EXAMINERS GENERAL COMMENTS

BREACH OF EXAMINATION INSTRUCTIONS

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

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

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

INADEQUATE COVERAGE OF THE SYLLABUS

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

FOREWORD

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

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

(ii)   Unsuccessful candidates in the identification of those areas in which they lost marks with a view to improving their knowledge and presentation in subsequent examinations;

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

(iv)   The profession in a bid to improving pre-examination and screening processes.

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

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

NOTE

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

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ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2018

PRINCIPLES AND PRACTICE OF FINANCIAL ACCOUNTING

Time Allowed: 3 hours

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

ATTEMPT ALL QUESTIONS

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

1.   One of the advantages of operating as a partnership is
   A.   Limited liability
   B.   Access to a larger amount of capital
   C.   Ability to raise capital through issue of shares
   D.   Greater control than a sole trade by each partner
   E.   Firm is not affected by retirement of partners

2.   Which of the following would **NOT** be recognised in a partnership statement of distribution of income?
   A.   Interest on capital
   B.   Interest on drawings
   C.   Partners' salary
   D.   Interest on partner's loan
   E.   Share of residual profit

3.   The following terms are implied by the Partnership Act of your country **EXCEPT**
   A.   All the partners are entitled to equal share in the firm's profits
   B.   Every partner may take part in the management of the firm
   C.   No person may be introduced as a partner without the consent of all the other partners
   D.   Every partner has the right to inspect and take a copy of the firm's books
   E.   All partners are entitled to be fairly remunerated for management of the firm.

4.   The double entry for recording losses on revaluation in a partnership account is to
   A.   Dr. Partners' current account   Cr. Revaluation
   B.   Dr. Statement of income distribution   Cr. Revaluation

C.   Dr. Partners' Drawings accounts   Cr. Revaluation

D.   Dr. Revaluation account   Cr. Partners' current account

E.   Dr. Revaluation account   Cr. Partners' capital account

5. Ade and Kofi were in partnership sharing profits or losses equally. They agreed to admit Ibrahim as a partner and to share profits equally among the three partners. Goodwill is valued at ¢12 million and will be immediately written off upon admission of Ibrahim.

The effect of this on Ade's capital is
A.   Increase by GH¢2 million
B.   Decrease by GH¢2 million
C.   Increase by GH¢4 million
D.   Decrease by GH¢4 million
E.   Increase by GH¢6 million

6. The correct entry to record a partner's interest on drawings is
A.   Dr. Statement of profit or loss account
       Cr. Partner's current account
B.   Dr. Partner's current account
       Cr. Statement of income distribution account
C.   Dr. Partner's capital account
       Cr. Statement of income distribution account
D.   Dr. Statement of income distribution account
       Cr. Partner's current account
E.   Dr. Statement of income distribution account
       Cr. Partner's capital account

7. A business that marked up its cost by 50% will make a gross profit of
A. $33^{1}/_{3}\%$ on the cost price
B. $33^{1}/_{3}\%$ on the selling price
C.   50% on the selling price
D. $66^{2}/_{3}\%$ on the selling price
E. $66^{2}/_{3}\%$ on the market price

8. Discount allowed would appear on the
A.   Debit side of sales control account and the credit side of purchases control account
B.   Debit side of sales ledger control account only
C.   Debit side of purchases ledger control account
D.   Credit side of the sales ledger control account
E.   Credit side of the purchases ledger control account

9. The balance in the purchases ledger control account is the

A. Total purchases
B. Total sales
C. Total receivables
D. Total of trade payables
E. Total of credit purchases

10. ₦10,000 received from John Marku was entered on the payments side of the cash book with the double entry completed in his account. The journal entries to correct the error are
A.   Dr. John Marku account ₦10,000   Cr. Cash book with ₦10,000
B. Dr. Cash book with ₦10,000   Cr. John Marku account ₦10,000
C. Dr. Cash book with ₦20,000   Cr. John Marku account ₦20,000
D. Dr. John Marku account ₦20,000   Cr. Cash book with ₦20,000
E. Dr. Suspense account with ₦20,000   Cr. John Marku account ₦20,000

