Assets in the process of production for sale ('work-in-progress' for a manufacturer)
        iii.   Assets in the form of materials or supplies to be used in the production process ('raw materials' in the case of a manufacturer).

(b)   Measurement of Inventories

i.   **Kensington Limited**
          Computation of value at which inventory of cares should be measured

Items	Purchase	Recond	Cost	Expected	Expected	Expected	
	Price	Costs	Price	S. P	Further	Selling	NRV
					Cost	Price	
	₦'000	₦'000	₦'000	₦'000	₦'000	₦'000	₦'000
Honda	10,500	650	11,150	13,500	400	675	12,425
Mercedes	17,600	850	18,450	20,500	1,100	1,025	18.375
Nissan	18,200	500	18,700	24,000	900	1,200	21,900
Toyota	8,500	-	8,500	9,500	900	475	8,125

ii. According to the International Accounting Standard (IAS 2) on Inventory, Inventory should be valued at the lower of Cost and Net Realisable Value. Based on the above rules, the value of each item of inventory to be included in Kensington's statement of financial position as at 31 December, 2018 will be:

Items	Cost		Lower of
	Price	NRV	Cost and NRV
	₦'000	₦'000	₦'000
Honda	11,150	12,425	11,150
Mercedes	18,450	18,375	18.370
Nissan	18,700	21,900	18,700
Toyota	8,500	8,125	8,125

ALTERNATIVE

(i)   Kensington Limited

Items	Total cost computation	Cost	Computations	Net Realizable (NRV)
	I	II	III	IV
	₦'000	₦'000	₦'000	₦'000
Honda	(10,500+650)	11,150	(13,500 X 95%)-400	12,425
Mercedes	(17,600+850)	18,450	(20,500 X 95%)-1,100	18,375
Nissan	(18,200+500)	18,700	(24,000 X 95%)-900	21,900
Toyota	(8,500+0)	8,500	(9,500X 95%)-900	8,125
		56,800		60,825

(ii)   IAS 2 requires inventory to be measured at the lower of cost and NRV. The value of inventory items to be entered in Kensington's statement of financial position December 31, 2017 will be:

	₦'000
Honda	11,150
Mercedes	18,375
Nissan	18,700
Toyota	8,125
	56,350

EXAMINER'S REPORT

The question tests candidates' knowledge of the measurement of inventory and the computation of the value using the general principles.

About 20% of the candidates attempted the question and their performance was average.

The major pitfalls includes:

-       inability of the candidates to correctly define inventory;

-       failure of candidates to understand the requirements of IAS2 on inventory

Candidates are advised to be conversant with the theory and applications of IAS2.

MARKING GUIDE	MARKS	MARKS
A Asset held for sale in ordinary course of business		1
Asset in the process of production for such sale		1
Asset in form of materials or supplies to be consumed in production process		1
		3

Bi Computation of cost and NRV:

Title	½	
Cost per products:		
11 entries at ½ mark each	5½	
Net Realisable value		
16 entries at ½ mark each	<u>8</u>	<u>14</u>
ii Measurement basis	1	
Lower of cost and NRV 4 ticks x ½ each	<u>2</u>	<u>3</u>
		<u>20</u>

SOLUTION 2

TANIMOSE LIMITED

Statement of profit or loss and other comprehensive income for the year ended December 31, 2018

	N'000	N'000
Revenue (53,000-3,100)		49,900
Cost of sales {7,800+32,200+157-(8400 - 250)}		(<u>32,007</u>)
Gross profit		17,893
Distribution costs (8900+150)	9,050	
Administrative expenses (7,000+(10% x 59,000)	<u>12,900</u>	(<u>21,950</u>)
Loss from operations		(4,057)
Finance costs (200+200)		(<u>400</u>)
Loss before tax		(4,457)
Tax expense		<u>-</u>
Loss for the year		(<u>4,457</u>)

Statement of financial position as at December 31, 2018

Assets	N'000	N'000
Non-current Assets		
Property, plant and equipment (59,000-25,000-5900)		28,100
Current Assets		
Inventories (8,400-250)	8,150	
Trade receivables (9,000)	5,900	
Cash at bank	<u>200</u>	<u>14,250</u>
		<u>42,350</u>
Equity		
Share capital	10,000	
Share premium	5,000	
Retained earnings (23,500-4,457 + 3,100)	<u>22,143</u>	37,143

Liabilities
Non-current liabilities
8% bank loan   5,000
Current liabilities
Trade payables   2,400
Accrued expenses (400+200+150+157)   907   3,307
                                                  45,450

EXAMINER'S REPORT

The question tests candidates' ability to prepare the statement of comprehensive income and financial position in accordance with the requirements of IAS 1, Presentation of Financial Statements.

About 60% of the candidates attempted the question and their performance was below average.

The following pitfalls were observed:

- The candidates did not understand the format for the presentation of the financial statements.

- The candidates did not understand the end of period adjustments, such as accruals, depreciation and inventory valuation.

Candidates are advised to be conversant with the applications of IAS 1 and IAS 2, they should also familiarise themselves with the end of year adjustments.

SOLUTION 2	MARKS	MARKS
Statement of profit or loss		
20 entries at ½ mark each		10
Statement of financial position		
20 entries at ½ mark each		10
Total		20

SOLUTION 3

a.   (i)   **Depreciation**: This is the systematic allocation of the depreciable amount of an asset over its useful life. It is also the systematic and periodic allocation of the historical cost or revalued amount less estimated residual value of a depreciable asset over its estimated useful life.

(ii) **Depreciable amount**: This is the cost of the asset (or other amount substituted for cost) less its residual value.

(iii) **Useful life**: This is the period over which the asset is expected to be used by the entity.

(iv) **Residual value**: This is the estimated disposal value of the asset, after deducting the estimated costs of disposal. It is also known as the scrap value. It is the estimated amount recoverable from the disposal of a non- current asset after its expected useful economic life.

b. Using the straight line method of depreciation, the depreciation charged per annum = $\frac{₦650,000 - ₦13,000}{5}$

= ₦127,400

Using diminishing balance method, the annual depreciation charge schedule is as follows:

Year	Carrying amount b/f ₦	Depreciation at 54% ₦	Carrying amount c/f ₦
2014	650,000	351,000	299,000
2015	299,000	161,460	137,540
2016	137,540	74,272	63,268
2017	63,268	34,165	29,103
2018	29,103	15,716	13,387

EXAMINER'S REPORT

The question tests candidates' knowledge of the concepts of depreciation and its computation.

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

Few of the candidates that attempted the question displayed lack of understanding of the basic concepts and computation of depreciation using the reducing balance method.

The candidates should endeavour to understand the requirements of IAS 16 as it relates to property, plant and equipment. They should also develop a better understanding of the computation of depreciation using various methods recommended by IAS 16.

SOLUTION 3

a	Depreciation	1½
	Depreciable account	1½
	Useful life	1½
	Residual value	<u>1½</u>
		6

bi	Depreciation using straight line method	
	4 entries at ½ mark each	2

ii	Depreciation using reducing balance method	
	16 entries including depreciation rate at ¾ mark each	<u>12</u>
	Total	<u>20</u>

SOLUTION 4

(a)
OKEKE LIMITED
Adjusted Cash Book

Dr		N'000	Cr		N'000
Balance b/d (balancing fig.)		16,500	Bank charges		350
Undercast error		1,000	Cheque wrongly debited(4700X2)		9,400
			Returned cheque		1,800
			Standing order		800
			Balance c/d (as per bank reconciliation statement)		<u>5,200</u>
Balance b/d		<u>17,550</u>			<u>17,550</u>
		5,200			

(b)   **Bank Reconciliation Statement as at June 30, 2018**

	N'000
Balance as per bank statement	(124,000)
Less	
Okeke's cheque wrongly paid into the company account	(800)
Unpresented cheques (21,400+7,000+3,000)	<u>(31,400)</u>
	(156,200)
Add	
Uncredited cheques	154,200
Cheque wrongly debited to the account of Okeke Ltd by the bank	<u>7,200</u>
Balance as per adjusted cashbook	<u>5,200</u>

EXAMINER'S REPORT

The question tests candidates' ability to prepare bank reconciliation statements.

More than 90% of the candidates attempted the question and their performance was above average.

The major pitfalls of the candidates' that attempted the question was their inability to distinguish between reconciling items in the bank reconciliation statement and adjusting items in the adjusted cash book.

Candidates are advised to familiarise themselves with the preparation of adjusted cash book and bank reconciliation statements.

SOLUTION 4
Adjusted cash book
10 entries including title at 1 mark each   10

Bank reconciliation statement
10 entries including title at 1 mark each   <u>10</u>
Total   <u>20</u>

SOLUTION 5

JOHNCO LIMITED
STATEMENT OF CASH FLOWS
FOR THE YEAR ENDED JUNE 30, 2018

	₦'000	₦'000
Cash flows from Operating Activities		
Profit before tax		3,000
Adjustment for:		
Depreciation (W1)	900	
Loss on disposal of PPE (450-320)	130	
Profit on disposal of investment (300-250)	(50)	
Interest received	(250)	
Interest paid	<u>750</u>	
		<u>1,480</u>
Operating profit before movement in working capital		4,480
Movement in working capital		
Increase in inventories (1,500-1020)	(480)	
Increase in receivables (3,900-3,150)	(750)	
Increase in payables (1,270-1190)	<u>80</u>	
		<u>(1,150)</u>
-		**3,330**

Gross cash generated from operating activities

Interest paid	(750)	
Tax paid (W2)	(1,900)	
		(2,650)

Net cash generated from operating activities 680

Cash Generated from Investing Activities

Purchase of PPE	(2,010)	
Purchase of intangible assets (2,500-2000)	(500)	
Disposal of PPE	320	
Disposal of investment	300	
Interest received	250	
Net cash used in investing activities		(1,640)

Cash Generated from Financing Activities

Proceeds from the issue of shares (500+100)	600	
Proceeds of loan note	1,000	
Net cash generated from financing activities		1,600

Net increase in cash and cash equivalent		640
Cash and cash equivalent at the beginning of the period (980 - 10)		(970)
Cash and cash equivalent at the end of the period		(330)

Represented by cash and cash equivalents

Cash on hand	20
Short-term investment	500
Bank overdraft	(850)
	(330)

WORKINGS NOTES

W1   Calculation of Depreciation

	₦'000	₦'000
30/06/2018 Accumulated Depreciation C/F		3,400
30/06/2018 Accumulated Depreciation B/F	(2,900)	
Depn on PPE sold (850-450	400	
		(2,500)
Amount recognised in P or L		900

W2

Income Tax

	₦'000		₦'000
Bank (tax paid)	1,900	Balance b/f	2,400
Balance c/f	2,900	Charge to P or L	2,400
	4,800		4,800

W3

PPE

	₦'000		₦'000
Balance b/f	5,950	Disposals	850
Revaluation surp. (1000-910)	90		
Bank Purchase of PPE	2,010	Balance c/f	2,700
	8,500		8,050

W4

Disposal Account

	₦'000		₦'000
PPE	850	Accumulated Dep.	400
		Proceed	320
		Loss on Disposal	130
	850		850

EXAMINER'S REPORT

The question tests candidates' ability to prepare the statement of cash flows in accordance with IAS 7.

About 20% of the candidates attempted the question and their performance was poor.

The candidates' commonest pitfalls include:

-       Poor understanding of the format of presentation;

-       Inability to distinguish between items to be included under the three major headings of the statement of cash flows;

-       Inability to compute the cash flows relating to investing and financing activities.

Candidates are advised to study IAS 7 and practise the presentation of the statement of cash flows using both the direct and indirect methods.

MARKING GUIDE
SOLUTION 5

Statement of cash flow

26 entries at ½ mark each   13

Cash & Cash equivalents

3 entries at ½ mark each   1½

WORKINGS

Available 16 entries

Maximum obtainable 11 entries at ½ mark each   5½

Total   20

SOLUTION 6

(a)   i.   **Sources of information and information needed for the preparation of Accounts Receivables Control Account**

	Information Required	Accounting Records/Sources of Information
1.	Receivables balance brought forward from the previous accounting period	Opening receivables figure from the statement of financial position
2.	Credit Sales	Sales journal/sales day book
3.	Returns inwards/sales returns	Returns inwards journal/returns inwards day book
4.	Cheques received from customers	Bank account/bank statement
5.	Cash received from customers	Cash book
6.	Discount allowed	Cash book
7.	Set-off/contra entry	General ledger
8.	Dishonoured cheque	Cash book

Sources of information and information needed for the preparation of Accounts Payables Control Account

S/N	Information Required	Accounting Records/Sources of Information
1	Payables balance brought forward from the previous accounting period	Opening payables figures from the statement of financial position
2	Credit purchases	Purchases journal/purchases day book
3	Returns outwards/purchases returns	Returns outwards journal/returns outwards day book
4	Cheques paid to suppliers	Bank account/bank statement
5	Cash paid to customers	Cash book
6	Discount received	Cash book
7	Set-off/contra entry	General ledger
8	Dishonoured cheque	Cash book

(b) (i) **Trial Balance**

A trial balance is a list of balances extracted from the various ledger accounts to test the arithmetical accuracy of the ledger postings. It contains the debit and credit balances in the ledger.

(ii) **Possible reasons for disagreement of a trial balance**

The following double entry errors normally cause disagreement of a trial balance:

i. Transposition of figures
ii. Over/under casting of cash book or any other book of original entry'
iii. Posting error.
iv. Omission of a transaction from the books of original entry to the ledger.
v. Omission of a balance from the ledger to the trial balance
vi. Posting of a ledger balance to the wrong side of the ledger
vii. Posting of a ledger balance to the wrong side of the trial balance.
viii. Posting the wrong amount into the ledger.

EXAMINER'S REPORT

The question tests candidates' knowledge in two areas. The part 'a' examines candidates' knowledge of the information in the receivable and payable control accounts and their sources, while part 'b' examines candidates' knowledge on the definition and errors that affect the agreement of the trial balance.

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

Major pitfalls include:

- Candidates exhibited poor understanding of the question as they were merely stating information on the debit and credit sides of the control accounts without stating the sources of such information.

- In part 'b', some candidates stated errors that would not affect the agreement of the trial balance. Instead of errors that affects the trial balance.

Candidates are advised to strictly adhere to the instructions given in the question.

SOLUTION 6

ai Accounts receivables control account
    3 correct information at 1 mark each   3
    3 corresponding correct sources at 1 mark each   <u>3</u>
                                                                            6

ii Accounts payables control account
    3 correct information at 1 mark each   3
    3 corresponding correct sources at 1 mark each   <u>3</u>   6

bi Trial balance definition
    A list of balances from ledgers to test arithmetical
    accuracy   1
    Contains debit and credit balances   1   2

ii Reasons for disagreement
    Any 6 entries at 1 mark each   <u>6</u>
                                                                          <u>20</u>

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

FOUNDATION LEVEL EXAMINATION – MAY 2019

MANAGEMENT INFORMATION

Time Allowed: $3\frac{1}{4}$ 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 process of grouping costs according to their common characteristics depending on the purpose for which they are to be used is known as

   A. Cost determination
   B. Controllable cost
   C. Cost identification
   D. Cost classification
   E. Cost planning

2. The cost accounting system that maintained two separate sets of records is known as

   A. Process costing system
   B. Interlocking system
   C. Throughput Costing system
   D. Integrated accounting system
   E. Back flush costing system

3. The running charges in service costing are otherwise referred to as

   A. Service expenditure charges
   B. Fixed charges
   C. Variable expenses
   D. Maintenance charges
   E. Operating charges

4. In a given period, a factory worker worked for 1,750 hours at a standard cost of ₦650 per hour. The labour efficiency variance was ₦780 favourable. How many standard hours were set?

A. 1,840 hours
B. 1,780 hours
C. 1,749 hours
D. 1,630 hours
E. 1,200 hours

5. The standard time for the production of a product is 45 minutes while the actual production of 40,000 units took 24,000 hours. What is the efficiency ratio?

A. 95%
B. 100%
C. 111%
D. 120%
E. 125%

6. A methodology of absorbing overheads to cost units in production with emphasis on activities that drive cost is known as
A. Overhead distribution
B. Overhead apportionment
C. Activity based costing
D. Overhead allocation
E. Overhead costing

7. The following are the techniques used in cost estimation, **except**
A. Regression analysis
B. High and low method
C. Cost analysis
D. Scatter graph
E. Account classification method

8. Which of the following is **not** part of bonus incentive schemes of labour remuneration?

A. Shift bonus
B. Halsey- Weir scheme
C. Basic Pay
D. Group incentive scheme
E. Profit sharing scheme

9. The point of manufacturing where joint products become individually identifiable is known as

   A. Selling Point
   B. Break Even point
   C. Split-off point
   D. Identifiable point
   E. Costing Point

10. In cost ledger, the control account into which incomes or expenditures extracted from the financial accounts are posted is called

   A. Integrated account
   B. Adjustment account
   C. Financial control account
   D. Cost ledger control account
   E. Interlocking account

11. The stores issue pricing method where the issue price is re-calculated after each receipt, taking into cognisance both quantities and value is referred to as

   A. First-in-First-Out method
   B. Last-in-First-Out method
   C. Standard cost method
   D. Weighted average method
   E. Simple average method

12. The following statements are correct in relation to economic order quantity model, except

   A. Re-order Period
   B. Ordering cost is known and constant
   C. Carrying cost is known and constant
   D. The annual demand is known
   E. There is instantaneous replenishment of items of stock

13. Which of the following copies itself into memory or a disk until no more space is left?

   A. Anti viral agent
   B. Worms
   C. Virus
   D. Dirty data
   E. Test data

14. Which of the following network hardware devices is an interface that enables dissimilar networks to communicate?

A. Gateway
B. Bridge
C. Router
D. Modem
E. Multiplexer

15. You must have access to .... before you can use computer to communicate over the telephone lines.

A. Internet
B. Data compression software
C. Terminal emulation software
D. Modem
E. TCP/IP

16. Among the tools used during system development are:

i. Testing
ii. Auditing
iii. Modelling
iv. Evaluation

Which of the following combinations is used during system maintenance?
A. I and II
B. II
C. I and IV
D. II and IV
E. III

17. The technology that merges computing with high-speed communication links carrying data, sound and video is called:

A. Computer technology
B. Information technology
C. Communication technology
D. Technology convergence
E. Digital convergence

18. To maintain a permanent record of data and programs when **not** being used by the CPU, one requires the use of

    A.   Peripheral devices
    B.   Primary memory
    C.   Secondary storage
    D.   Dynamic RAM
    E.   EPROM

19. Access to computer systems on personal basis has been influenced mainly by
    A.   Increasing computer speed
    B.   Growing price of computer devices
    C.   Connectivity of computer systems to the internet
    D.   Portability of today's computer devices
    E.   Globalisation of information technology

20. Multiprocessing capability can be achieved by

    A.   Application package
    B.   Operating system
    C.   User software
    D.   Utility software
    E.   Language translator

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

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

QUESTION 1

FMC Limited produces a single product which undergoes three processes. The following data in respect of process 2 are available for December, 2016:

Opening inventory of work-in-progress: 10,000 units. The degrees of completion were:

	Amount (₦)	percentage of completion
Input material (from process 1)	80,000	100%
Material introduced	56,000	50%
Labour	32,000	65%
Overheads	4,000	40%

Units transferred from process 1 were 42,000 with total costs of ₦462,000. Other cost elements were:

	₦
Material introduced	265,200
Labour	210,000
Overheads	175,200

Closing work in progress was 7,000 units. The degrees of completion were:

Input material	100%
Material introduced	60%
Labour	50%
Overheads	40%

45,000 units were completed and transferred to process 3.