11. Credit balance in the subscriptions account is reflected in the statement of financial position of a Club as
A. Current liability
B. Current asset
C. Non-current asset
D. Intangible asset
E. Part of accumulated fund

12. Which of the following is the effect of a reduction in the provision for doubtful debts?
A. Reduction in net profit
B. Reduction in cash balance
C. Reduction in gross profit
D. Increase in gross profit
E. Increase in net profit

13. A statement of cash flows categorises inflows and outflows of cash under three main headings
I. Cash flows from operating activities
II. Cash used in or obtained from investing activities
III. Cash paid or received in financing activities
IV. Cash budgeted to be spent during the year
V. Cash envisaged to be received from suppliers

A. I, III & IV

B. I, II & III
C. II, III & V
D. III, IV & V
E. II, III & IV

14. Which of the following concepts is applied when revenue recognised in an accounting year are charged with the cost of generating such revenue?
   A. Prudence
   B. Consistency
   C. Going concern
   D. Accrual
   E. Matching

15. A plant which cost Le5m is expected to have a useful life of five years and an expected residual value of Le0.4m. Using straight line method, what will be the carrying amount of the plant after four years?
   A. Le1,000,000
   B. Le1,320,000
   C. Le2,240,000
   D. Le3,160,000
   E. Le4,008,000

16. The International Financial Reporting Standard (IFRS) on Accounting policies, changes in accounting estimates and errors is
   A. IFRS 2
   B. IAS 16
   C. IAS 8
   D. IAS 2
   E. IAS 1

17. In line with the requirement of IAS 8 – Accounting Policies, Changes in Accounting Estimates and Errors – which of the following changes will **NOT** give rise to a change in accounting policy?
   A. Disclosure
   B. Depreciation
   C. Measurement
   D. Presentation
   E. Recognition

18. In times of rising prices, what effect does the use of historical cost concept have on the values of a company's assets and profit?
    A. Assets values are understated and profit overstated
    B. Assets values and profits are both understated
    C. Assets values are overstated and profit understated
    D. Assets values and profit are not affected
    E. Assets values and profit are both overstated

19. An increase in the value of closing inventory will have which of the following effect
    A. Sales will reduce and gross profit will increase
    B. Cost of sales will reduce and gross profit will increase
    C. Cost of sales will increase and gross profit will also increase
    D. Purchases will reduce and cost of sale will increase
    E. Cost of goods available for sale will increase and purchase will increase

20. Companies engaged in manufacturing only are expected to prepare the following final accounts
    i. Manufacturing account
    ii. Statement of profit or loss and other comprehensive income
    iii. Statement of changes in equity
    iv. Statement of financial position

    A. i
    B. ii, iii and iv
    C. i, ii, iii and iv
    D. i, iii and iv
    E. ii and iii

21. Which of the following is cash and cash equivalent?
    A. Trade payables
    B. Loan
    C. Investment in short term securities
    D. Irredeemable preference shares
    E. Ordinary share capital

22. How should capital gain tax paid on the profit on sales of property be treated in the statement of cash flow?
    A. Reported as deduction under operating activities
    B. Reported as investing activity
    C. Deducted from sales proceed

D.   Deducted from the profit on disposal
E.   Reported as financing activity

23.   Given a selling price of Le 450,000 and a gross profit mark up of 35%, the cost price would be
      A.   Le 140,000
      B.   Le 210,000
      C.   Le 250,000
      D.   Le 300,000
      E.   Le 333,333

24.   During a year, a business sold inventory which had cost ₦720,000. The inventory held at the beginning of the year was ₦72,000 and at the end of the year was ₦120,000. What was the annual rate of inventory turnover?
      A.   6 times
      B.   7 times
      C.   7.5 times
      D.   10 times
      E.   12 times

25.   In branch accounts, where cash is lost to theft, what are the accounting entries to record the transaction?
      A.   Dr. Good sent to Branch accounts   Cr. Branch inventory account
      B.   Dr. Bank   Cr. Defalcation account
      C.   Dr. Statement of profit or loss   Cr. Defalcation account
      D.   Dr. Defalcation account   Cr. Branch account
      E.   Dr. Statement of profit or loss   Cr. Branch inventory account

26.   Calculate the Hire Purchase interest due for the first year using straight line method on a PPE with a cash price of L$10,000,000 and initial deposit of L$2,500,000 with 5 yearly instalments at L$3,500,000 per annum.

A.   L$750,000
B.   L$1,000.000
C.   L$1,200,000
D.   L$1,500,000
E.   L$2,000,000

27.   Which of these is **NOT** a term used in contract accounting?
A.   Deferred costs
B.   Progress payment
C.   Retention fee
D.   overriding commission
E.   Mobilisation fee

28.   Which of the followings is **NOT** applicable in a Joint venture?
A.   The share of profit must be clearly stated
B.   The responsibilities of each party must be clearly stated
C.   The venture relationship is usually permanent
D.   The venture could pay a venturer for services rendered
E.   The scope of the venture must be stated

29.   Calculate the short workings in a royalty of ₦3 per litre of crude oil extracted with a minimum rent of ₦48,000,000 per annum on an extraction of   15,000,000 litres per annum
A.   ₦600,000
B.   ₦1,000,000
C.   ₦2,400,000
D.   ₦3,000,000
E.   ₦3,500,000

30.   Alhaji Kazeem sent goods worth ₦6,000,000 to Chief John on sale or return   and has debited the customer's accounts. The time for returning the goods is   yet to expire. The goods are invoiced at $33^1/_3$% above cost.
At how much will the goods be valued and included in the inventory?

A.   ₦1,333,300
B.   ₦1,500,000
C.   ₦2,000,000
D.   ₦4,000,000
E.   ₦4,500,000

SECTION A: **PART II**   **SHORT-ANSWER QUESTIONS**

(20 Marks)

ATTEMPT ALL QUESTIONS

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

1. The technical term for the difference between current assets and current liabilities is called
…………………………………………………………………………

2. The value of benefits or services received during the accounting year but which are either not billed or not paid for in the year is referred to in the financial statement as
……………………………………………………………………

3. The IFRS term for shareholders' fund is…………………………………………

4. Interest received should be reported in the statement of cash flows as which activities?

5. IAS 1 - Presentation of Financial Statements stipulates that statement of profit or loss and other comprehensive income can be prepared using ……… and ……………………………………………………………………………………meth ods.

6. The estimated selling price in the ordinary course of business, less the estimated cost to completion and estimated cost that are necessary to achieve sale is known as
……………………………………………………………

7. Two methods of recording inventories are periodic inventory method and
……………………………………………………………………………………………… .

8. What is the full meaning of IFRIC?

9. What is the main account required in dealing with dissolution of partnership?

10. The amount due to a retiring partner is shown in the statement of financial position as …………………………………………………………………………

11. State the double entry required to adjust the decrease in the value of the assets due to change in composition of a partnership.

12. Any partner who invests in a partnership but does not take active role in the business is a …………………………………………………………… partner.

13. Pending the location of the error, the difference disclosed in the Trial Balance is posted to …………………………………………………………………

14. State the necessary accounting entries to record Bar cash takings omitted from a clubs books of accounts.

15. At the end of the year, the debit balance in the subscriptions account of a social club is reflected in the statement of financial position as ………………………………………………………………………………………… .

16. What are the necessary accounting entries for posting credit purchases into the purchases ledger control account?

17. State **TWO** basic methods of invoicing goods to the branches.

18. Where a lessor grants the lessee the use of the leased assets but retained all risks and rewards of ownership is called …………………………………………

19. Which of the accounts prepared in a Joint Venture business does not form part of the double entry?

20. In sale or return, goods yet to be returned before the expiration of the approval date shall be valued at …………………………………………………

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

QUESTION 1

a.   State **FOUR** roles of the International Accounting Standards Board (IASB)

in the development of International Financial Reporting Standards (IFRS).