FMC Limited uses FIFO method of valuation.

Required:
a.   Calculate the value of units transferred to process 3   (8 Marks)
b.   Determine the value of work-in-progress   (5 Marks)
c.   Prepare the process 2 account   (7 Marks)
(Total 20 Marks)

QUESTION 2

The budget manager of Jejelaye Limited is in the process of preparing the 2018 financial plan for his company. The company projects the following for the coming year:

Finished goods:

Products	Opening inventory	Sales units
Kodun	16,000	60,000
Kopo	36,000	40,000

The closing inventory is anticipated to be one-fifth of sales for "kodun" and half of sales for "kopo".

Labour requirement:	Hours/Unit	Rate/Hour
Kodun	5	₦3.2
Kopo	3	₦6.0

Materials:		Kodun	Kopo
Type	Price(₦)	Usage in production	
A	3.00	3	1
B	2.00	4	-
C	2.50	-	6
D	4.00	5	-
E	1.00	-	7

The production overhead is applied at the rate of ₦3.00 per direct labour hour.

You are required to compute:

a. Production budget in units   (2 Marks)
b. Direct materials purchase budget   (8 Marks)
c. Direct labour budget   (2 Marks)
d. The cost of finished goods per unit   (5 Marks)
e. The selling price per unit, if a profit of ½ of the
    selling price is anticipated.   (3 Marks)

(Total 20 Marks)

QUESTION 3

a. State **three** objectives of inventory control   (3 Marks)
b. The following information has been provided with respect to
    material DAZ of Commandant Limited:

	Units
Normal monthly consumption	108,000
Minimum anticipated monthly consumption	32,000
Maximum anticipated monthly consumption	120,000
Reorder quantity	40,000
Delivery periods from suppliers are as follows:	
Minimum	1 month
Maximum	2 months
Normal	1.5 months

Required:
Compute-
i.   Re-order level   (2 Marks)
ii.   Minimum stock level   (2 Marks)
iii.   Maximum stock level   (2 Marks)

c. List any **five** factors to be considered in setting the maximum stock level.

                                                                            (5 Marks)

d. Rotunda Company required 25,000 units per quarter which will be used at a constant rate. The purchasing manager is considering what size to be used. The holding cost is 2% of the purchase price of the material. The cost per order is ₦2,000, while the purchase price is ₦200 per unit. Using the EOQ formula, calculate the economic order quantity. (6 Marks)

(Total 20 Marks)

QUESTION 4

a.i. What is management information system (MIS)? (2 Marks)

ii. Enumerate **four** advantages and **four** disadvantages of using MIS in a typical organisation (8 Marks)

b. Printers are used for producing hardcopy output.

You are required to:

i. List **four** characteristics that determine the choice of a printer (4 Marks)

ii. Name and describe briefly the two classifications of printers. (3 Marks)

iii. List **three** examples of each of the classifications mentioned in b(ii) above. (3 Marks)

(Total 20 marks)

QUESTION 5

a. State **six** facilities provided by database management system (DBMS). (6 Marks)

b. i. What is a data warehouse? (2 Marks)

ii. State **four** features of a typical data warehouse (4 Marks)

iii. Enumerate **three** difficult and time-consuming tasks in creating a data warehouse. (3 Marks)

c. Enumerate **five** issues to be considered during the planning of training for user staff of an Information System. (5 Marks)

(Total 20 marks)

QUESTION 6

a. Network protocol may be implemented by hardware or software. You are required to:

    i. Define a network protocol.   (2 Marks)

    ii. List **four** properties of a typical network protocol.   (4 Marks)

    iii. State **four** uses of File transfer protocol.   (4 Marks)

b.i   Define the following terms:
- Activity ratio
- Efficiency ratio
- Capacity ratio   (3 Marks)

ii. Agric Industries Limited is an agricultural company located in the eastern part of a country. The company produces three agricultural products: cocoa, coffee and palm kernel. The standard time for the production of the products are:

Cocoa - 40 minutes per metric tonne;
Coffee – 30 minutes per metric tonne; and
Palm kernel – 45 minutes per metric tonne

The budget for the month of May is as follows:
Cocoa 45,000 metric tonnes;
Coffee 25,000 metric tonnes; and
Palm kernel 30,000 metric tonnes.
The actual data for the month were as follows:
Labour hours 70,000 hours
Production:
Cocoa   -   48,000 metric tonnes;
Coffee   -   27,000 metric tonnes; and
Palm kernel   -   25,000 metric tonnes.

Required:
Calculate:
- Activity ratio
- Capacity ratio
- Efficiency ratio   (7 Marks)
                                           (Total 20 Marks)

SOLUTIONS

SECTION A

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

Workings

Question 4

Labour Efficiency Variance = (Actual Hours x Standard Rate) – (Standard Hours x Standard Rate)

= (1,750 x 650) – (x x 650)   = ₦780

((1,137,500) – (650x)   = ₦780

1,137,500 – 650x   = ₦780

650x = -780 + 1,137,500

$\therefore X = \underline{1,748.8}$ hours $\approx 1,749$ hours

Option C

Question 5

Efficiency Ratio $\qquad = \qquad \dfrac{Standard\ Hours\ Produced}{Actual\ Labour\ Hours\ Worked}$ x 100

$$= \dfrac{0.75\ hour\ x\ 40,000}{24,000\ Hours}$$

$$= \dfrac{30,000}{24,000}\ x\ 100$$

$$= \underline{125\%}$$

Option E

EXAMINER'S REPORT

This section consists of 20 questions drawn from all the section of the syllabus. The questions were attempted by all the candidates, but performance was average.

The major pitfall on the part of the candidate was lack of adequate preparation. Candidates are advised to prepare harder in future, especially with the ICAN Study Text.

SECTION B

SOLUTION 1

FMC Limited

FIFO method

1.   **Input/output statement**

WIP b/f	10,000
Process 1 input	42,000
	52,000
Transfer to process 3	
WIP b/f	10,000
Current process	35,000
WIP c/f	7,000
	52,000

38

2. Statement of equivalent units

	Qty	Mat 1		Mat 2		Labour		Overhead	
		Qty	%	Qty	%	Qty	%	Qty	%
Transfer to process 3:									
WIP b/f	10,000	-	-	5,000	50	3,500	35	6,000	60
Current process	35,000	35,000	100	35,000	100	35,000	100	35,000	100
WIP c/f	7,000	7,000	100	4,200	60	3,500	50	2,800	40
	52,000	42,000		44,200		42,000		43,800	

3. Statement of costs

	Total	Mat 1	Mat 2	Labour	Overhead
Opening Cost (₦)	172,000	-	-	-	-
Current process:					
Process 1 transfer	462,000	462,000	-	-	-
Material	265,200	-	265,200	-	-
Labour	210,000	-	-	210,000	-
Overhead	175,200	-	-	-	175,200
Total Cost (₦)	1,284,400	462,000	265,200	210,000	175,200
Equivalent units	-	42,000	44,200	42,000	43,800
CPU		₦11	₦6	₦5	₦4

4) Statement of evaluation

i. Transfer to Process 3: ₦ ₦ ₦
   - WIP b/f 172,000

				₦	₦
Mat 1			0		
Mat 2	= 5,000 x 6	= 30,000			
Labour	= 3,500 x 5	= 17,500			
Overhead	= 6,000 x 4	= 24,000	71,500	243,500	

   - Current Process:

Mat 1	= 35,000 x 11	= 385,000	
Mat 2	= 35,000 x 6	= 210,000	
Labour	= 35,000 x 5	= 175,000	
Overhead	= 35,000 x 4	= 140,000	910,000
			1,153,500

ii. - Closing WIP:

Mat 1	= 7,000 x 11	= 77,000	
Mat 2	= 4,200 x 6	= 25,200	
Labour	= 3,500 x 5	= 17,500	
Overhead	= 2,800 x 4	= 11,200	130,900

Using FIFO

a = Value of units transferred to process 3

= ₦1,153,500 (W4)

b = Value of work in progress

= ₦130,900 (W4)

DR.			Process 2 account		CR.	
	Qty	₦		Qty	₦	
Opening WIP	10,000	172,000	Process 3	45,000	1,153,500	
Process 1	42,000	462,000	Closing WIP	7,000	130,900	
Material 1		265,200				
Labour		210,000				
Overhead		175,200				
	52,000	1,284,400		52,000	1,284,400	

Using weighted average method

1. Input/output statement   ₦

			₦
Input:	Opening WIP		10,000
	Transfer from process 1		42,000
			52,000
Output	Transfer to process 3		45,000
	Closing WIP		7,000
			52,000

2. Statement of equivalent units

	Qty	Mat 1		Mat 2		Labour		Overhead	
		Qty	%	Qty	%	Qty	%	Qty	%
Process 3:	45,000	45,000	100	45,000	100	45,000	100	45,000	100
Closing WIP	7,000	7,000	100	4,200	60	3,500	50	2,800	40
	52,000	52,000		49,200		48,500		47,800	

3. Statement of cost

	Total	Mat 1	Mat 2	Labour	Overhead
Cost:	172,000	-	-	-	-
	462,000				
Mat 1	634,000	634,000	-		
Mat 2	265,000	-	265,000	-	-
Labour	210,000	-	-	210,000	-
Overhead	175,200	-	-	-	175,200
Total Cost (₦)	1,284,400	634,000	265,200	210,000	175,200
Equivalent Units	-	52,000	49,200	48,500	47,800
CPU		₦12.1923	₦5.390	₦4.330	₦3.665

4. Statement of evaluation

Transfer to process 3:

Mat 1	= 45,000 x 12.1923	= 548,665
Mat 2	= 45,000 x 5.3900	= 242,550
Labour	= 45,000 x 4.3300	= 194,850
Overhead	= 45,000 x 3.6650	= 164,925
		₦1,150,990

Closing WIP:		₦
Mat 1	= 7,000 x 12.1923	= 85,355
Mat 2	= 4,200 x 5.3900	= 22,638
Labour	= 3,500 x 4.3300	= 15,155
Overhead	= 2,800 x 3.6650	= 10,262
		133,410

(a) Value of Units transferred to process 3

= ₦1,150,990 (W4)

(b) Value of closing work in progress

= ₦133,410 (W4)

(c)

DR. Process 2 account CR.

	Qty	₦		Qty	₦
Opening WIP	10,000	172,000	Process 3	45,000	1,150,990
Process 1	42,000	462,000	Closing WIP	7,000	133,410
Material 1		265,200			
Labour		210,000			
Overhead		175,200			
	52,000	1,284,400		52,000	1,284,400

EXAMINER'S REPORT

This question on process costing, tests the ability of candidates to determine the value of work-in-progress as an extension of the main process account.

The question was attempted by about 60% of the candidates. Performance was poor as only about 40% of the candidates scored 50% and above of the marks allocated.

Candidates' major pitfall was the tendency to limit their studies to the main process accounts.

Candidates should realise that process costing is not complete without work-in-progress, equivalent units, normal and abnormal gains and losses.

Marking Guide

		MARKS	MARKS
a.	Heading	½	
	Workings	½	
	Process 3 account: 1 mark x 7	7	8
b.	Determination of WIP		
	1 mark for each answer	4	
	Heading	1	5
c.	½ mark for each correct answer		7
			20

SOLUTION 2

Jejelaye Ltd

a.   Production budget in units

	Kodun ₦	Kopo ₦
Sales	60,000	40,000
Add closing inventory	12,000	20,000
	72,000	60,000
Less opening inventory	16,000	36,000
Production budget	56,000	24,000

6 ticks/3 = (2 Marks)

b.   **Direct material purchase budget**

Products				Kodun				Kopo	
Mat Type	Price/ unit ₦	Mat. Reqd.	Cost/ unit ₦	Prod budget	Cost budget ₦'000	Mat. Reqd.	Cost/ unit ₦	Prod budget	Cost budget ₦'000
A	3.00	3	9	56,000	504	1	3.00	24,000	72
B	2.00	4	8	56,000	448	-	-	-	-
C	2.50	-	-	-	-	6	15.00	24,000	360
D	4.00	5	20	56,000	1,120	-	-	-	-
E	1.00	-	-	-	-	7	7.00	24,000	168
Total material budget				168,000	2,072				600

8 ticks = (8 marks)

Direct labour budget

Product	Budgeted units	Hours/ unit	Budgeted hours	Rate / hour ₦	Budgeted labour cost ₦
Kodun	56,000	5	280,000	3.2	896,000
Kopo	24,000	3	72,000	6.0	432,000
Total labour cost budget					1,328,000

4 ticks/2 = (2 Marks)

(d)

Cost of finished goods

	Products		
	Kodun	Kopo	Total
	₦	₦	₦
Materials	2,072,000	600,000	2,672,000
Labour	896,000	432,000	1,328,000
Overheads	840,000	216,000	1,056,000
Total production cost	3,808,000	1,248,000	5,056,000
Units produced	56,000	24,000	
Cost per unit	₦68	₦52	10 ticks/2 = (5 Marks)

Calculation of overheads

Products			₦
Kodun	280,000 hours x ₦3.00	=	840, 000
Kopo	72,000 hours x ₦3.00	=	216,000
Total overheads cost			1,056,000

(e)
Selling price:

	Kodun	Kopo
	₦	₦
Cost per unit as calculated above	68	52
Profit (1/3 of selling price)	34	26
Selling price	102	78

6 ticks /2 = (3 Marks)

Conversion of margin to mark-up

EXAMINER'S REPORT

This question on process costing, tests the ability of candidates to determine the value of work-in-progress as an extension of the main process account.

The question was attempted by about 60% of the candidates. Performance was poor as only about 40% of the candidates scored 50% and above of the marks allocated.

Candidates' major pitfall was the tendency to limit their studies to the main process accounts.

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Marking Guide

a.	Production budget		
	Kodun	1	
	Kopo	<u>1</u>	2
b.	Director material purchase budget		
	Material A: = Kodun	1	
	Kopo	1	
	Material B: = Kodun	1	
	Material C: = Kopo	1	
	Material D: = Kodun	1	
	Material E: = Kopo	1	
	Total Budget= Kodun	1	
	Kopo	<u>1</u>	8
c.	Direct labour budget		
	Kodun	½	
	Kopo	½	
	Total labour cost budget	<u>1</u>	2
d.	Cost of finished goods per unit		
	Kodun	2	
	Kopo	2	
	Total	<u>1</u>	5
e.	Calculation of selling price		
	Kodun	1	
	Kopo	1	
	Conversion of margin to make-up	<u>1</u>	<u>3</u>
	Total		**<u>20</u>**

SOLUTION 3

(a) Objectives of inventory control

i. To maintain adequate inventory and thus minimise the risk of shortages which could disrupt production activities and cause customers dissatisfaction.

ii. To avoid keeping excessive inventory level and consequently tying down capital.

iii. To minimise carrying cost and ordering cost.

iv.   To relieve management of having to take frequent procurement decisions for each item maintained in the store.

v.   To avoid pilferage and obsolescence.

vi.   To identify slow moving items of inventory

vii.   To avoid wastage

viii.   For proper accountability of receipts and issues

Any three points mentioned   (3 Marks)

(b)   Re-order level = maximum consumption x maximum period
        120,000 x 2   = 240,000 units   (2 Marks)
    Minimum stock level = Re-order level - (average cons x average reorder Period)
        240,000 – (108,000 x 1.5)
        240,000 – 162,000 = 78,000 units   (2 Marks)

    Maximum stock level = RL + RQ – (min consumption x min re-order period)
        240,000 + 40,000 – (32,000 x 1)
        280,000 – 32,000 = 248,000 units   (2 Marks)

(c)   The following factors should be taken into consideration in fixing maximum stock level:
    i.   Storage space availability;
    ii.   Rate of consumption of materials;
    iii.   Re-order period;
    iv.   Reliability of suppliers;
    v.   Economic order quantities;
    vi.   The risk of price fluctuation;
    vii.   The carrying cost;
    viii.   Risk of obsolescence of material items;
    ix.   Political environment;
    x.   Reorder level;
    xi.   Nature of the product (perishability).

Any five factors mentioned (5 Marks)

(d)   Computation of economic order quantity

$$\sqrt{\dfrac{2DCo}{CC}}$$

Where D is the annual demand
Co is ordering cost
Cc is holding cost

$$EOQ = \sqrt{\dfrac{2 \; X \; (25,000 \; X \; 4) X \; 2,000}{2\% \; of \; ₦200}}$$

$$= \sqrt{\dfrac{400,000,000}{4}} \quad = \sqrt{100,000,000} \quad = \underline{10,000 \; units}$$

EXAMINER'S REPORT

This question on inventory control tests candidates' ability to establish stock levels.

About 75% of the candidates attempted this question and about 60% of those who did, scored 50% and above of the marks allocated.

The major pitfalls of the candidates were the application of wrong formula and wrong substitution of figures for the symbols in the formula.

Candidates are advised that perfect knowledge of the appropriate formulae is critical to solving inventory control questions and they should learn them by heart.