(6 Marks)

b.   The need for a formal conceptual framework is recognised by most preparers and users of financial statements as it will enhance uniformity in the treatment and presentation of financial issues and reports.

State **FIVE** purposes of conceptual framework.
(6½ Marks)

(Total   12½ Marks)

QUESTION 2

a.   In a Property Plant and Equipment schedule (PPE) prepared in accordance with IAS 16, what does the carrying amount represent?
(4½ Marks)

b.   GBAGBO Limited purchased a PPE to be used in its new factory site. The following costs were incurred:

	GH¢'000
Purchase price of the PPE	6,400
Delivery cost	640
Installation cost	800
Trade discount granted	320
Cost of site preparation	1,280
Architect's fees	96
Administration expenses	960
Test run cost	480

The following additional information was given.

(i)   The test run was to ensure that the asset was installed and working correctly without causing any air pollution. Items of inventories valued at GH¢64,000 were produced during the test run.

(ii)   The appropriate government agency has granted the company a licence to operate the asset on the condition that the company will remove the asset at the end of the project and return the site to its former condition.

The company has recognised a liability of ₦1.6m in respect of the expected clearance cost.

You are required to:

Calculate the cost of machine in accordance with the provisions of IAS 16 Property, Plant and Equipment.
(8 Marks)

                                                                (Total 12½ Marks)

QUESTION 3

Presented below are the information extracted from the books of Leonard Enterprises for the year ended 30 September 2016

Cash Book (Bank)

	L$		L$
Balance 1/10/2015	113,900	Trade payables	589,740
Trade Receivables	758,720	Rent	33,000
		Rates	17,800
		General expenses	7,500
		Drawings	16,320
		Salaries & Wages	95,600
		Transport expenses	18,900
		Balance c/d	93,760
	872,620		872,620

All business takings have been paid into the bank with the exception of L$192,600 which was used to settle the following transactions:

Wages L$109,440; Stationery L$23,280 and Purchases L$59,880.

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Additional information:

	1 October 2015	30 September 2016
	L$	L$
Inventory	277,240	302,880
Trade payables	112,480	147,780
Trade receivables	180,620	172,480
Rates prepaid	4,200	4,500
Rent owing	(3,000)	-
Furniture	50,000	45,000

You are required to prepare in vertical form:
i.   Opening statement of affairs
ii.   Statement of profit or loss for the year ended 30 September 2016
iii. Statement of financial position as at 30 September 2016

(Total 12½ Marks)

QUESTION 4
Appiah and Ayew have been in partnership for several years, sharing profits or losses equally. On 1 April 2017, they decided to convert the business into a limited liability company named Appiye Limited.

The statement of financial position at the close of business on 31 March 2017 is given below:

APPIAH AND AYEW PARTNERSHIP
Statement of financial position as at 31 March 2017

	GH¢'000
Freehold buildings	86,400
Vehicles	52,560
Inventory	44,100
Receivables	34,668
Bank	15,840
	233,568
Equity and Liabilities	
Capital - Appiah	112,752
- Ayew	84,816
	197,568

Non-current liabilities:
Loan   25,000
Current liabilities:
Payables   11,000
                                              233,568

Notes:

(i)   The purchase consideration of GH¢292,320,000 which includes goodwill of GH¢57,600,000 was settled by issues of ordinary share capital to the firm of Appiah and Ayew.

(ii) Appiah took over one of the firm's vehicles at a valuation of GH¢14,400,000.

(iii) All the other assets and liabilities, apart from cash and loans were taken over by Appiye Limited.

(iv) Realisation expenses amounting to GH¢12,000,000 and the loan were fully settled by the firm in cash.

Required:

Prepare the relevant accounts to close the books of the partnership.
       (12½ Marks)

QUESTION 5

The statement of profit or loss and other comprehensive income for the year ended 31 December 2016 and the statement of financial position as at 31 December 2015 and 2016 of Nomart Nigeria Limited are given below:

	Le'000	Le'000
Turnover		3,900
Cost of goods sold		(1,800)
Gross profit		2,100
Salaries, wages and general expenses	(1,560)	
Provision for depreciation	(300)	
Interest on loan notes	(60)	(1,920)
Profit before taxation		180
Income tax expenses		(37.5)
		142.50

Statement of financial position as at 31 December 2016 & 31 December 2015

	31 December 2016		31 December 2015	
	Le'000	Le'000	Le'000	Le'000
Non-current Assets (Cost)	2,700		2,280	
Accumulated depreciation	(1,380)	1,320	(1,080)	1,200
Current assets:				
Inventories	240		345	
Trade receivables	90		120	
Bank	120		60	
	450		525	
Current liabilities:				
Tax	37.50		45	
Trade payables	165		150	
Accrued wages	15		30	
Interim Dividend - Unpaid	30		-	
	247.50	202.50	225	300
		1,522.50		1,500
EQUITY & LIABILITIES				
Ordinary shares		600.00		600
Retained earnings		382.50		300
		982.50		900
10% Loan notes		540.00		600
		1,522.50		1,500

You are required to:

Prepare the statement of cash flows of Normart Nigeria Limited for the year ended 31 December 2016 using direct method. **(Total 12½ Marks)**

QUESTION 6

The following balances were extracted from the books of Alice Farms Limited for the year ended 31 December 2016.

	₦'000
Regular labour expenses	327
Petrol oil & lubricants	72
Depreciation	160
Insurance	40
Bank charges	7
General expenses	80
Opening inventory	11,072
Sales	38,240
Fertilizer	1,120
Crop casual labour	80
Feeds	480
Livestock veterinary medicine	640
Livestock sundry expenses	380
Electricity & rents	120
Purchases	25,384
Seeds	560
Crops and other expenses	420
Livestock casual labour	240
Dairy expenses	160
Subsidies	2,108

Further information:

	Crops		Livestock	
	Cassava	Yam	Cow	Ram
	₦'000	₦'000	₦'000	₦'000
(i) Closing inventory	480	1,168	400	800
(ii) Sales	4,800	5,360	23,120	4,960
(iii) Opening inventory	2,512	2,480	4,400	1,680
(iv) Purchases	1,500	2,500	17,440	3,944

| (v) Subsidies | 420 | 448 | 840 | 400 |

Required:

Prepare the Farm's accounts for the year ended 31 December 2015 calculating only:

a. Gross output   -   crops

b. Gross output   -   Livestock

c. Direct Expenses -   Crops

d. Direct Expenses -   Livestock

(Total   12½ Marks)

SOLUTION 1   MULTIPLE CHOICE QUESTIONS

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

Examiner's report

The questions are well spread and cover the Syllabus. All the candidates attempted the questions.
 The performance was fair as most of them scored above 50% of the marks allocated.

SHORT ANSWER QUESTIONS

1. Working Capital or Net Current Asset
2. Accruals/Accrued Expenses
3. Equity
4. Operating activities or Investing activities
5. Single Statement Method and Two Statement Method
6. Net Realisable Value
7. Perpetual Inventory System
8. International Financial Reporting Interpretation Committee (IFRIC)
9. Realisation Account
10. Loan or Non-current Liability
11. Debit: Revaluation Account
    Credit: Asset Account
12. Sleeping partner or Dormant partner
13. Suspense Account
14. Dr. Receipts and Payments Account
    Cr. Bar takings Accountings
15. Subscription in Arrears/Current Asset
16. Dr. Purchases Account
    Cr. Purchases Ledger Control Account
17. The Cost Method
    The Cost Plus a percentage method
    The selling Price method
18. An Operating Lease
19. Memorandum Joint Venture Account
20. Lower of Cost and Net realisable Value

Examiner's report
Candidate's performance was relatively satisfactory. Majority of them scored above 50% of the marks allocated.