Marking Guide

	Question 3		
a.	Objective of inventory control		
	3 points at 1 mark each		3
b.(i)	Reorder levels		
	Formular	1	
	Solution	1	
(ii)	Minimum stock Level		
	Formular	1	
	Solution	1	
(iii)	Maximum stock level		
	Formular	1	
	Solution	1	6
c.	Factors for setting maximum level		
	5 points at 1 mark each		5
d.	Economic order quantity		
	Formular	2	
	Substitution with figures	3	
	Final solution	1	6
	Total		20

SOLUTION 4

a. i. Management information system (MIS) is an information system in which data are collected, processed, stored and communicated in an appropriate form to assist managers at all levels and in all functions, to enable them make timely and effective decision.

ii. Advantages of MIS include:

- Provision of regular formal information that guides on the direction to follow in an organisation;
- Assists the management to re-evaluate needs, resources, and problems in the organisation;
- Serves as the basis for re-organisation and re-designing the decision structure;
- Means of eliminating unnecessary paperwork and wasteful practice that may drain the organisation's resources;
- Provides the basis for sound internal control;
- MIS enables the organisation to plan and control its activities effectively and efficiently;
- It provides the basis for performance evaluation and accomplishment of actual target;
- It supports structured decisions;
- It reports on existing operations;
- It has little analytical capabilities and is inflexible;
- It incorporates both current and historical information to users;
- Provision of office support system that assists management in regular office tasks;
- It enhances distribution channel when management invests in computer to boost production processes.

Disadvantages of MIS include:

- Inadequate knowledge of computers by most managers;
- Lack of top management support for formalised information system as a reactionary move for fear of exposure of their activities and weakness;
- Inappropriate emphasis on computer system which discourages smaller organisations from installation of MIS;
- Non-involvement of the top management in the design and implementation of MIS;
- Piracy of data and information confidentiality;

- Affordability of computer-based system which may be relatively expensive to acquire, install and maintain; and
- Staff training cost may be very high.

b. i.   The characteristics that determine the choice of a printer include:

- Speed of producing output;
- Quality of output;
- Cost of purchase of printer;
- Graphics abilities;
- Associated noise levels;
- Multiple color output;
- Maintenance and cost of supplies like ink, paper e.t.c;
- Availability of supplies
- Volume of job
- Nature of job

ii.   The two classifications of printers are:

- Impact printers – make contact with paper and sound (noise) is produced during printing
- Non-impact printers do not make contact with paper and are relatively noiseless during printing

iii.   Examples of impact printers are:

- ✓ Character printers;
- ✓ Line printers;
- ✓ Dot-matrix printers;
- ✓ Daisy wheel printers;
- ✓ Chain printers; and
- ✓ Band printers;

Examples of non-impact printers are:
- ✓ Laser printers;
- ✓ Inkjet printers;
- ✓ Thermal printers; and
- ✓ Xerographic printers.

EXAMINER'S REPORT

This question is in two parts, dealing with the theoretical aspects of Management Information Systems and with critical information on printers.

About 75% of candidates attempted this question and about 60% of them scored above 50% of marks allocated. They did well in the questions on printers, but performed poorly on the management information systems.

Candidates are advised to pay attention to the basics of information technology especially the introductory part in their preparations in the future.

Marking Guide
Question 4

a.i.	Definition of MIS @ 2 marks	2
ii.	Stating 4 advantages @ 1 mark each	4
iii.	Stating 4 disadvantages @ 1 mark each	<u>4</u>
		10
b.i.	Listing 4 characteristics @ 1 mark each	4
ii.	Naming 2 classifications @ ½ mark each	1
	Describe 2 classifications @ 1 mark each	2
iii.	Giving 3 examples of first class @ ½ mark each	1½
	Giving 3 examples of the second class @ ½ mark each	<u>1½</u>
		<u>10</u>
		<u>20</u>

SOLUTION 5

a.   Facilities provided by DBMS include:

(i)   Ability to add new records and amend or delete existing (old) data on the database;

(ii)   It has the ability to retrieve data for processing or information to help with decision-making;

(iii) Ability to update the database without requiring modifications to any application programme;

(iv)   It has ability to present data on the database in different combinations and in different forms;

(v)   Ability to control access to parts of the database, through the use of passwords;

(vi)   Provision of interfaces with users/programs of the database;

(vii) Ability to allocate storage to data;

(viii)   Ability to keep statistics of the use of data in the database; and

(ix)   Integrity.

b. i.   Data warehouse is a central data repository (library, storage, store, pool) containing stable, accurate, consistent and clearly-understood data that are needed for management information and decision-making across the whole organisation.

  ii.   Features of data warehouse include:

    ✓   Extraction of archived operational data and integrate data throughout the organisation by removing inconsistencies between data formats in different systems;
    ✓   Holding data from legacy systems making it possible to analyse operational data for longer period;
    ✓   Once data has been entered into data warehouse, it is not updated or altered (non-volatile data);
    ✓   Data in the data warehouse is usually organised by subject rather than by application or function (subject-oriented); and
    ✓   Data warehouse are usually constructed using relational databases

  iii.   Tasks in creating data warehouse include:

    ✓   Extracting the data from different source IT systems;
    ✓   Converting the data into a consistent format for input to the data warehouse; and
    ✓   Checking the quality of the data.

c.   Issues to be considered during planning the training for user staff include:

    (i)   The amount degree of training and the new skills required by the new system;
    (ii)   The number of user staff requiring training and time for training;
    (iii)   The various methods of training available and the preferred choice of training method;
    (iv)   Whether the training should be on the user's own premises or in a remote location;
    (v)   The costs of the different training options; and
    (vi)   Deciding on a process for monitoring the effectiveness of the training, so as to determine the additional training if initial one is ineffective.

EXAMINER'S REPORT

The question tests' candidates' knowledge of Database Management System (DBMS) and data warehouse.

About 40% of the candidates attempted the question and about 40% of them scored above 50% of the allocated marks.

This question is an unpopular one because it is rarely examined. The major pitfall on the part of the candidate therefore was lack of preparation.

Candidates are advised to cover the whole syllabus fully in their future preparation.

Marking Guide
Question 5

a.	Stating 6 facilities of DBMS @ 1 mark each		6
b.i.	Definition of data warehouse @ 2 marks	2	
ii.	Stating 4 features @ 1 mark	4	
iii.	Stating 3 tasks @ 1 mark each	3	9
c.	Stating 5 issues @ 1 mark each		5
			20

SOLUTION 6

a. i.   Network Protocol is a set of rules, standards or conventions that controls or governs the connection, communication and data transfer between computing endpoints (nodes) in a network.

   ii.   Properties of a typical Protocol include:

- ✓ Detection of the underlying physical connection (wired or wireless) or the existence of other endpoints;
- ✓ How to start or end a message (communication);
- ✓ How to format a message;
- ✓ What to do with corrupted or improperly formatted messages (error correction);
- ✓ How to detect unexpected loss of the connection, and what to do next; and
- ✓ Termination of the session and or connection;

iii.   Uses of file transfer protocol include:

- ✓ Promoting the sharing of files (computer programs and/or data);
- ✓ Encouraging indirect or implicit use of remote computers;

✓ Shielding a user from variations in file storage systems among different hosts; and

✓ Transferring data reliably and efficiently.

b.(i) Definition of ratio

* Activity ratio: this is the number of standard hours equivalent to the work produced, expressed as a percentage of budgeted standard hours.

$$\frac{Standard\ hours}{Budgeted\ hours} \ x\ \frac{100}{1}$$

* Efficiency ratio: the standard hours equivalent to the work produced, expressed as a percentage of the actual hours spent in producing the work.

$$\frac{Standard\ hours}{Actual\ hours} \ x\ \frac{100}{1}$$

* Capacity ratio: this is the relationship between the actual number of working hours and the maximum possible number of working hours in a period.

$$\frac{Act.\ labour\ hours}{Bud\ labour\ hours} \ x\ \frac{100}{1}$$

(3 Marks)

(ii) Computation of ratio:
* Activity ratio = Standard hours achieved x 100%
        Budgeted hours

        64,250 x 100%
        65,000
    = 98.85%   (2 Marks)

* Capacity ratio = Actual hours worked x 100%
        Budgeted hours
    = 70,000 x 100%
        65,000

    = 107.69%   (2 Marks)

* Efficiency ratio = Standard hours achieved x 100 %
        Actual hours worked
        = 64,250 x 100%
        = 70,000
        = 91.79%   (2 Marks)

Workings

Computation of standard hours of actual production

Cocoa = 48,000 x 40/60 =	32,000	
Coffee = 27,000 x 30/60 =	13,500	
Palm kernel = 25,000 x 45/60 = <u>18,750</u>		
	<u>64,250</u> hours	(½ Mark)

Computation of budgeted hours

Cocoa = 45,000 x 40/60 =	30,000	
Coffee = 25,000 x 30/60 =	12,500	
Palm kernel = 30,000 x 45/60 = <u>22,500</u>		
	<u>65,000</u> hours	(½ Mark)

EXAMINER'S REPORT

The question is in two parts. The first part tests candidates' knowledge of network protocols, while the second part examines the use of ratios in appraising the performance of business.

About 50% of the candidates attempted this question, but performance was poor as only about 30% of them scored 50% and above of the allocated marks.

The major pitfall was that candidates neglected these areas in their preparation since they are not popular topics.

Candidates are advised to always regard every topic in the syllabus as examinable and they should base their preparations more on the ICAN Study Text which is tailored towards the full coverage of the syllabus.

Marking Guide

Question 6

a.i.	Definition of protocol @ 2 marks	2	
ii.	Listing 4 properties @ 1 mark each	4	
iii.	Stating 4 uses of ftp @ 1 mark each	<u>4</u>	10

b.(i)		1	
*	Definition of activity ratio	1	
*	Definition of efficiency ratio	1	
*	Definition of capacity ratio	1	
b.(ii)	Activity ratio formular	1	
	Activity ratio computation	1	
	Workings	1	
	Efficiency ratio formular	1	
	Efficiency ratio computation	1	
	Capacity ratio formular	<u>1</u>	<u>10</u>
	Capacity ratio computation		<u>20</u>

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

FOUNDATION LEVEL EXAMINATION – MAY 2019

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.   A company makes and sells a single product. The product has a variable production cost of ₦8,000 per unit and a variable selling cost of ₦1,000 per unit. If the fixed cost is expected to be ₦50,000,000 and the selling price of the product is ₦16,000. Find the profit for a sales volume of 8,000 units.

(A)   ₦4,000,000
(B)   ₦5,000,000
(C)   ₦6,000,000
(D)   ₦7,000,000
(E)   ₦8,000,000

2.   The monthly salaries of members of staff of a medium-sized company are grouped as follows:

Monthly salary (₦,000)	Number of Staff
5 and under 10	3
10 and under 15	14
15 and under 20	17
20 and under 25	13
25 and under 30	2
30 and under 35	1

Calculate the quartile deviation of the salaries of these members of staff.

(A)   ₦2,980
(B)   ₦3,980
(C)   ₦4,980
(D)   ₦5,980
(E)   ₦6,980

3.   The following table shows two different rankings of some brands of soft drinks:

A's preference	1	2	3	4	5	6
B's preference	2	3	1	4	6	5

The Spearman's rank correlation coefficient is
(A)   0.57
(B)   0.67
(C)   0.77
(D)   0.87
(E)   0.97

4.   A company's milling machine contains 700 identical components. These fail on a regular basis according to the following probability distribution:

Life (months)	1	2	3	4	5	6
Probability of Failure	0.12	0.20	0.08	0.21	0.30	0.09

If the cost of replacing a single component is ₦45, calculate the monthly cost of replacing components as they fail.

(A)   ₦8,356.85
(B)   ₦8,365.85
(C)   ₦8,563.85
(D)   ₦8,635.85
(E)   ₦8,653.85

5.   A young farmer saves ₦156,533.15 per annum for 5 years. If the interest rate is 8%, calculate the amount he will receive at the end of 5 years.

(A)   ₦911,337.53
(B)   ₦918,317.53
(C)   ₦937.311.53
(D)   ₦953,317.13
(E)   ₦971,133.53

6.   300-level students of a University sat for two tests (one marked out of 20 and the 2nd one marked out of 100). The results were tabulated as follows:

	Test 1	Test 2
Mean	13	65
Variance	16	132.25

Calculate the coefficient of variation of the combination.
(A)   21.33
(B)   23.31
(C)   31.23
(D)   32.13
(E)   33.12

7. The following table shows the marks which a student obtained in four subjects along with the weightings that are assigned to the examination subjects:

Subject	Weighting	Student's mark
Mathematics	5	25
Physics	4	56
Geography	2	75
History	1	64

The arithmetic mean and the weighted arithmetic mean respectively are

(A) 55,46.5
(B) 55,46.6
(C) 55,46.7
(D) 55,46.8
(E) 55,46.9

8. The weights of bags of soap produced on a machine are normally distributed with mean = 1,510.25g and standard deviation 5g. The probability of randomly picking a bag weighing less than 1,500g is

(A) 0.0205
(B) 0.0204
(C) 0.0203
(D) 0.0202
(E) 0.0201

9. A shoe seller has the following coloured pairs of shoes in his store:

Colour of pairs of shoes	Quantity in the store
Black	5
Yellow	11
Orange	8
Red	4
White	6
Blue	3
Green	2

The total number of variations of the shoe which the shoe seller is offering to supply is

(A) 66,330
(B) 63,360
(C) 60,636
(D) 60.633
(E) 60,336

10. A police officer expects to receive ₦19,965 in 3 years if he receives an interest of 10%, then the present value of this amount is

   (A)   ₦13,000
   (B)   ₦13,500
   (C)   ₦14,000
   (D)   ₦15,000
   (E)   ₦15,500

11. If CW, MP and L denote respectively the class width, the mid-point of a class and the lower class boundary, then L is expressed as

   (A) $\frac{1}{3}(2MP - 2CW)$
   (B) $\frac{1}{2}(2MP - CW)$
   (C) $\frac{1}{2}(2MP - 2CW)$
   (D) $\frac{1}{3}(2MP - CW)$
   (E) $\frac{1}{3}(MP - 2CW)$

12. Using the method of completing the squares, $2x^2 - 3x - 5 = 0$ is the same as

   (A) $\left(x - \frac{1}{2}\right)^2 = \frac{49}{16}$
   (B) $\left(x + \frac{1}{4}\right)^2 = \frac{49}{16}$
   (C) $\left(x - \frac{3}{4}\right)^2 = \frac{49}{16}$
   (D) $\left(x - \frac{1}{4}\right)^2 = \frac{49}{16}$
   (E) $\left(x + \frac{3}{4}\right)^2 = \frac{49}{16}$

13. A coin is tossed and a card is drawn from a well shuffled pack of cards. The probability that both a tail falls upper most and heart is drawn is

   (A) $\frac{5}{8}$
   (B) $\frac{4}{8}$
   (C) $\frac{3}{8}$
   (D) $\frac{2}{8}$
   (E) $\frac{1}{8}$

14. The wage distribution of the artisans in a factory is tabulated as follows:

Wages (₦'000)	Number of artisans
22-42	11
42-62	29
62-82	58
82-102	17
102-122	5

Calculate the modal wage.
(A) ₦70.285.71
(B) ₦71,285.70
(C) ₦75.128.70
(D) ₦78,125.70
(E) ₦85,271.70

15. The following are examples of quantitative variables, **EXCEPT**

(A) Number of customers entering a store
(B) Favourable foods that are served at a party
(C) Time taken to complete a journey
(D) Heights of the adult students in a school
(E) Number of rejects in a production run.

16. Ten lecturers from a department (having 25 lecturers) of a University are to be selected to attend a conference. One of these lecturers must be a Professor. Determine the number of possible teams that can be formed.

(A) 1,307,405
(B) 1,307,504
(C) 1,405,307
(D) 1,405,703
(E) 1,504,307

17. Which of the following is **NOT** true about the dual price of a constraint?
(A) Dual price is also known as shadow price.
(B) Every constraint has a dual price
(C) The dual price of a constraint is the change in the objective function that is changed by a unit of constraint
(D) The dual price of a non-limiting constraint is always greater than zero.
(E) Dual price of limiting resources always has a value.

18. A manufacturing company has estimated the following linear regression line to describe the relationship between its output and costs:

$y = 18.67 + 4.375x$

where x is in thousands and y is in millions of naira. The cost that would be expected for an output of 4,000 units is

(A) 63.17 million naira
(B) 61.37 million naira
(C) 37.16 million naira
(D) 36.17 million naira
(E) 31.78 million naira

19. A company is funding a major expansion which will take place over a period of 18 months. It will commit ₦100,000 to the project in the first month followed by a series of monthly payments increasing by ₦10,000 per month. The total amount of funds invested at the end of the project is

(A) ₦2,330,000
(B) ₦3,330,000
(C) ₦4,330,000
(D) ₦5,330,000
(E) ₦6,330,000

20. A young farmer places ₦100,000 on deposit in a commercial bank earning 12.5% compound interest per annum. The amount that would have accumulated in 4 years is

(A) ₦186,100.66
(B) ₦181,600.66
(C) ₦180,160.66
(D) ₦168,100.66
(E) ₦160,180.66

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. A Kano-based soft drink manufacturing company's daily sales of crates of soft drink are recorded as follows:

77	88	69	46	67	73	61	93	66	76
73	75	77	67	71	51	72	84	64	94
86	71	84	57	87	78	52	78	62	47
59	47	67	98	74	55	68	74	86	66
58	67	72	83	77	67	65	53	54	42

i.   Use TALLY method to obtain the frequency distribution based on classes 41 and under 51, 51 and under 61, etc.
         (5 Marks)

    ii.   Use the mid-point of each class to calculate

         - the mean daily sales of the crates of soft drink.   (4 Marks)

         - the standard deviation of the distribution.   (7 Marks)

b.   The marginal revenue of an organisation from the sale of a soft drink is $50 - 0.002q$.

    Determine the total revenue if 35,500 crates are sold.   (4 Marks)
                                                          (Total 20 Marks)

QUESTION 2

a.   The regression of profit per unit output (y, in hundreds of naira) on output (x, in thousands of units) can be expressed as
     $y = \alpha x + \beta$

    i.   Determine the values of α and β if the values in the table below satisfy the given model above:

Output (₦) x(000)	Profit per unit y (₦'00)
5	3.4
7	4.8
9	5.6
11	6.8
13	7.4
15	8.8

                                                          (10 Marks)
    ii.   Use the model above to obtain the profit per unit of output when there is an output of 10,500 units.   (4 Marks)

b.   An item of a certain material costs ₦100 per unit and the annual cost is 6% of the purchase cost per annum. The cost of placing an order for the item is ₦248. If the annual holding cost is ₦1,400, determine the number of units to be bought every 4 months.   (6 Marks)
                                                          (Total 20 Marks)

QUESTION 3

a.   Three packets A, B & C of different sweets are to be purchased for a birthday party: one packet of type A and one packet of type B cost ₦90; one packet of type B and one packet of type C cost ₦70; and one packet of type C and one packet of type A cost ₦75. Calculate the total cost of buying one packet of each of the three types of sweets.   (12 Marks)

b. If it is estimated that a shareholder's earning will grow from ₦10.50 per share to ₦15.75 per share over the next 10 years. Calculate the rate of growth in the shareholder's earnings. (8 Marks)

(Total 20 Marks)

QUESTION 4

a. The three-year quarterly sales figures (in thousands of naira) of bundles of roofing sheets are recorded as follows:

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2005	28	32	35	39
2006	43	47	52	55
2007	57	64	68	72

Estimate the seasonal variation (adjusted) for each quarter based on additive model. (14 Marks)

b. The profit and constraints of a 2-product business are described as follows:
$$\text{Maximise } Z = 80x + 60y$$

Subject to the following constraints:

$$8x + 3y \leq 43$$
$$5x + 7y \leq 32$$

Based on the simplex method of solution,
i. Convert the constraints to equations. (2 Marks)
ii. Re-arrange the objective function into the standard form and hence obtain the initial tableau. (4 Marks)

(Total 20 Marks)

QUESTION 5

a. The production department of a sugar manufacturing company plans to make a profit of ₦2,194,890.44 in the 3rd year. If the number of units to be produced in the first year is to grow at a rate of 5%, the selling price per unit is to be ₦1,050 and to grow at a rate of 6.5% ; the cost of producing a unit is to be ₦780 and it grows at a rate of 4.95%. Determine the number of units to be produced (to the nearest whole number). (12 Marks)

b. Three lorries P, Q & R supplied 9-inch blocks to a building site. There are thrice as many blocks in P as in R.

Lorry Q carries half of what lorry R carries. 8%, 10% and 12% of the Blocks in R, P and Q respectively are defective. If a defective block is picked at random, use the tree probability diagram to determine the probability that the defective block is in R. (8 Marks)

(Total 20 Marks)

QUESTION 6

Copies of a research questionnaire on anti-corruption war in a country are distributed into the following age groups:

Age (years)	Number of people that received copies of the questionnaire
20-27	2
27-34	5
34-41	10
41-48	17
48-55	23
55-62	35
62-69	20
69-76	10
76-83	7
83-90	3

a. Use appropriate class boundaries to draw the histogram for the data and hence, deduce the modal age.   (5 Marks)

b. Calculate the median age and the quartile deviation.   (15 Marks)

(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)

$E(X) = \sum (\text{probability} * \text{payoff})$

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

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

Standard Deviation

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

INDEX NUMBERS

Price relative = 100 * P_1/P_0 Quantity relative = 100 * Q_1/Q_0

Price: $$\frac{\sum w * \left(\frac{P_1}{P_0}\right)}{\sum w} \text{ x } 100$$

Quantity: $$\frac{\sum w * \left(\frac{Q_1}{Q_0}\right)}{\sum w} \text{ x } 100$$

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.
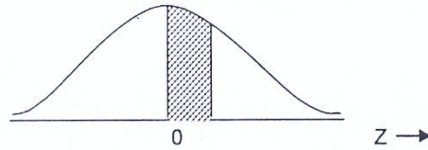
$Z= \dfrac{(x-\mu)}{\sigma}$	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	.0000	.0040	.0080	.0120	.0159	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.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									

SOLUTIONS

SECTION A

1.   C

2.   B

3.   C

4.   E

5.   B

6.   C

7.   E

8.   D

9.   B

10. D

11. B

12. C

13. E

14. A

15. B

16. B

17. D

18. D

19. B

20. E

WORKING OBJECTIVE QUESTIONS

1.   Contribution per unit   = ₦16,000 − (₦8,000 + ₦1,000) = ₦7,000
∴ Total contribution   = ₦ (7,000 x 8,000)
                          = ₦56,000,000
∴ Profit   = ₦(56,000,000 − 50,000,000)
                = ₦6,000,000

Option C

OR:

Sales Revenue   = ₦16,000 x ₦8,000 = ₦128,000,000

Variable cost per unit   = ₦ (8,000 + 1,000) = ₦9,000

∴ Total variable cost   = ₦9,000 x 8,000) = ₦72,000,000

∴ Profit   = ₦(128,000,000   - 72,000,000) - ₦50,000,000

              = ₦6,000,000

2.

Monthly salary (₦'000)	Number of Staff	Cumulative frequency (cf)
5 and under 10	3	3
10 and under 15	14	17
15 and under 20	17	34
20 and under 25	13	47
25 and under 30	2	49
30 and under 35	1	50

Quartile deviation $= \dfrac{1}{2}(Q_3 - Q_1)$

To find Q_1 :

Position of $Q_1 = \dfrac{1}{4} \times \dfrac{50}{1} = 12\dfrac{1}{2} th$

its class is **10 and under 15**

$\therefore Q_1 = 10 + \left(\dfrac{12.5 - 3}{14}\right)5 = 10 + 3.39 = 13.39$

To find Q_3 :

position of $Q_3 = \dfrac{3}{4} \times \dfrac{50}{1} = 37\dfrac{1}{2} th.$

its class is 20 and under 25

$\therefore Q_3 = 20 + \left(\dfrac{37.5 - 34}{13}\right)5 = 20 + 1.35 = 21.35$

$\therefore$ Quartile deviation $= \dfrac{1}{2}(21.35 - 13.39) = 3.98$

i.e Quartile Deviation = N3,980.

Option B

3.

x	y	d	d^2
1	2	-1	1
2	3	-1	1
3	1	2	4
4	4	0	0
5	6	-1	1
6	5	1	1
			$\Sigma d^2 = 8$

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

$$= 1 - \frac{6 \times 8}{6 \times 35}$$

$$= 1 - \frac{48}{210}$$

$$= 0.77$$

Option C

4.

Life x	Probability P	Px
1	0.12	0.12
2	0.20	0.40
3	0.08	0.24
4	0.21	0.84
5	0.30	1.50
6	0.09	0.54

$\therefore$ Expected life span $\sum Px = 3.64$ months

Average number replaced in the

period $= \dfrac{700}{3.64} = 192.3$ components per month

$\therefore$ total monthly cost of replacement in the period $= ₦\left(\dfrac{700}{3.64} \times 45\right)$

$$= ₦8,653.85$$

Option E

5. This is an ordinary annuity problem

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

$$= \dfrac{156{,}533.15\left[(1+0.08)^5 - 1\right]}{0.08}$$

$$= \dfrac{156{,}533.15\left[(1.08)^5 - 1\right]}{0.08} = \dfrac{156{,}533(1.4693280768 - 1)}{0.08}$$

$$= \dfrac{156{,}533.15 \times 0.4693280768}{0.08}$$

$$= \dfrac{73{,}465.4022449459}{0.08}$$

$$= 918{,}317.53$$

Option B

6. Combining the distribution **Means** of the combinations, we have

Mean of the distribution $\bar{x} = \dfrac{13 + 65}{2} = \dfrac{78}{2} = 39$

variance of the combination

$SD = 16 + 132.25 = 148.25$

∴ Standard deviation of the combination, $SD = \sqrt{148.25} = 12.18$

∴ Coefficient of variation of the combination

$= \dfrac{SD}{\bar{x}} \times 100 = \dfrac{12.18}{39} \times 100 = 31.23\%$

Option C

7. Arithmetic mean $= \dfrac{25 + 56 + 75 + 64}{4} = \dfrac{220}{4} = 55$

weighted Arithmetic mean $= \dfrac{(5 \times 25) \times (4 \times 56) \times (2 \times 75) + (1 \times 64)}{5 + 4 + 2 + 1}$

$= \dfrac{125 + 224 + 150 + 64}{12} = 46.9$

Option E

8. $z = \dfrac{x - \mu}{S}$

$= \dfrac{1,500 - 1,510.25}{5}$

$= \dfrac{-10.25}{5}$

$= -2.05$

This means, 1,500g is 2.05 standard deviations below the mean.
From the table, 0.4798 (or 47.98%) of the distribution is within 2.05 standard deviations below the mean, so
$P(Z < -2.05) = 0.5 - 0.4798 = 0.0202$
Therefore, the probability of a bag of soap being less than this is 0.0202 or 2.02%

Option D

9. These are independent events
$\therefore$ The possible colour variations of the shoe
$= 5 \times 11 \times 8 \times 4 \times 6 \times 3 \times 2 = 63.360$
Option B

10. Present value = future cash value $\times \dfrac{1}{(x + r)^n}$

$= 19,965 \times \dfrac{1}{(1.1)^3} = $ N15,000

Option D

$(x + a)^n = \sum_{k=0}^{n} \binom{n}{k} x^k a^{n-k}$

11. $CW = U - L \ldots \ldots (1)$

$MP = \dfrac{U + L}{2} \ldots \ldots (2)$

from equation (1), U = CW + L $\ldots\ldots$(3)

use (3) in (2) to give $MP = \dfrac{CW + L + L}{2}$

$\Rightarrow 2MP = CW + 2L$

$\Rightarrow 2L = 2MP - CW$

$L = \dfrac{1}{2}(2MP - CW)$

Option B

12. $2x^2 - 3x - 5 = 0$

$$\Rightarrow x^2 - \frac{3}{2}x = \frac{5}{2}$$

$$\Rightarrow \left(x - \frac{3}{4}\right)^2 - \frac{9}{16} = \frac{5}{2}$$

$$\Rightarrow \left(x - \frac{3}{4}\right)^2 = \frac{5}{2} + \frac{9}{16} = \frac{40+9}{16}$$

$$\therefore \left(x - \frac{3}{4}\right)^2 = \frac{49}{16}$$

Option C

13. $p(tail) = \frac{1}{2}$

$$P(HEART) = \frac{13}{52}$$

$\therefore P(\text{tail and Heart})$

$$= \frac{1}{2} \times \frac{13}{52} = \frac{13}{104} = \frac{1}{8}$$

Option E

14. Modal class = 62 – 82

$$Mode = \ell + \left[\frac{f_1 - f_0}{2f_1 - f_0 - f_2}\right]C, where$$

$\ell = 62; f_0 = 29, f_1 = 58, f_2 = 17, and\, C = 20.$

$$\therefore \text{Mode} = 62 + \left(\frac{58 - 29}{2(58) - 29 - 17}\right)20$$

$$= 62 + \frac{29 \times 20}{70}$$

$$= 62 + 8.285714$$

$$= 70.285714$$

$\therefore$ Modal wage = N70,285.71

Option A

15. **Option B**

16. One Professor must be included with 9 out of the remaining 24.

$$\therefore \text{using } {}^nC_x = \frac{n!}{x!(n-x)!}$$

with n = 24, x = 9

$$\therefore {}^{24}C_9 = \frac{24!}{9!(24-9)!}$$

$$= \frac{24!}{9!(15!)}$$

$$= \frac{24 \times 23 \times 22 \times 21 \times 20 \times 19 \times 8 \times 17 \times 16}{9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}$$

$$= 4 \times 23 \times 22 \times 19 \times 17 \times 2$$

$$= 1,307,504 \text{ Teams}$$

Option B

17. **Option D**

18. $y = 18.67 + 4.375x$

output of 400 produces x = 4

$\therefore y = 18.67 + 4.375(4) = 36.17$

i.e. the cost is 36.17 million naira.

Option D

19. Total investment in the nth month $= \frac{n}{2}\{2a + d(n-1)\}$

$\therefore$ Total investment for the 18 months

$$= \frac{18}{2}(2 \times 100,000 + 10,000 \times 17)$$

$$= 9(200,000 + 170,000)$$

$$= N3,330,000$$

Option B

20. $fv = P(1+i)^n$

$$= 100,000(1 + 0.125)^4$$

$$= 100,000(1.125)^4$$

$$= 100,000(1.601807)$$

$$= 160,180.66$$

Option E

SECTION B

Solution 1

Theory workings

1. (a)(i)

	2marks	2marks	0.5mark	1mark		
No of crates sold on daily basis	TALLY	f	x	x^2	fx **2 marks 1mark**	fx^2 **2.5marks 1mark**
41 – 51	IIII	4	46	2,116	184	8,464
51 – 61	HHt III	8	56	3,136	448	25,088
61 – 71	HHtHHt III	13	66	4,356	858	56,628
71 – 81	HHtHHtHHt	15	76	5,776	1,140	86,640
81 – 91	HHt II	7	86	7,396	602	51,772
91 – 101 **1mark**	III	3	96	9,216	288	27,648
		50			3,520	256,240

(ii)

- mean $= \dfrac{\Sigma fx}{\Sigma f}$

  $= \dfrac{3,520}{50}$ **0.5 mark**

  $= 70.4$ **0.5mark**

- Standard deviation

$$SD = \sqrt{\frac{\sum fx^2}{\sum f} - \left(\frac{\sum fx}{\sum f}\right)^2}$$

$$SD = \sqrt{\frac{256,240}{50} - \left(\frac{3,520}{50}\right)^2}$$ **1 mark**

$= \sqrt{5,124.8 - 4,956.16}$

$= \sqrt{168.64}$ **0.5mark**

$= 12.99$ **1 mark**

(b). $\dfrac{dR}{dq} = 50 - 0.002q$

$\therefore R = \int_0^{35,500}(50 - 0.002q)dq$ **1mark**

$R = 50q - \dfrac{0.002q^2}{2} + K \Big|_0^{35,000}$ **1mark**

when q = 0, R = 0

$$\therefore R = 50(35,500) - 0.001(35,500)^2 \quad \text{0.5mark}$$
$$= 1,775,000 - 1,260,250 \quad \text{0.5mark}$$
$$= 514,750 \quad \text{1mark}$$

Aliter to Q1a.

	Tally	f	x	fx	$x - \bar{x}$	$(x - \bar{x})^2$	$f(x - \bar{x})^2$
41 – 51	IIII	4	46	184	-24.4	595.36	2381.44
51 – 61	HHI III	8	56	448	-14.5	207.36	1658.88
61 – 71	HHI HHI III	13	66	858	-4.4	19.36	251.68
71 – 81	HHI HHI HHI	15	76	1140	5.6	31.36	470.4
81 – 91	IIII II	7	86	602	15.6	243.36	1703.52
91 – 101	III	3	98	288	25.6	655.36	1966.08
		50		3,520			8,432

$$\text{Mean} = \frac{\Sigma fx}{\Sigma f}$$

$$= \frac{3520}{50} \quad \text{0.5 mark}$$

$$= 70.4 \quad \text{0.5 mark}$$

$$\text{S.D} = \sqrt{\frac{\Sigma f\left(x - \bar{x}\right)^2}{\Sigma f}}$$

$$= \sqrt{\frac{8432}{50}} \quad \text{1 mark}$$

$$= \sqrt{168.64} \quad \text{0.5 mark}$$

$$= 12.99 \quad \text{1 mark}$$

Marking Guide

	Question 1	Mark	Mark
a(i)	For completing the classes	1	
	For correct TALLY (-½ each error)	2	
	For correct frequencies (-½ each error)	2	5
(ii)	For correct x column	1	
	For getting fx column correct (-½ each error)	1.5	
	For getting $\sum f x$ correct	0.5	
	For dividing by $\sum f$	0.5	
	For correct Mean to be 70.4	0.5	4
	For correct x^2 column (all correct)	1	
	For correct fx^2 column $\sum f x n$ (-½ each error)	2.5	
	For correct $\sum f.x^2$	1	
	For correct substitution into the standard deviation formula	1	
	For correct simplification	0.5	
	For correct standard deviation	1	7
	Aliter to 1a		
I	For completing the classes	1	
	For correct TALLY (-½ each error)	2	
	For correct frequencies (-½ each error)	2	5
ii	For correct column (at least any 2 correct)	1	
	For correct fx column (-½ each error)	1½	
	For correct $\sum fx$	½	
	For dividing by $\sum f$	½	
	For correct mean i.e 70.4	½	4
	For correct $\left(x - \bar{x}\right)$ column	½	
	For correct $\left(x - \bar{x}\right)^2$ column	½	
	For correct f $\left(x - \bar{x}\right)^2$ column (-½ each error)	2½	
	For correct $\sum f \left(x - \bar{x}\right)^2$	1	
	For correct substitution into standard deviation formular	½	
	For correct standard formular	1	
B	For correct expression for the revenue	1	
	For correct integration	1	
	For correct substitution into the integrand expression	0.5	
	For simplification	0.5	
	For correct revenue	1	4
			20

Solution 2

1. a)

Output x (thousands)	Profit per unit y(₦'00)	x^2	xy
5	3.4	25	17.0
7	4.8	49	33.6
9	5.6	81	50.4
11	6.8	121	74.8
13	7.4	169	96.2
15	8.8	225	132
$\Sigma x = 60$ **MK**	$\Sigma y = 36.8$ **MK**	$\Sigma x^2 = 670$ **1MK**	$404 = \Sigma xy$ **1MK**

Regression of y on x requires the equation

$$y = \alpha x + \beta$$

To find the values of α and β necessitates solving the following simultaneous equations: $\Sigma Y = \alpha \Sigma x + n\beta$ ....(1)   **0.5 mark**

$\Sigma XY = \alpha \Sigma X^2 + n\beta$ ....(2)   **0.5 mark**

substituting from the table above into (1) & (2) gives

$36.8 = 60\alpha + 6\beta$ ....(3)   **0.5mark**

$404 = 670\alpha + 60\beta$ ....(4)   **0.5mark**

eqn (3) * (-10) gives $-368 = -600\alpha - 60\beta$ ......(5)   **1mark**

eqn (4) + eqn (5) gives $36 = 70\alpha \Rightarrow \alpha = \dfrac{36}{70} = 0.51428571....$(6)   **1mark**

use (6) in (4) to get $404 = 670\left(\dfrac{36}{70}\right) + 60\beta$ **1mark**

$\Rightarrow 60\beta = 404 - \dfrac{670 \times 36}{70} = 404 - \dfrac{67 \times 36}{7} = \dfrac{2,828 - 2,412}{7} = \dfrac{416}{7}$ **1mark**

$\therefore \beta = \dfrac{416}{7 \times 60} = \dfrac{416}{420} = 0.99$ **1mark**