SOLUTION 1

a. The roles of International Accounting Standards Board (IASB) in the development of International Financial Reporting Standards (IFRS). The constitution of the IFRS Foundation states that the IASB:

(i) Has complete responsibility for all technical matters of the Board including the preparation and issuing of International Financial Reporting Standards (IFRSs) (other than Interpretations) and exposure drafts, each of which shall include any dissenting opinions, and the approval and issuing of Interpretations developed by the Interpretations Committee.

(ii) Publishes exposure drafts on all projects and normally publishes a discussion document for public comments on major projects in accordance with procedures approved by the Trustees.

(iii) In exceptional circumstances, and only after formally requesting and receiving prior approval from 75 per cent of the Trustees, reduce, but not dispense with, the period for public comment on an exposure draft below that described as the minimum in the Due Process Handbook.

(iv) Has full discretion in developing and pursuing its technical agenda, subject to the following:
  • Consulting the Trustees and the Advisory Council; and
  • Carrying out a public consultation every three years.

(v) Has full discretion over project assignments on technical matters: In organizing the conduct of its work, the IASB may outsource detailed research or other work to national standard-setters or other organisations.

(vi) Establishes procedures for reviewing comments made within a reasonable period on documents published for comment.

(vii) Normally forms working groups or other types of specialist advisory groups to give advice on major projects;

(viii) Consults the Advisory Council on major projects, agenda decisions and work priorities;

(ix)   Normally publishes a basis for conclusions with an IFRS or an exposure draft;

(x)   Considers holding public hearings to discuss proposed standards, although there is no requirement to hold public hearings for every project;

(xi)   Considers undertaking field tests (both in developed countries and in emerging markets) to ensure that proposed standards are practical and workable in all environments, although there is no requirement to undertake field tests for every project; and

(xii)   Gives reasons if it does not follow any of the non-mandatory procedures set out in (b), (g), (i), (j) and (k).

b.   **Purpose of Conceptual Framework**

i.   It assist prepares of financial statements in applying IFRSs and in dealing with matters not yet covered by any IFRS.

ii.   It assists users when interpreting the information contained in IFRS compliant financial statements.

iii.   It assists auditors in forming an opinion on whether or not the financial statements adequately complied with IFRSs;

iv.   It assists national standard setting bodies when developing their national or local standards;

v.   It assists the IASB when developing new IFRSs and in the review of existing ones;

vi.   It assists the IASB by providing a basis for the reduction of the number of alternative accounting treatments permitted by IFRSs and therefore promoting harmonisation of regulations and procedure for presentation of financial statements.

vii.   It provides information about the approach to the formation of IFRS parties' interest in the work of the IASB.

EXAMINER'S REPORT
The question tested candidate's knowledge of roles of International Accounting Standard Board in the development of International Financial Reporting Standard (IFRS) and the need for a formal conceptual framework for preparers and users of Financial Statement. About 80% of the candidates that attempted the question scored below 50% of the mark and performance was poor, they are advised to put in more efforts in this area of the syllabus while preparing for future examinations.

MARKING GUIDE

		Marks	Marks

a.   Roles of IASB
i.   Exposure Drafts Publication
ii.   Public comments on Exposure Draft
iii.   Technical Matters by the Board
iv.   Approved by Trustees
v.   Outsource of Detailed Research
vi.   Advice by special advisory group
vii.   Undertaking field Tests

Any 4 valid points at 1½ per one   6   6

b.   Purposes of Conceptual Framework
1.   Assistance in preparing Financial Statement and dealing with matters not covered by IFRS
2.   Interpretation of Information in IFRS
3.   Assistance to Auditors in forming an opinion
4.   Assist in National Standard setting Bodies
5.   Assist IASB to develop new IFRS and review Existing ones
6.   Promoting harmonization of regulation and procedures of presenting Financial Statement
7.   Provide approach of formation of IFRS to parties interested
Any 5 valid Points at $1^{1}/_{3}$ per point.
Subject to Maximising   6½   6½
Total   12½

SOLUTION 2

a.   In simple terms, the carrying amount of an asset is the cost of an asset less the accumulated depreciation i.e. all depreciation charged so far.