$\alpha = 0.51$ and $\beta = 0.99$

(ii). To find y when output is **10,500** implies that $x = 10.5$, we have

$y = 0.51x + 0.99$ **1mark**

$y = 0.51(10.5) + 0.99 = 6.345$ **1mark**

∴ The profit per unit $= N6.345 \times 1000$

$$= N6345$$ **1mark**

(b) Annual holding cost $= \dfrac{Q}{2} \times C_H = 1400$ **1mark**

where Q= Economic Order Quantity

$C_H = $ annual cost $= 6\%$ of $N100 = \dfrac{6}{100} \times 100 = N6$ **0.5mark**

∴ $Q = (1400 \times 2)/C_H$

$= (1400 \times 2)/6 = \dfrac{1400}{3}$ **0.5mark**

But Q $= \sqrt{\dfrac{2C_0 D}{C_H}}$ **0.5 mark**

$\Rightarrow \dfrac{2C_0 D}{C_H} = Q^2$ **0.5 mark**

$D = \dfrac{C_H \cdot Q^2}{2C_0}$ **0.5mark**

$= \dfrac{6 \times \left(\frac{1400}{3}\right)^2}{2 \times 248} = \dfrac{6 \times (1400)^2}{2 \times 9 \times 248}$ **0.5mark**

$$= 2,634.4$$ **1mark**

∴ the number of units to be bought every 4 months

$$= 2,634 \div 3$$ **0.5mark**

$$= 878$$ **0.5mark**

Aliter to Q2a (i)

$$y = \propto x + \beta$$

X	y	xy	X²
5	3.4	17	25
7	4.8	33.6	49
9	5.6	50.4	81
11	6.8	74.8	121
13	7.4	96.2	169
<u>15</u>	<u>8.8</u>	<u>132</u>	<u>225</u>
<u>60</u>	<u>36.8</u>	<u>404</u>	<u>670</u>
½	½	½	½

4 marks

(i)
$$\alpha = \frac{\sum xy - \dfrac{\sum x \sum y}{n}}{\sum x^2 - \left(\dfrac{\sum x}{n}\right)^2} = \frac{404 - (60)\left(\dfrac{36.8}{6}\right)}{670 - \dfrac{(60)^2}{6}}$$

1 mark

$$= \frac{36}{70} = 0.5143$$

1 mark, 1 mark

$$\beta = \frac{\sum y}{n} - \alpha \frac{\sum x}{n}$$

$$= \frac{36.8}{6} - 0.514\beta\left(\frac{60}{6}\right) = 0.990$$

1 mark, 1 mark

(ii)   y = 0.51x + 0.99

1 mark

For output of 10,500 units, x = 10.5

∴ Profit = 0.990 + 0.514 (10.5) = 6.39015

1 mark, 1 mark

⇒ ₦6,387.00

1 mark

Marking Guide

Question 2

a(i)	For correct $\sum x$	0.5	
	For correct $\sum y$	0.5	
	For correct $x^2 - 1$ column	1	
	For correct $xy - 1$ column	1	
	For correct $\sum X^2$	1	
	For correct $\sum xy$	1	
	For the two simultaneous equations	1	
	For correct substitution into the simultaneous equation	1	
	For simplification	1	
	For obtaining the current α to be $\frac{36}{70} = 0.5143$	0.5	
	For substituting to obtain β	1	
	For simplification	1	
	For obtaining β to be 0.99	<u>0.5</u>	10

Aliter to Q2 (a)(i)

	For correct $\sum x$	½	
	For correct $\sum y$	½	
	For correct xy column (at least any 2 correct)	1	
	For correct x^2 column (at least any 2 correct)	1	
	For correct $\sum x^2$	½	
	For correct $\sum xy$	½	
	For correct substitution into $\propto$ formular	1	
	For correct simplification	1	
	For correct $\propto$ i.e 0.51	1	
	For correct substitution into formular	1	
	For correct simplification	1	
	For correct β i.e 0.99	1	
ii	For correct model (i,e $y = 0.5x + 0.99$)	0.5	
	For substituting 10.5 into the above model	1	
	For getting y to be 6.345	1	
	For obtaining the actual profit to be ₦634.5	<u>1</u>	4
b	For correct expression for the Annual Holding cost and equating it to 1,400	1	
	For obtaining annual cost (c_{ii}) to be ₦6.00	0.5	
	For obtaining the correct Q as $\frac{1400}{3}$	0.5	
	For correct expression for Q	0.5	
	For correct expression for Q^2	0.5	
	For making D the subject of the formula	0.5	

For correct substitution	0.5
For correct annual demand D	1
For expression $\frac{2634}{3}$	0.5
For getting the number of units to be bought every 4 months	0.5 6
	20

Solution 3

(a)

$A + B = 90\ldots\ldots(1)$	1mark
$B + C = 70\ldots\ldots.(2)$	1mark
$C + A = 75\ldots\ldots.(3)$	1mark
in (3), $C = 75 - A\ldots(4)$	1mark
use (4) in (2) to give $B + 75 - A = 70$	1mark
$\Rightarrow B - A = -5\ldots\ldots(5)$	1mark
(1) + (5): $2B = 85$	1mark
$B = 42\frac{1}{2}\ldots\ldots(6)$	0.5mark
use (6) in (5) to give: $A = B + 5 = 42\frac{1}{2} + 5$	1mark
$= 47\frac{1}{2}\ldots\ldots(7)$	0.5mark
use (7) in (4) to give: $C = 75 - 47\frac{1}{2} = 27\frac{1}{2}$	1mark
$A + B + C = 47\frac{1}{2} + 42\frac{1}{2} + 27\frac{1}{2} = 117.50$	2marks

(b) $CA = P(1+i)^n$

$n = 10, CA = 15.75, P = 10.5$

we want to find i

$\therefore 15.75 = 10.5(1+i)^{10}$	2marks
$(1+i)^{10} = \dfrac{15.75}{10.5} = \dfrac{3}{2}$	2marks
$1+i = (1.5)^{\frac{1}{10}}$	2marks
$\Rightarrow i = (1.5)^{\frac{1}{10}} - 1 = 4.14\%$	2marks

Marking Guide

Question 3

a   Formulating the 3 correct simultaneous equations (1 mark for
each correct equation   3
For elimination 2 unknowns   4
For obtaining the 3rd unknown   0.5
For getting the 2nd unknown   1.5
For getting the 1st unknown   1
For getting the total cost of buying one packet of each of the
three types of sweets   2   12

b   For correct substitution into the correct amount expression i.e   2
$CA = P (1 + i)^n$
For correct simplification   4
For correct growth rate (i)   2   <u>8</u>
                                                      <u>20</u>

Solution 4

(a)   For ease of reference, the Quarters are numbered from 1 to 12 i.e year 1,
Quartile 1 is numbered Q1; year 2, Quartile 1 is numbered Q5, etc until year
3 where Quartile 4 is numbered Q12.

C_1:Quarter	C_2 Sale	C_3 4-quarter total	C_4 Moving Average $C_3 \div 4$	C_5 Centered total of moving averages (adding pairs)	C_6 Trend (Centered moving average)	C_7 variation(actual-trend) $C_2 - C_6$
1	28	3marks	$1\frac{1}{2}$ marks	2marks	1mark	$1\frac{1}{2}$ marks
2	32					
		134	33.5			
3	35			70.75	35.375	-0.375
		149	37.25			
4	39			78.25	39.125	-0.125
		164	41.00			
5	43			86.25	43.125	-0.125
		181	45.25			
6	47			94.50	47.25	-0.250
		197	49.25			
7	52			102.10	51.00	+1.00
		211	52.75			
8	55			109.75	54.875	+0.125
		228	57.00			
9	57			118	59	-2.00

		244	61.00			
10	64			126.25	63.125	+0.875
		261	65.25			
11	68					
12	72					

The seasonal variation is now calculated as the average seasonal variation for each quarter as follows:

	Q_1	Q_2	Q_3	Q_4	Total
2005			-0.375	-0.125	**0.5 for correct**
2006	-0.125	-0.250	1.000	0.125	**Arrangement**
2007	-2.000	0.875			
Average	-1.0625	0.3125	0.3125	0	-0.4375 **2marks**
adjustments	0.109375	0.109375	0.109375	0.109375	-0.4375 **0.5mark**
Seasonal adjustment	-0.953125	0.421875	0.421875	0.109375	0 **2marks**

Aliter to 4a

Q4a

C_1 Quarter	C_2 sale	C_3 4-quarter total	C_4 2x 4 quarter Total	C_5 Trend $C_4 \div 8$	C_6 Variance $C_2 - C_5$
1	28				
2	32				
		134			
3	35		283	35.375	-0.375
		149			
4	39		313	39.125	-0.125
		164			
5	43		345	43.125	0.125
		181			
6	47		378	47.25	-0.250
		197			
7	52		408	51.00	1.00
		211			
8	55		439	54.875	0.125
		228			
9	57		472	59	-2.00
		244			

10	64		505	63.125	0.375
		261			
11	68				
12	72				

b)   (i)   Inequalities changed to equations:

$8x + 3y + S_1 \qquad = 43$ **1mark**

$5x + 7y \qquad + S_2 = 32$ **1mark**

(ii).   objective function now in the standard form:

$Z = 80x + 60y + 0S_1 + 0S_2$ **1mark**

Initial tableau is obtained as follows:

Basic Variables	x	Y	S_1	S_2	Quantity	
S_1	8	3	1	0	43	**1mark**
S_2	5	7	0	1	32	**1mark**
Z	-80	-60	0	0	0	**1mark**

Marking Guide
Question 4

a	For correct 4 quarter totals (½ each error)	3
	For correct Moving Average (at least for getting 3 correct)	1.5
	For correct Centered Total of Moving Averages (at least for getting 4 entries correct)	2
	For correct Trends (for getting at least 2 correct)	1
	For correct Variations (for getting at least 3 correct)	1.5
	For correct arrangement	0.5
	For correct Average (0.5 mark for each average)	2
	For the correct Adjustments	0.5
	For correct Seasonal Adjustment	2 14

Aliter for part of 4a

For correct well-centred 4 – quarter total i.e column 3 (-½ each error)	3
For correct well-centred 2 x 4 – quarter total i.e column 4 (-½ each error)	3
For correct well positioned trend (i.e column 5) (at least for getting 3 correct)	1½
For correct variation i.e column 6 (for getting at least 3 correct	1½

b	For the inequalities changed to equations	2	
	For the object function written in standard form	1	
	For correct row for each of the stack variables (S_1 & S_2) and the objective function (1 mark each)	3	<u>6</u>
			20

Solution 5

(a) #   In the 1st year, let x units be produced,   **1mark**
if it grows at a rate of 5%, then in the 2nd year,
units produced = x (1.05) = 1.05x   **1mark**
$\therefore$ In the 3rd year, units produced $= x(1.05)^2 = 1.1025x$ **1mark**
Revenue in the 1st year = ₦1,050x   **1mark**

In the 2nd year, Revenue = ₦$x(1050)(1.065)(1.05)$ **1mark**
$\therefore$ In the 3rd year, Revenue = ₦$x(1050)(1.065)^2(1.05)^2$ **1mark**
cost of production in the 1st year = ₦$x(780)$ **1mark**

In the 2nd year, cost of production =₦$x(780)(1.0495)(1.05)$ **1mark**
$\therefore$ In the third year, cost of production = ₦$x(780)(1.0495)^2(1.05)^2$ **1mark**
Profit in the 3rd year = Revenue – cost
$= ₦(1.05)^2 x(1050)(1.065)^2 - ₦x(780)(1.0495)^2(1.05)^2$ **0.5 mark**
$= x(1.05)^2 (1050\times1.065^2 - 780\times1.0495^2)$
$= x(1.05)^2 (1190.93625 - 859.131195)$
$= x(1.05)^2 (331.805055)$
$\therefore$ For the given revenue, we have
$2,194,89044 = x(1.05)^2 (331.805055)$ **0.5 mark**
$\therefore x = \dfrac{2,19489044}{1.05^2 \times 331.505055}$ = 6,000   **1 mark**

For the 2nd year, units produced = 1.05 x 6,000 = 6,300   **0.5 mark**
For the 3rd year, units produced = 1.1025 x 6,000 = 6,615   **0.5 mark**

5 (b)   Let R carry x blocks

$\therefore$ P will carry 3x and Q will carry $\frac{1}{2}x$

$\therefore 3x + x + \dfrac{1}{2}x = 1$ **1mark**

$\Rightarrow 4\dfrac{1}{2}x = 1$

$$\Rightarrow x = \frac{2}{9} \rightarrow R \qquad\qquad\qquad\qquad\qquad \textbf{0.5mark}$$
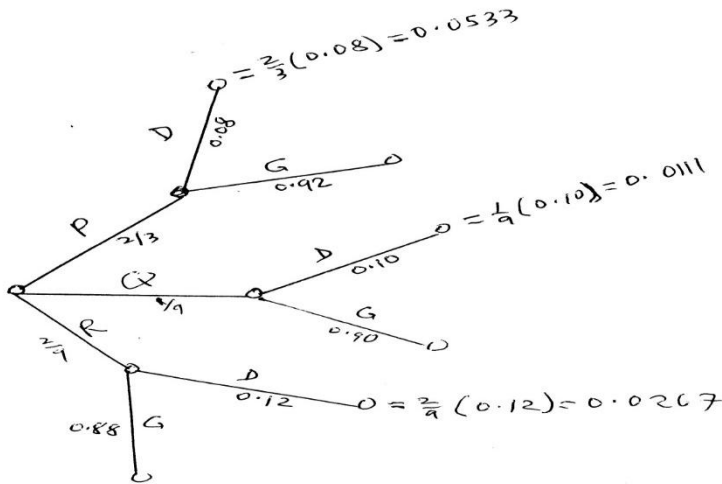
$$3x = \frac{2}{3} \rightarrow P \qquad\qquad\qquad\qquad\qquad \textbf{0.5mark}$$

$$\frac{x}{2} = \frac{1}{9} \rightarrow Q \qquad\qquad\qquad\qquad\qquad \textbf{0.5mark}$$

(2 marks for using tree diagram)

proportion of defective blocks in the three lorries

$= 0.0533 + 0.0111 + 0.0267 \qquad\qquad\qquad$ **1.5marks**

$= 0.0911 \qquad\qquad\qquad\qquad\qquad\qquad\qquad$ **1mark**

$\therefore$ Probability that a defective block is in lorry R

$= \dfrac{0.0267}{0.0911} = 0.293 \qquad\qquad\qquad\qquad\qquad$ **1mark**

Marking Guide
  Question 5

a	Let X represent two units produced in the 1st year	1
	For the 2nd year units produced	1
	For the 3rd year units produced	1
	For the 1st Year Revenue	1
	For the 2nd Year Revenue	1
	For the 3rd Year Revenue	1
	For the 1st Year cost of production	1
	For the 2nd Year cost of production	1

For the 3rd Year cost of production   1

For the 3rd Year correct expression for the profit   0.5

For getting the simplified expressions for the 3rd year profit   0.5

For equating the above profit expression to the given 3rd year
profit of ₦2,194,890.44 to get x = 6000   1

For 2nd Year units produced   0.5

For 3rd Year units produced   <u>0.5</u>   12

b   For getting the proportion of the blocks carried by each of P, Q
        & R
                                                                                 2.5

        For the correct tree diagram   2

        Summing the proportions of defective blocks in the three
        lorries   1.5

        For getting the total proportion   1

        For getting the correct probability that a defective block in in   <u>1</u>   8
        R

                                                                                              20

Solution 6

(a)

Age (years)	Number of people that got the questionnaire	Cf 3marks
20-27	2	2
27-34	5	7
34-41	10	17
41-48	17	34
48-55	23	57
55-62	35	92
62-69	20	112
69-76	10	122
76-83	7	129
83-90	3	132

Histogram, showing the extracted **mode** of 58.2 years is as shown below:

f

10

20

30

10

20

30

40

50

58.2 years

60

70

80

90

100

Age in years.
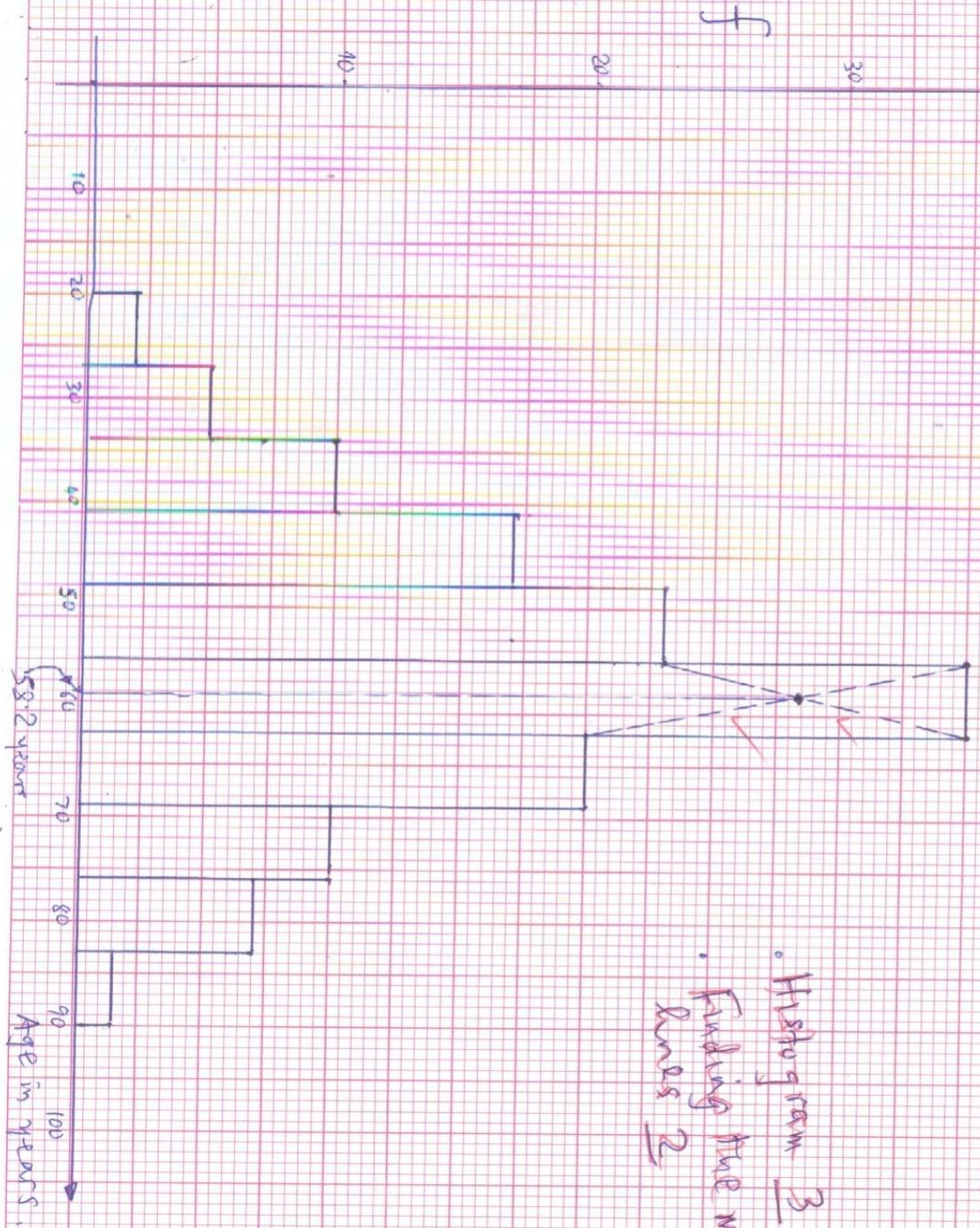
· Histogram 3
· finding the mode
    lines 2

(b) (i) $Q_1 \to 25\%$ of $132 = 33$ **0.5mark**

      Q_1 class is $41 - 48$ **0.5mark**

$$\therefore Q_1 = 41 + 7\left(\frac{33-17}{17}\right) = 41 + \frac{112}{17}$$ **1 mark**

$$= 41 + 6.59 = 47.59$$ **1mark**

$Q_3 \to 75\%$ of $132 = 99$ **0.5 mark**

$\therefore Q_3$ class is $62 - 69$ **0.5 mark**

$$\therefore Q_3 = 62 + 7\left(\frac{99+92}{20}\right) = 62 + \frac{49}{20}$$ **1 mark**

$$= 62 + 2.45 = 64.45$$ **1mark**

$$\therefore \text{Quartile deviation} = \frac{Q_3 - Q_1}{2} = \frac{64.45 - 47.59}{2}$$ **1mark**

$$= \frac{16.86}{2}$$

$$= 8.43$$ **1mark**

(ii) $\Sigma f = 132$

$$\text{Position of the median} = \frac{\Sigma f}{2} = \frac{132}{2} = 66$$ **1mark**

$\therefore$ From the cumulative frequency column, the median class is $55 - 62$ **1mark**

$$\therefore \text{Median} = 55 + \left(\frac{66-57}{35}\right)7$$ **1mark**

$$= 56.8 \text{ years}$$ **1mark**

Marking Guide

Question 6

a	For correct Histogram (-½ each error)	3	
	For drawing 2 intersecting lines inside the highest rectangle	1	
	For locating the Mode on the Histogram	0.5	
	For obtaining the Mode (58.2 ± 0.5 i.e between 57.7 and 58.7)	0.5	5
b(i)	For getting all the cumulative frequencies correct (-½ each error)	3	
	For getting the position of Q_1	0.5	
	For identifying the position of Q_1 class	0.5	
	For obtaining the correct Q_1	2	
	For getting the position of Q_3	0.5	

	For identifying the Q_1 class	0.5	
	For obtaining the correct Q_3	2	
	For substituting into the formula of Quartile Deviation	1	
	For correct Quartile deviation	<u>1</u>	11
ii	Correct Median position	1	
	Identifying the Median class	1	
	For obtaining the current Median	<u>2</u>	4
			<u>**20**</u>

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

FOUNDATION LEVEL EXAMINATION – MAY 2019

BUSINESS AND FINANCE

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. Which of the following is **NOT** an investment appraisal technique?
   A. Accounting rate of return (ARR)
   B. Payback
   C. Net present value (NPV)
   D. Internal rate of return (IRR)
   E. Return on asset

2. Financial engineering is also called quantitative analysis and is primarily used by the following, **EXCEPT**
   A. Investment banks
   B. Hedge funds
   C. Commercial banks
   D. Trading companies
   E. Insurance companies

3. The following are advantages of Internal Rate of Return (IRR) method of investment appraisal **EXCEPT**
   A. It is based on cash flows, not accounting profits
   B. It recognises the time value of money
   C. It is easier to understand investment return as a percentage return on investment
   D. For accept/reject decisions on individual projects, the IRR method will achieve the same decision as the NPV method
   E. It is a relative measure and not an absolute measure in ₦ terms

4. Which of the following statements is **CORRECT**?
   A. The buyer of a bill must hold the bill until maturity
   B. The bill holder can sell the bill in a secondary market before maturity
   C. Bills are redeemable at face value plus interest
   D. The market value of bills is always above their redemption value
   E. Bills are traded at 'par'

5. Which of the following fully guides how people and institutions should behave in the world of commerce?

    A. Rule of law
    B. Values
    C. Honesty
    D. Integrity
    E. Ethics

6. If a company does not want to pay to underwrite a rights issue, it might offer the new shares at a very low price compared to the market price of the existing shares. This type of lower-priced share issue is called a

    A. Deep discounted issue
    B. Discounted share issue
    C. Discounted share
    D. Deep price discounted
    E. Lower-priced share issue

7. Which of the following is **NOT** a feature of a profession?
    A. Strict membership rules including a code of ethics
    B. The existence of a relationship of trust with clients
    C. The need to write a set of examination before being able to practice
    D. An extensive period of rigorous academic training in a particular area
    E. High entry requirements

8. Which of the following represents the act of reporting suspicious, illegal or improper behaviour to the person in authority?
    A. Professional ethics
    B. Ethical threat
    C. Warning
    D. Grapevine communication
    E. Whistle blowing

9. 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

10. The two broad categories of money market instruments are
    A. Coupon-bearing and discount instruments
    B. Coupon-bearing and bankers acceptance
    C. Treasury bills and discount instruments
    D. Bills of exchange and commercial paper
    E. Discount instruments and commercial paper

11. The management scholar who believed that there are principles of good management that apply to all types of organisation, and that these principles should therefore be applied consistently is
    A. Frederick Taylor
    B. Henri Fayol
    C. Lyndall Urwick
    D. Max Weber
    E. Elton Mayo

12. The principle of management that states that employees should have only one direct supervisor is known as
    A. Discipline
    B. Unity of direction
    C. Division of work
    D. Scalar chain
    E. Unity of command

13. The management scholar who developed a system for deciding whether a leader is task-oriented or relationship-oriented is

    A. Abraham Maslow
    B. Rensis Likert
    C. Tannenbaum Schmidt
    D. Paul Hersey
    E. Fred Fiedler

14. The following are factors that affect the interests of executive directors and senior managers in any organization EXCEPT

    A. Remuneration
    B. Power and status
    C. Career prospects
    D. Job security
    E. Lower dividend payments

15. The term "TSR" denotes

    A. Total shareholders' return
    B. Total stocks return
    C. Total shares return
    D. Total stakeholder's return
    E. Total stock returns

16. Kanter argued that the re-birth and success of business organisations will depend on **THREE** factors, namely

    A. Innovation, entrepreneurship and participative management
    B. Efficiency, effectiveness and management
    C. Management, competency and marketing
    D. Production, finance and accounting
    E. Innovation, market survey and management

17. Which of the following is **NOT** a stage or phase in the product life cycle?

    A. Introduction
    B. Growth
    C. Maturity
    D. Development
    E. Decline

18. A consumer contract where the terms are on "take it or leave it basis" is known as

    A. Legal contracts
    B. Contract law
    C. Freedom of contracts
    D. General form contracts
    E. Standard form contracts

19. Elton Mayo concluded that lack of attention to …………….. was a major weakness in earlier theories of management.

    A. Material
    B. Method
    C. Work
    D. People
    E. Machinery

20. Expectancy captures a person's perception about the relationship between two variables, namely:

    A. Instrumentality and valence
    B. Effort and persistence
    C. The direction of a person's behaviour and persistence
    D. Effort and performance
    E. Reward and performance

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

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

QUESTION 1

Macro economics is a branch of economics that studies whole economies rather than individual buyers, sellers and firms.

Required:
a. Identify and explain the **THREE** approaches to the measurement of total economic activity during a given time period.   (12 Marks)
b. Explain the main objective of government economic policy   (5 Marks)
c. Explain the term "economic cycle"   (3 Marks)
                (Total 20 Marks)

QUESTION 2

a. A newly-employed Accounting Technician at Obudu Bakery Limited discovered that the expenditure recorded in the company's books were classified as either capital expenditure or revenue expenditure.

    Required:
    State briefly **FOUR** differences between capital and revenue expenditures of a company and give **THREE** examples of each.   (12 Marks)

b. Identify and explain **FOUR** methods of investment appraisal   (8 Marks)
                (Total 20 Marks)

QUESTION 3
The creation of "environmental footprint" as well as a "social footprint" by an organisation is considered a visible mark on the environment and the society.

Required:
Explain the following terms:
i. Environmental footprint   (4 Marks)
ii. Social footprint   (4 Marks)

iii. Carbon neutrality (4 Marks)
iv. Sustainable development (4 Marks)
v. Sustainability reporting (4 Marks)
(Total 20 Marks)

QUESTION 4

a. Explain briefly the concept of management by objectives (MBO). (2 Marks)

b. Explain the MBO process. (12 Marks)

c. State **THREE** disadvantages of MBO. (6 Marks)
(Total 20 Marks)

QUESTION 5

a. Explain briefly the **TWO** ways in which information can be exchanged in an accounting firm. (6 Marks)

b. State **THREE** reasons why an accounting firm needs to rely on a mixture of formal and informal communication to operate effectively. (9 Marks)

c. State **FIVE** benefits of effective communication in an accounting firm.
(5 Marks)
(Total 20 Marks)

QUESTION 6

a. Identify and explain **FIVE** fundamental principles which professional accountants are required to comply with. (10 Marks)

b. State and explain **FIVE** organisational values that would help professional accountants to promote adherence to the fundamental principles of their profession. (10 Marks)
(Total 20 Marks)

SECTION A

MULTIPLE CHOICE QUESTIONS

<u>SOLUTION TO MCQs</u>

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

EXAMINER'S REPORT

This section consists of twenty (20) questions drawn across the syllabus. The questions were attempted by all the candidates and the candidates' performance was above average.

Candidates' major pitfall was inadequate coverage of the syllabus in preparation for the examination.

Marking guide

1 mark for each correct option   20 x 1 Mark =   20 Marks

SECTION B SOLUTIONS

SOLUTION TO QUESTION 1

a. The three approaches to the measurement of total economic activity during a period are:
   i.   Income approach;
   ii.   Output approach; and
   iii.   Expenditure approach.

   i. **Income Approach:** The approach deals with the summation of all income received from factors of production in various sectors of the economy during the period. Examples are profits earned by companies and income earned by individuals.

   ii. **Output Approach:** The approach that measures the value of output by all industries and other economic activities, such as service industry as well as agricultural, mining, construction and manufacturing industries.

   iii. **Expenditure Approach:** The approach deals with summation of all expenses incurred by various sectors of the economy. This includes spending on consumption by individuals and firms, spending on capital investment and government spending.

b.   The main objective of government economic policy is usually to achieve the following:
   i.   Full employment;
   ii.   Economic growth;
   iii.   Increase economic wealth; and
   iv.   Price stability.

   If economic growth and full employment are achieved, the wealth of the country increases and everyone will benefit. A government economic policy objective is, therefore, to increase aggregate demand in the economy and to achieve a steady annual growth in national income.

c.   The term **"economic cycle"** is used to describe the fluctuation in the economy between periods of economic growth and economic recession from one year to the next. Increase in national income from one year to the next implies economic growth, while decrease in national income from one year to the next implies economic recession.

EXAMINER'S REPORT

The question tests approaches to the measurement of total economic activity. About 80% of the candidates attempted it and about 55% pass rate was recorded.

The common pitfall was candidates' inadequate knowledge of the concept of economic cycle.

Candidates are advised to make adequate use of ICAN Study Text for subsequent examinations.

Marking guide:

a) 1 mark for each of the three approaches identified and 3 marks for each explanation made   (Max 12 marks)

b) ½ mark for each of the four components of the main objective stated and 3 marks for explaining and summarizing the main objective
                                                          (Max 5 marks)

c) 2 marks for explaining economic cycle and ½ mark each for the two components thereof which of necessity must be stated in the process of the explanation.   (Max 3 marks)
                                                          Total 20 marks

SOLUTION 2

a. Capital expenditures refer to expenses made to set up new businesses or acquire non-current assets for a company i.e. assets whose useful life exceed one financial year.

While revenue expenditures refer to payments that provide economic benefit only during the period it incurred or creates a short term assets. They are usually expensed in the income statement in the period in which they were incurred.

The differences between capital and revenue expenditures are as stated below:

S/N	Capital expenditure	Revenue expenditure
1	Non-recurring in nature.	Recurring in nature.
2	Incurred to replace worn out asset or acquire new one.	Undertaken to maintain operational capability.
3	Incurred to increase the earning capacity of a business.	Incurred to maintain the earning capacity of a business.

4	Creates a new long-term asset.	Does not create long-term asset
5	Recorded in the statement of financial position.	Recorded in the income statement.
6	Depreciated over the useful life of the asset.	Expensed in the income statement, in the current period, or shortly thereafter.
7	Assumed to be consumed over the useful life of the related non-current asset.	Assumed to be consumed within a very short period of time.
8	Requires a huge outlay of funds.	Requires a smaller outlay of funds when compared with capital expenditure.

Examples of capital expenditure include:
   i.   Purchase of new machine;
   ii.   Purchase of a new building;
   iii.   Acquiring new motor vehicle;
   iv.   Purchase new furniture; and
   v.   Investment in a new subsidiary, etc.

Examples of revenue expenditure include:
   i.   Payment of salary and wages;
   ii.   Payment of rent;
   iii.   Payment of electricity bill; and
   iv.   Payment of telephone bills;
   v.   Transport and travelling.

b.   Four methods of investment appraisal are
   i.   Accounting rate of return
   ii.   Payback
   iii.   Net present value
   iv.   Internal rate of return

   i.   **Accounting Rate of Return (ARR) or Return on Investment (ROI) method:** The accounting rate of return from an investment project is the accounting profit, usually before interest and tax, expressed as a percentage of the capital invested.

   The decision rule is that a capital project meets the criteria for approval if its expected ARR is higher than a minimum target ARR or minimum acceptable ARR.

ii.   **Payback period method:** The payback period is the length of time before the cash invested in a project will be recovered (paid back) from the net cash returns from the investment project. Payback is measured by cash flow and not profit.

Using the payback method, a maximum acceptable payback period is decided as a matter of policy. Decision rule is based on the following:
- If the expected payback is within the maximum acceptable time limit, the project is acceptable.
- If the expected payback does not happen until after the maximum acceptable time limit, the project is not acceptable.

iii.   **Internal rate of return method (IRR):** The internal rate of return of a project is the discounted rate of return on the investment otherwise known as the average annual investment return from the project. When cash flows from a project are discounted at the IRR, the NPV must come to zero.

A company might establish the minimum rate of return that it wants to earn on an investment and use it as a basis for the decision rule. Hence,
- if a project's IRR is equal to or higher than the minimum acceptable rate of return, the project will be undertaken; and
- if the IRR is lower than the minimum required return, the project will be rejected.

iv.   **Net present value method:** The NPV method of investment appraisal involves the sum of all the future cash flows from an investment converted into a present value by discounting each future cash flow at the investment cost of capital. This cost of capital is the return required from the investment.

The net present value (NPV) of a project is the net difference between the present value of all the costs incurred and the present value of all the cash flow benefits (savings or revenues).

If the present value of benefits exceeds the present value of costs, the NPV is positive.
If the present value of benefits is less than the present value of costs, the NPV is negative.
The NPV is 0 when the PV of benefits and the PV of costs are equal.

When risk, uncertainty and non-financial consideration are ignored
The decision rule is that, when risk, uncertainty and non-financial considerations are ignored, a project is worthwhile financially if the NPV is positive or zero. It is not worthwhile if the NPV is negative.

EXAMINER'S REPORT

This question tests candidates' knowledge of capital and revenue expenditures. About 90% of the candidates attempted it and about 65% scored above average. The common pitfall was that the candidates did not master the decision rules, especially for discounted factor techniques.

Candidates are advised to make adequate use of ICAN Study Text in preparing for subsequent examinations.

Marking Guide			
2a	Description of the two types of expenditures	2 x ½ mark	1
	4 differences each between the two types of expenditures	4 x 2 x 1 mark	8
	3 examples each of the two types of expenditures	3 x 2 x ½	3
2b	Four methods of investment appraisal	4 x ½ mark	2
	Explanation of the 4 types of investment appraisal	4 x 1½ mark	6
			20

SOLUTION 3

1. **Environmental footprint (ecological footprint):** This is the impact that an entity or business concern has on the environment. This can be viewed in terms of:
   i. the raw materials;
   ii. non-renewable resources it uses in its product; and
   iii. quantity and management of wastes generated from its activities.

2. **Social footprint:** This is the impact that an entity has on the society as a result of its activities.
   It involves measurement of the effect of economic activities of the company on society and people.
   Some companies are much more 'people-friendly' than others.
   Such impact could be positive in terms of benefit provided to the society, like employment generated or negative, like the use of child labour.

3. **Carbon neutrality:** This exists when a company is able to counterbalance its use of carbon products, and particularly its carbon dioxide emissions, with activities that reduce the amount of carbon dioxide in the atmosphere, such as growing trees or plants which absorb carbon dioxide from the atmosphere or by switching to the use of fuel and energy that does not involve carbon consumption.

The effect on the environment of economic activities by individual companies may be measured in terms of emissions of carbon-based pollutants, such as the release of carbon dioxide into the atmosphere. Some environmentally-conscious companies already measure their impact on carbon pollution, and might have a stated environmental policy of being 'carbon neutral'.

4. **Sustainable development:** This is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It is also a dynamic process which enables all people to realise their potentials and improve their quality of life in ways which simultaneously protect and enhance the earth's life support system. It deals with how companies use the available earth's resource to meet their present need without jeopardising the chances of the future generations.

5. **Sustainability reporting:** This is a report published by a company or organisation about the economic, environmental and social impacts caused by its activities. Sustainability reporting measures the consequences of a company's activities on the environment and society which it does not own and for which it has no direct responsibility. As companies become increasingly aware that social and environmental resources can no longer sustain their quest for growth, it becomes increasingly important for companies to measure and report on the impact that their activities are having on the society and environment.

   Traditional accounting methods do not provide for this type of measurement, and to the extent that companies (and society) want environmental and social impacts to be measured, traditional accounting is inadequate. Alternative measurement and reporting systems that recognise the need for economic activity to be sustainable have therefore been considered, although there is currently, no widely accepted standard measurement and reporting system.

EXAMINER'S REPORT

The question tests candidates' knowledge of environmental and social footprints. About 85% of the candidates attempted it, and about 65% of pass rate was recorded.

The common pitfall was lack candidates' inadequate understanding of the concepts of environment and social footprints.

Candidates are advised to concentrate more on the use of ICAN Study Text in subsequent examinations.

Marking guide:
4 marks for explaining each term = 5 terms x 4 marks = **Total marks 20**

SOLUTION TO QUESTION 4

Management By Objectives (MBO) is a system developed by Peter Drucker in the 1950s and used by management to achieve collaboration between managers and their subordinates in goal-setting and planning processes. It seeks to align objectives with the organisation's goals.

(b)   The MBO process entails:

    (i)   **Clearly defined organisational objectives:**
        Organisational objectives are expressed concisely in easily understood mission and vision statements.

    (ii)   **Organisation-wide goal setting:**
        Goals are set in such a way that it cascades down from level to level (i.e. from top level, all the way down to lowest levels) within the organisation. This entails setting goals and objectives for every business unit, department, team and employee.

    (iii)   **Employees' involvement in goal setting:**
        A participative goal-setting approach with team members has to be adopted with a full understanding of how the personal goals of employees and values fit with the organisation's objectives.

    (iv)   **Progress monitoring:**
        Monitoring progress made by individuals and the team vis-a-viz achieving the set goals.

    (v)   **Adoption of comprehensive evaluation and reward systems:**
        Adopting a comprehensive evaluation and reward system that will allow managers to strategically compensate employees for the work they do as well as demonstrating that achievement of objectives will be rewarded.

    (vi)   **A repeat of the above cycle:** Going back to step 1 to repeat the process.

    (c)   **The disadvantages of MBO**

        1.   Short-term objectives may receive more emphasis while long-term objectives may be neglected.

        2.   MBO is often challenging and lengthy to implement because it needs an expensive underlying goal tracking system.

3. Implementation of the MBO system needs commitment across the whole organisation. This may be difficult to get because significant employee resistance may occur.

4. There may be difficulty in achieving group goals, especially when goals of one department depend on another.

5. MBO system could be time consuming because of the considerable paper work involved.

6. Over-emphasis on quantities without efficient consideration of other factors.

7. The integration of MBO system with other systems such as forecasting and budgeting, etc. is very poor. This makes the overall functioning of all systems more difficult.

EXAMINER'S REPORT

The question tests the candidates' knowledge of Management By Objective (MBO). About 85% of the candidates attempted the question, and about 50% performed above average.

The common pitfall was candidates' inadequate understanding of the concept of MBO. Candidates are advised to make adequate use of ICAN Study Text in subsequent examinations.

Marking Guide		Marks
a	Description of MBO	2
b	½ mark for mentioning each of the steps involved in MBO process and 1½ for explaining each 2 x 6 =	12
c	2 marks for each of any three disadvantages of MBO	<u>6</u>
	Total	<u>**20**</u>

SOLUTION TO QUESTION 5

a. In an accounting firm, like every other organisation, information is exchanged in two ways, that is formally and informally.

Formally:
This is called formal communication. This type of communication passes through official 'channels' established by the organisation. It flows through formal management structure and 'chain of command'. This type of information is received or given by individuals because of their position in the organisation.

Informally:

This is called informal communication. This is the type of communication between individuals in an organisation that does not pass through an official channel. This type of communication sometimes emanates as gossip, rumours or grapevine. They are often passed by individuals in general conversations or through unofficial emails.

b. **Reasons why an accounting firm needs to rely on a mixture of formal and informal communication.**

Need for timely communication:

The process of formal information is often slow and bureaucratic in nature. Organisations therefore often rely on informal communication for the transmission of information, when the formal system is slow and bureaucratic, or where senior managers are autocratic and do not believe in sharing information with subordinates.

Need for Control:

Sometimes, an accounting firm may want to have control over the kind of communication it sends out. Though, informal information usually passes between individuals very quickly, management has no control over it. Hence, they may need to use formal communication which is within their control.

Need for Efficient Communication System:

Although an organisation may have an efficient formal communication system that is reliable, relevant, timely and provides accurate information; it will still have an informal communication system. This is because people interact and talk to each other unofficially and socially by exchanging stories, rumours, gossip and so on. Hence, both forms of communication are needed in an accounting firm.

(c) **As benefits of effective communication to an accounting firm:**

i.   Enables managers' plan and control operations more effectively;
ii.   Instructions and guidelines are properly understood;
iii. Fosters better co-ordination between people and groups in the organization;
iv.   Enables individuals to properly understand instructions and guidelines; Individuals know what they are expected to do.
v.   Eliminates secrecy, misunderstanding and mistrust and enables individuals to know what they are expected to do;
vi.   Encourages team work, because individuals are more willing to work together in teams or groups, because they are told what is happening and where their contributions fit in;
vii. Reduces arguments and conflicts; and

viii.   Opens communication increases trust.

EXAMINER'S REPORT

This question tests candidates' knowledge of the communication process.

About 86% of the candidates attempted the question, and about 60% pass rate was recorded. The common pitfall was the candidates' inability to justify why an accounting firm needs a mixture of formal and informal communication to operate effectively. Candidates are advised to concentrate more on the ICAN Study Text in subsequent examinations.

MARKING GUIDE

5a	Stating 2 types of communication	2 x 1 mark	2
	Explanation of the two types of communication	2 x 2 marks	4
5b	3 reasons for relying on the 2 types of communication	3 x 3 marks	9
5c	5 benefits of effective communication	5 x 1 mark	5
			20

SOLUTION TO QUESTION 6

a)   Professional accountants are required to comply with the following fundamental principles:

(i)   Integrity;
(ii)   Objectivity;
(iii)   Professional competence and due care;
(iv)   Confidentiality;
(v)   Professional behaviour; and
(vi)   Technical standards.

i.   **Integrity**
An accountant must be honest and straightforward in his professional and business dealings. This includes a requirement for fair dealing and a requirement to be truthful.

ii.   **Objectivity**
An accountant must not allow his professional or business judgement to be   affected by:
Bias (personal prejudice);
Conflicts of interest; and
Undue influence from others: for accountants in business, this includes undue pressure from the employer (senior management).

Accountants should apply the principle of objectivity in all the work that they do.

iii. Professional Competence and Due Care

An accountant has a duty to maintain his professional knowledge and skills at a level that enables him to provide a competent professional service to his clients or employer. This includes a requirement to keep up-to-date with developments in areas of accounting that are relevant to the work that he does. Accountants should also act in accordance with relevant technical and professional standards when doing their work for clients or employer.

iv. Confidentiality

Accountants must respect the confidentiality of information obtained in the course of his work. This applies to the confidentiality of information within the firm or employer's organisation, as well as confidentiality of information about clients (for accountants in professional practice)

However, there are some circumstances when the disclosure of confidential information is permitted or even required by law.

v. Professional Behaviour

Accountants are required to observe relevant laws and regulations and to avoid any actions that would discredit the accountancy profession. This requirement covers advertising by accountants, which must be truthful and must not disparage the services provided by 'rival' firms.

vi. Technical Standards

A Professional accountant should perform his professional tasks in accordance with the relevant technical and professional standards.

Technical and Professional standards include:
- Standards issued by IFAC (such as International Standards on Auditing) or a similar national regulatory body;
- International Financial Reporting Standards (IFRSs);

- Standards and regulations of the members' professional accountancy body; and
- Relevant legislations.

b) Organisational Values

In order to put the above principles into practice, organisations need to adopt values that promote adherence to the principles. Such values include the following:

i. **Openness:** Individuals should be open about their actions. This means providing full and complete information and reasoning behind a decision as required.
ii. **Trust:** Relying on the information provided by colleagues and accepting their judgements.
iii. **Honesty:** Individuals should be honest and avoid telling lies. They should not only tell the truth but to give complete information on which others might depend. Individuals earn the trust of other people by developing a reputation for honesty. When there is trust, people are more willing to work constructively together.
iv. **Respect:** Treating others with courtesy and allowing them their dignity. Respect should be both given and earned.
v. **Empowerment:** Those who are entrusted with responsibilities must have the authority to discharge those responsibilities.
vi. **Accountability:** Individuals must understand their responsibilities and be held accountable for them. They must accept their responsibilities and this requires effective communication.

EXAMINER'S REPORT

This question tests candidates' knowledge and understanding of fundamental principles, which professional accountants are required to comply with. About 75% of the candidates attempted it and about 50% pass rate was recorded. The common pitfall was the candidates' failure to study and understand the requirements of the question before attempting it.

Candidates are, therefore, advised to painstakingly read the questions to be sure of what is required by the examiner.

MARKING GUIDE

6a	Stating 5 fundamental principles of accounting profession	5 x ½ mark	2 ½
	Explanation of 5 fundamental principles	5 x 1½ marks	7 ½
6b	Stating 5 organisational values	5 x ½ mark	2 ½
	Explanation of 5 organisational values	5 x 1½ marks	7 ½

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

FOUNDATION LEVEL EXAMINATION – MAY 2019

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.   Laws made by the National Assembly are
      A.   Acts
      B.   Decrees
      C.   Bye-laws
      D.   Edicts
      E.   Customary law

2.   The branch of law administered by the court of chancery before the passing of the Judicature Act of 1873 is
      A.   Common law
      B.   Equity
      C.   Customary law
      D.   Decrees
      E.   Edicts

3.   The decision of a higher court which must be followed by a lower court when deciding a similar case is
      A.   Persuasive precedent
      B.   *Per incuriam*
      C.   Binding precedent
      D.   Discretionary precedent
      E.   *Obiter dictum*

4.   Tort is a branch of
      A.   Criminal law
      B.   Civil law
      C.   Land law
      D.   Administrative law
      E.   Jurisprudence law

5. The standard of proof in a criminal proceedings is
   A. Balance of probabilities
   B. Balance of convenience
   C. Principle of equity
   D. Beyond reasonable doubt
   E. Forceability test

6. Rules of behaviour based on ideas of what is morally good and bad are
   A. Laws
   B. Influence
   C. Morals
   C. Attitude
   D. Ethics

7. The principle of law that states that a person who is not a party to a contract cannot enjoy the benefits nor suffer the burdens of that contract is

   A. Provision of contract
   B. Subrogation of contract
   C. Privity of contract
   D. Renovation of contract
   E. Lapse of contract

8. A contract modeled, specified, executed and deployed by a software system is

   A. Substitution contract
   B. E- contract
   C. Partial contract
   D. Mechanical contract
   E. Quantum contract

9. The agency created when a person by conduct portrays someone as his agent, and as a result of the portrayal, an innocent third party entered into contract with him is
   A. Implied agency
   B. Apparent agency
   C. Agency by estoppel
   D. Agency by ratification
   E. Agency of necessity

10. A business organisation which is the same as the owner is a
    A. Private limited liability company
    B. Public limited liability company
    C. Company limited by guarantee
    D. Limited partnership
    E. Sole proprietorship

11. Which of the following is **NOT** an example of goods under the Sale of Goods Act?
A.   Bag of rice
B.   House
C.   Carving
D.   Painting
E.   Bag of Tomatoes

12. The property in goods under a hire purchase agreement is in the
A.   Hirer
B.   Hiree
C.   Owner
D.   Buyer
E.   Bailee

13. The consideration for a contract of insurance is
A.   Subrogation
B.   Premium
C.   Indemnity
D.   Proposal
E.   Assignment

14. The transfer of proprietary right on a bill from one person to another is
A.   Negotiation
B.   Transferability
C.   Transition
D.   Navigation
E.   Transfer

15. The removal of an employee without formalities by the employer is
A.   Termination
B.   Suspension
C.   Interdiction
D.   Dismissal
E.   Resignation

16. Persons appointed by the court to administer the estate of a deceased person who died intestate are
A.   Executors
B.   Representatives
C.   Administrators
D.   Trustees
E.   Beneficiaries

17. Which court has jurisdiction over money laundering cases?
    A.   State High Court
    B.   Financial Crimes Court
    C.   Federal High Court
    D.   Investment Court
    E.   High Court of the Federal Capital Territory

18. Which of the following is an element of the offence of theft?
    A.   Carelessness
    B.   Intent to defraud
    C.   Trickery
    D.   Intent to pilfer
    E.   Artifice

19. A floating charge is
    A.   Ambulatory
    B.   Settled
    C.   Amphibious
    D.   Retractive
    E.   Retroactive

20. Which of the following general partnership may exceed twenty members?
    A.   Partnership in writing
    B.   Partnership for the practice of accounting
    C.   Partnership for seafaring
    D.   Partnership by masons
    E.   Partnership for the practice of engineering

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.   Judges, in the course of delivering judgments, make various pronouncements, some of which are classified as *"obiter dictum", "ratio decidendi", "per incuriam"*.

Required:

Explain **TWO** of the terms above.   (4 Marks)

b. Before a contract of insurance is formed, parties to the agreement must perform numerous acts.

Required:

Examine the implications of the following steps taken in the formation of a contract of insurance:

i. The proposal form that XYZ Insurance Company Limited gave to Uche to complete;

ii. The completion of the proposal form by Uche and submission of the form to XYZ Insurance Company Limited;

iii. The payment of premium by Uche to XYZ Insurance Company Limited; and

iv. Completion of proposal form by the agent of XYZ Insurance Company Limited on behalf and at the request of Uche.

(4 Marks)

c. Partnership is one of the most popular forms of business organisation in the world.

State **THREE** elements that determine the existence of a Partnership.

(3 Marks)

'Breeze' is a partnership firm consisting of **TEN** partners. The business of the firm can no longer be carried on at a profit. The partners are considering the option of dissolving the firm.

Required:

i. What will be the effect of the dissolution of the partnership? How will the property of the partnership be applied to pay the liabilities of the firm upon dissolution? (4 Marks)

ii. What are the duties stipulated by law when a partner acts as an agent of the firm and the other partners, in respect of the business of the partnership? (5 Marks)

(Total 20 Marks)

QUESTION 2

a. The formation of a valid and enforceable contract requires various steps.

Required:

i. Differentiate between offer and counter offer. (4 Marks)

ii. Kehinde asked Comfort if she is interested in buying his phone for eight thousand naira (₦8,000), telling Comfort to indicate her interest latest by 16th day of October, 2018. Comfort replied:" I will give you seven thousand naira (₦7,000)." Kehinde refused to accept the ₦7,000. On the 17th of October 2018, Comfort informed Kehinde that she had decided to pay eight thousand naira (₦8,000). Kehinde replied her that he did not intend to sell the phone anymore.

Is there a contract between the parties? State reasons for your answer.

(6 Marks)

b. Ade, an accountant, is invited by the court as an expert witness in a computer fraud case. He is required to tender documents generated by a computer in the fraud case.

Required:
State the conditions he must satisfy before the documents he seeks to tender could be admitted in evidence by the court. (6 Marks)

c. Certain categories of people are disqualified under the Companies and Allied Matters Act from being directors of a company.

Required:
State **FOUR** persons that are not qualified to be directors of a company.

(4 Marks)
(Total 20 Marks)

QUESTION 3

a. A contract of employment may contain different terms and conditions.
Required:
i. State the different ways of forming a contract of employment. (2 marks)
ii. The letter of appointment issued to Olu by his employer, ABC Company, reads in part: "The confirmation of your appointment is subject to good performance during a probation period of three months. The company can also exercise its rights to interdict an employee if the need arises."

What are the implication of the phrase and word "probation period" and "interdiction" respectively in the letter of appointment issued to Olu?

(4 Marks)

b. There are various parties to a bill of exchange transaction.

Required:

i. Who is a holder of a bill of exchange? State **TWO** of his rights.

(2 Marks)

Femi issued two cheques to his friend, Tom. On the first cheque he wrote:" Pay Cash". On the second cheque he wrote: "Pay Tom".

Required:

ii.   State the types of cheque Femi issued in (i) above. How could Tom transfer his rights on the two cheques to another party?   (4 Marks)

c.   The rights of the parties to a contract of sale of goods depend on the party.

Required:

State **FOUR** rights of a buyer.   (4 Marks)

d.   Negligence is a tort that an accountant must avoid.

Required:

i.   When is an act negligent?   .

ii.   State **THREE** elements of negligence.   (4 Marks)
                                                              (Total 20 Marks)

QUESTION 4

a.   Certain acts, if done with intent to defraud, by any person being a clerk or servant, or being employed or acting in the capacity of a clerk or servant would amount to fraudulent accounting under the criminal code.

Required:

State and explain such acts and the penalty for the offence.   (6 Marks)

b.   Agency relationship can be created in many ways.

Required:

Explain the type of agency relationships created in the following situations?

James is the owner of Houses A and B:

i.   James told Tony to collect rents from tenants in house A.   (2 Marks)

ii.   Tony, without authority, collected rents from the tenants in house B. When James became aware of this, he commended Tony for his initiative and accepted the rents he collected.   (2 Marks)

c.	Before a custom becomes a law and is recognised by the courts, the customary law must pass the validity tests laid down by law.

Required:

Explain the validity tests.	(4 Marks)

d.	The Companies and Allied Matters Act specifies some tests for determining the insolvency of a company and limited liability partnership in Nigeria.

Required:

Explain these tests.	(6 Marks)
	(Total 20 Marks)

QUESTION 5

a.	TELETEE Plc was incorporated on July 16, 2013. As at October 2018, the company was yet to hold any meeting to discuss the business of the organisation. The only director of the company, who is a journalist by profession, also performs the duties of the company secretary to minimise the costs of running the company.

Required:

i.	Explain the legality of the operations of the company.

ii.	TELETEE Plc wants to appoint a company secretary.
	State **FOUR** categories of persons who are qualified for the post.

iii.	Who may petition the court for the winding up of TELETEE Plc in the event of insolvency?	(14 Marks)

b.	The major goal of law, is to ensure an orderly society.

Required:

i.	Define the term 'law'.	(2 Marks)

ii.	Explain 'equity'.	(4 Marks)
	(Total 20 Marks)

QUESTION 6

a.	Yankee Limited, a company based in the United States of America intends to transfer the sum of one million dollars to its subsidiary in Nigeria.

Required:
Advise the company on the steps to take to avoid breaching the provisions of the Money Laundering (Prohibition) Act. (6 Marks)

b. Parties under a hire purchase contract owe duties to each other.

Required:

State **FOUR** duties of the owner under the contract. (4 Marks)

c. Chief Jack has movable and immovable properties in Lagos. He died recently without writing a will.

Required:

Explain how his properties could legally and properly be administered. Assuming that Chief Jack wrote a will, who will be charged with the administration of his properties and how will such people emerge?

(6 Marks)

d. Trust is part of English doctrines of equity which has come to permeate the ideal of justice universally and in Nigeria.

Required:

What is Trust?

State **THREE** certainties of a Trust. (4 Marks)
(Total 20 Marks)

SOLUTIONS

MCQ

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

EXAMINER'S REPORT

MULTIPLE CHOICE QUESTIONS (MCQ)

The question achieved a good spread over the syllabus.

All the candidates attempted the questions and about 75% of them passed.

More of the candidates should pass if they make adequate use of ICAN Study Text.

SOLUTION 1
a.   The pronouncements that judges make when delivering a judgment could be classified as follows:

Obiter dictum:
This is a statement made "by the way" by a judge when delivering a judgment, or a comment made by a judge in his judgment that does not decide the case one way or the other.

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Ratio decidendi:

This is "the reason given for the decision" by the judge when delivering his judgment.

Per incuriam:

This is a judgment given in error or by mistake. It is one of the reasons for which a court would overrule its previous decision.

b.   i.   The proposal form that XYZ Insurance Company Limited gave to Uche was an invitation to treat from the insurance company.

ii.   The completion and submission of the proposal form by Uche is an offer for an insurance contract by Uche to XYZ Insurance Company Limited.

iii.   The payment of premium by Uche to XYZ Insurance Company Limited is the consideration for the contract

iv.   The completion of the proposal form by the agent of the XYZ Insurance Company Limited on behalf and at the request of Uche means that the agent acted as Uche's agent and not the agent of the Insurance company.

c.   i.   The three elements that determine the existence of a partnership are as follows:

   - There must be a business;
   - The business must be carried on by, or on behalf of the partners; and
   - There must be profit making and profit sharing.

ii.   One effect of the dissolution of Breeze firm is that the partners no longer have the power to bind the firm, except to complete the transactions they began but had not been concluded at the time of dissolution.
   Another effect is that on dissolution, each partner of Breeze is entitled to have the property of the firm and the goodwill sold and the proceeds applied in payment of the debts and liability of the firm.

   The duties of a partner that acts as an agent of the firm and other partners in respect of the business of the firm are:

   - Duty to render true accounts and full information in all things affecting the partnership to any partner; and

> ▪ Duty not to make any secret profits or derive personal benefits and to account to the firm for any personal benefits derived by him from his use of the partnership property.

EXAMINER'S REPORT

The question tests candidates' understanding of terms in judicial precedents, steps in formation of a contract, elements of a partnership, dissolution of a partnership, and the duties of partners as each other's agents.

About 70% of the candidates attempted the question, and about 60% of them passed.

Candidates' pitfall ranged from inadequate preparation to failure to follow instructions.

Candidates are advised to make use of the ICAN Study Text more diligently.

Marking Guide		Marks	
a.	Define *obiter dictum*	2	
	Define *ratio decidendi*	2	
	Define *per incuriam*	2	
	2 marks each for any 2		4
b i	Proposal form as invitation to treat	1	
ii	Completion of proposal form as offer	1	
iii	Payment premium as consideration	1	
iv	Completion of form by XYZ agent on behalf of Uche makes the agent Uche's	1	4
c i	3 elements of partnership	3	
ii	On dissolution, partners cease to bind firm and others	2	
	Property and goodwill of firm for sale and payment of		

Partnership debts.	2	
When partner act for firm and other partners: Duty to render account	$2^1/_2$	
Duty not to make secret profit or benefit	$2^1/_2$	12
		20

SOLUTION 2

a.i.   **Offer:** This is a definite, clear and final proposition made by an offeror to the offeree with a clear intention to be bound by the offer if accepted.

Counter Offer: This is a response of the offeree to the offer, which introduces new terms and conditions different from the terms of the offer.

ii.   This question relates to offer, counter offer and termination of an offer by lapse of time.

The question Kehinde asked Comfort, whether she was interested in buying his phone for ₦8,000 or not, constituted an offer from Kehinde to Comfort.

The reply by Comfort to pay Kehinde ₦7,000 for the phone was a counter offer because it did not correspond with the terms of the offer by Kehinde.

The time specified, that is, 16th October 2016, was the deadline for the acceptance of the offer by Comfort. The indication by Comfort to pay ₦8,000 for the phone on the 17th Of October, 2016 was not within the deadline given for the acceptance of the offer, which lapsed on 16th October 2016.

In addition, Kehinde is within his legal rights by refusing to sell the phone to Comfort because the counter offer of ₦7,000 that Comfort made had terminated or destroyed the initial offer of ₦8,000 made by Kehinde to her.

b.   The conditions which Ade must satisfy before the document which he intends to tender in evidence in the computer fraud case could be admitted are as follows:

(i)   The document must have been produced by a computer during a period over which the computer was used regularly to store or process information;

(ii) He must show that over the specified period, information of the kind contained in the statement was regularly supplied to the computer in the ordinary course of those activities;

(iii) That throughout the material part of the period the computer was operating properly; and

(iv) That the information contained in the statement reproduces or is derived from information supplied to the computer in the ordinary course of those activities.

c. The following persons are disqualified from being directors of a company:
   i. A person under the age of 18;
   ii. An insolvent person;
   iii. A person certified as insane;
   iv. A person convicted by the High Court of an offence in connection with promotion, formation, or management of a company; and
   v. A corporation other than its accredited representative.

EXAMINER'S REPORT

The question tests candidates' knowledge of offer and acceptance in the law of contract, experts' evidence in computer fraud cases, disqualification of certain persons from company directorship, and appointment of directors.

About 80% of the candidates attempted it, and pass rate was about 75%. Candidates that failed are advised to prepare adequately.

	Marking Guide	Marks	Marks
a.i	Definition of offer	2	
	Definition of counter offer	2	4
ii	Offer, counter offer and termination of offer	1	
	Offer by Kehinde	1	
	Comfort's response of ₦7,000 is counter offer	1	
	Kehinde's offer lapsed before		
	Comfort's purported acceptance on 17/10/16	2	
	No contract of between the parties	1	

6

b. 4 conditions to be satisfied before acceptance of
   computer document (1½ marks x 4 = 6)

                                                                          6

c. 4 categories of persons disqualified from being
   directors (1½ₐ x 4)

                                                                          4

                                                          Total   20

SOLUTION 3

a. i. A contract of employment could be formed in the following ways:
   - Verbally or by words of mouth;
   - By writing
   - By conduct; and
   - Partially verbally, partially in writing and partially by conduct.

   ii. The phrase "probation period" in the letter of appointment issued by ABC
   Company to Olu means that the appointment of Olu would only be confirmed
   after 3 months of trial during which time ABC Company would have had the
   opportunity to study Olu and test his skill and suitability for the work he is
   employed to do.

   The right to interdict an employee, contained in the letter of employment
   issued by ABC Company, means the right of the company to suspend an
   employee pending the determination of a criminal charge against the
   employee.

b.i The holder of a bill of exchange is the person who is in possession of the bill.
   The holder has the following rights:
   - Suing on the bill in his own name;
   - Suing anybody who might have signed the bill prior to him; and
   - Being a holder in due course, he holds the bill free from any defect of
     the title of prior parties.

   ii. The cheque issued by Femi with the instruction"pay cash" is a **bearer cheque,**
   and Femi may transfer his rights to another party by mere delivery.

   The cheque with the instruction "pay Tom" is an **order cheque** because it is
   made payable to a named person, that is, Tom. The cheque could be
   transferred to another party by endorsement and delivery.

c. The rights of a buyer under a sale of goods contract are:

   i. Action for damages for non-delivery of the goods;

ii. Specific performance for non-delivery of specific or ascertained goods by the seller;

iii. Action for the tort of *detinue* or conversion where property in undelivered goods has passed to him;

iv. Repudiation of contract or rejection of the goods for breach of a condition;

v. Action for breach of warranty.

d. i. Negligence is a breach of a legal duty of care that results in adverse consequences.

ii. The THREE elements of negligence are:
- A legal duty on the part of the defendant to take care;
- A breach of the duty; and
- Consequential or resulting damage to the plaintiff

EXAMINER'S REPORT

The question tests candidates' understanding of formation of employment contract, probation, and interdiction, holder of a bill, parties to a contract of sale of goods, rights of a buyer of goods, and professional negligence.

About 75% of the candidates attempted the question, of which 65% passed. Candidates' inadequate preparation resulted in the failure recorded.

Candidates are advised to make adequate use of ICAN Study Text.

Marking Guide	Marks	Marks
a.i 2 ways of forming contract of employment	2	
ii Meaning of probation	2	
Meaning of interdiction	2	6
b.i 2 rights of holder of a bill (1x2)	2	
ii Cheque with "pay cash" = bearer cheque	2	
Cheques with "pay Tom" = order cheque	2	6
c Rights of buyer in sale of goods (1x 4)		4
d. i Definition of negligence	1	
ii 3 elements of negligence (1 x3)	3	4
		20

SOLUTION 4

a.   Any person who, being a clerk or servant, or being employed or acting in the capacity of a clerk or servant, does any of the following acts with intent to defraud, which amounts to fraudulent accounting:

    i.   Destroys, alters, mutilates, or falsifies any book, document, valuable security or account, which belongs to or is in the possession of his employer or has been received by him on account of his employer or any entry in any such book, document or account or is privy to any such act; or

    ii.   Makes, or is privy to making any false entry in any such book, document, or account; or

    iii.   Omits, or is privy to omitting, any material particular from any such book, document or account, is guilty of a felony; or

    iv.   Is guilty of felony and liable to 7 years imprisonment.

b.   i.   The agency relationship created when James told Tony to collect rents on house 'A' is **agency by express authority**. This type of agency could be created verbally or in writing between the principal and the agent.

    ii.   The agency relationship created when James became aware of the rents collected by Tony from tenants in House 'B' without his authority and accepted the rents is **agency by ratification**. This type of agency arises when the principal approves or ratifies the acts that the agent did without his permission.

c.   The validity tests that a rule of customary law must pass before it is recognised by the courts are:

    i.   **Repugnancy test:**
    The customary law rule must not be repugnant to natural justice, equity and good conscience;

    ii.   **Incompatibility test:**
    The customary law rule must not be incompatible either directly or by implication with any law for the time being in force; and

    iii.   **Public Policy test:**
    Section 14 (3) of the Evidence Act provides that every applicable customary law must not be contrary to public policy.

d. The tests specified by the Companies and Allied Matters Act for determining if a company is insolvent are:

    i. A company's inability to pay a debt exceeding ₦2,000.00 within three weeks after a demand for payment has been made;

    ii. A wholly or partially certified court process issued in respect of a judgment debt;

    iii. A court's determination after taking into account any contingent or prospective liability of the company that the company is unable to pay its debts; and

    iv. A situation in which the company's liabilities exceed its assets.

EXAMINER'S REPORT

The question tests candidates' understanding of the law on fraudulent accounting, types of agency, validity of customary law, and tests for insolvency.

About 50% of the candidates attempted question and about 60% of them passed.

Candidates are advised to make adequate use of ICAN Study Text to remedy the pitfall of insufficient understanding of the legal principles tested.

Marking Guide		Marks	Marks
a.	3 acts of a clerk that amount to fraudulent accounting		
i	Destruction, falsification, mutilation of documents	$1\frac{1}{2}$	
Ii	Making of false entry in book, etc	$1\frac{1}{2}$	
Iii	Omitting material particular	$1\frac{1}{2}$	
iv	Guilt for felony and liability for 7 years prison	$1\frac{1}{2}$	6
b. i	Agency by express authority	2	
	Agency by ratification	2	4

c.   2 tests for validity of customary law:

Repugnancy test   2

Incompatibility with law test   2

Public policy test   2

(2 marks each for any 2) =   4   4

d.   4 tests of insolvency under C.A.M.A. ($1^{1}/_{2}$ x 4)   <u>6</u>

                                                          <u>20</u>

SOLUTION 5

a.i.   As required by the Companies and Allied Matters Act, TELETEE Plc that was incorporated on July 16th 2011 ought to have held the following meetings as a public limited liability company before October 2016:

• Statutory Meeting:
  As a public limited liability company, TELETEEE Plc ought to have held a Statutory Meeting within 6 months of incorporation.

• Annual General Meeting:
  TELETEE Plc ought to have held an Annual General Meeting once a year but not later than 15 months after the previous one.

  TELETEE Company Plc did not hold any of these meetings. The company is therefore, in breach of the provisions of the Companies and Allied Matters Act.

  TELETEE Company Plc is operating with only one director contrary to the Companies of Allied Matters Act, which requires it to have a minimum of two directors.

  In addition, the Companies Allied Matter Act stipulates that every company must have a company secretary. TELETEE Plc does not have one, the person purporting to be secretary being a journalist.

  A person shall not occupy the offices of a company secretary and director at the same time, but in TELETEE Plc, the only director is also serving as the   company secretary in violation of the Companies and Allied Matters Act.

ii.   The categories of person that TELETEE Plc could appoint as a company secretary are as follows:

- A Chartered Accountant;
- A Legal Practitioner;
- A Chartered Secretary and Administrator; or
- A body corporate or firm consisting of the professionals listed above.

iii. The following categories of person may petition the court in the event of insolvency of TELETEE Plc:

- TELETEE Plc, following a special resolution of the company;
- A creditor or an assignee of a debt owed by TELETEE Plc;
- A trustee in bankruptcy;
- The Official Receiver, that is, the Deputy Registrar of the Federal High Court so designated by the Chief Judge;
- The Corporate Affairs Commission, with the approval of the Attorney-General of the Federation; or
- A Receiver authorized by the Debenture Deed.

b.i.   Law could be defined as the body of principles recognized and applied by the state in the administration of justice. It is also a body of general rules, which governs and controls the behaviour of people in the country or state in which we live. These rules are backed with sanctions.

ii.   Equity means fairness or what is just and ethical in the broad sense. However, technically, equity is the branch of law administered by the Court of Chancery in England before the passing of the Judicature Acts of 1873-75 as a supplement to the common law.

EXAMINER'S REPORT

The question tests candidates' understanding of statutory meeting and separation of the office of director from that of the secretary of a company, qualifications for appointment as a company secretary, categories of persons that may petition the court for company's winding up, and the meaning of law and equity respectively.

About 70% of the candidates attempted the question, and about 65% of them passed.

Candidates that failed are advised to make adequate use of the ICAN Study Text in preparation in the subsequent examination because their failure resulted from inadequate preparation.

Marking Guide   Marks

a. Operations of TELETEE Plc

i.

- Non holding of statutory meeting	1	
- Non holding of A.G.M	1	
- Operating with less than two directors	2	
- No qualified company secretary	1	
- Prohibition of combination of offices of company secretary and director	1	6

    4 categories of persons appointable as company secretary
(1 x4)   4

ii   4 categories of persons that may petition court for corporate
insolvency (1 x4)   4

b. i Definition of Law   2

      Definition of Equity   4   6

ii

                                                        20

SOLUTION 6

a. Yankee Limited is a foreign company based in a foreign country, U.S.A. The position of the law under the Money Laundering (Prohibition) Act is that the company has a duty to report international transfer of funds and securities exceeding 10,000.00 dollars or its equivalent to the Central Bank of Nigeria and Securities and Exchange Commission respectively.

Yankee Limited must make the report in writing within seven days from the date of the transaction.

The report must indicate the following:

(i) The nature and amount of the transfer (in this case, One Million Dollars);

(ii) The name and addresses of the sender (in this case, Yankee Limited, U.S.A); and

(iii) The receiver of the funds or securities (in this case, the subsidiary of Yankee Company in Nigeria).

b. The duties of the owner under the hire purchase contract are:

(i) Duty to disclose to the hirer the cash price of the goods;

(ii) Duty to have valid title to the goods;

(iii) Duty to give the hirer quiet possession of the goods;

(iv) Duty to deliver the goods to the hirer;

(v)   Duty to accept instalment payments;
(vi)   Duty to deliver the exact quality of goods agreed upon by the
(vii) parties; and
(viii) Duty not to repossess the goods, except it is a motor vehicle.

c.   Chief Jack who died without leaving a Will is regarded under the law to have died intestate.

The position of the law is that when a person dies intestate as Chief Jack did, there is a need for his personal representatives to obtain from the High Court Administration for the purpose of legally and properly administering his estate.

"Letter of Administration" is a document issued by the High Court authorizing specified person known as administrators to manage the estate of an intestate person like Chief Jack.

If Chief Jack had written a Will, the executors appointed by him in the Will would be charged with the administration of his estate.

d.   Trust could be defined as the relationship which arises whenever a person called the trustee is compelled in equity to hold the property, whether real or personal, for the benefits of some persons of whom he may be one) or for some objects permitted by law, in such a way that the real benefit of the property accrues, not to the trustee, but to the beneficiaries or other object of the trust.

The THREE certainties of a trust are:
(i)   Certainty of intention or words;
(ii) Certainty of subject matter; and
(iii) Certainty of object

EXAMINER'S REPORT

The question tests candidates' understanding of compliance with the Money Laundering (Prohibition) Act in international transfer of money, duties of an owner in hire purchase, intestate and testate administration of estate as well as the three certainties of a trust.

About 50% of the candidates attempted the question, and about 50% of them passed.

Candidates' failure is attributed to inadequate preparation which diligent study only could rectify.

Marking Guide   Marks

		Marks	
a. i.	- Transactions that Yankee Limited must report to CBN	2	
	- Time line of seven days to report	1	
	- 3 contents of the report (1 x3)	3	6
b.	4 duties of owner to hirer (1 x 4)		4
c.	Death without Will is death intestate	1	
	Personal representatives to procure Letters of Administration	2	
	Meaning of Letters of Administration	1	6
d.	Definition of trust	1	
	Three essentials (certainties) of private trust	3	4
		Total	20