It should be emphasised that the main purpose of charging depreciation is to ensure that profits are fairly reported. Thus, depreciation is concerned with the income statement rather than the statement of financial position.

In consequence, the carrying amount figure in the statement of financial position can be quite arbitrary. In particular, it does not

necessarily bear any relation to the market value of an asset and is of little use for planning and decision making.

An obvious example of the disparity between carrying amount and market value is found in the case of buildings which may be worth more than ten times as much as their carrying amount.

b.

COST OF PROPERTY PLANT AND EQUIPMENT (PPE) OF GBAGDO LTD.

	¢'000	¢'000
Purchase price	6,400	
Less: Trade Discount	320	6,080
Delivery Cost		640
Installation Cost		800
Cost of site preparation		1,280
Architect's fee		96
Removal cost		1,600
Test run cost	480	
Less: Inventory produced	64	416
COST OF THE PPE		10,912

EXAMINER'S REPORT
The question tested candidates' knowledge and understanding of Property, Plant and Equipment in accordance to IAS 16.
About 90% of the candidates attempted the question. They performed well as about 80% of those who attempted it scored above average mark.

MARKING GUIDE

		Marks	Marks
a.	Correct explanation/meaning of carrying cost in accordance to IAS 16 – Property Plant and equipment (PPE)	$4^1/_2$	$4^1/_2$
b.	Computation of cost of machine using the provisions of IAS 16 – PP&E. Any 8 ticks at 1 mark each	8	8
	Total		$12^1/_2$

SOLUTION 3
 Statement of Affairs 1 October, 2015

	N	N

	N	N
Inventory	277,240	
Trade Receivables	180,620	
Rates	4,200	
Furniture	50,000	
Bank balance	113,900	
		625,960
Less: Trade Payables	112,480	
Rent Owing	3,000	
		115,480
Capital 1 October, 2015		510,480

Statement of Profit or Loss for the year ended 30 September, 2016

	N	N
Sales		943,180
Opening Inventory	277,240	
Purchases	684,920	
	962,160	
Closing Inventory	302,880	
		659,280
		283,900
Wages		109,440
Gross Profit		174,460
Rent	30,000	
Rates	17,500	
General Expenses	7,500	
Salaries & Wages	95,600	
Motor Transport Expenses	18,900	
Stationery	23,280	
Depreciation: Furniture		
	5,000	
		197,780
Net Profit Loss		
		23,320

Statement of Financial Position as at 30 September, 2016

	N	N
Non-Current Assets		
Furniture (N50,000 – N5,000)		45,000
Current Assets		
Inventory	302,880	
Trade Receivables	172,480	
Bank Balance	93,760	
Prepayment (Rates)		

	<u>4,500</u>
	<u>573,620</u>
	618,620
Trade Payables	<u>147,780</u>
	<u>470,840</u>
Capital – 1 October	510,480
Less: Net Loss	
	<u>23,320</u>
	487,160
Less: Drawings	<u>16,320</u>
	<u>470,840</u>

Workings

Trade Receivable Account

	₦		₦
Balance c/d	180,620	Bank	758,720
Sales	<u>750,580</u>	Balance c/d	<u>172,480</u>
	<u>931,200</u>		<u>931,200</u>

Trade Payables Account

	₦		₦
Bank	589,740	Balance b/d	112,480
Balance c/d	<u>147,780</u>	Purchases	<u>625,040</u>
	<u>737,520</u>		<u>737,520</u>

Rent Account

	₦		₦
Bank	33,000	Balance b/d	3,000
		Profit or Loss	<u>30,000</u>
	<u>33,000</u>		<u>33,000</u>

Rates Accounts

	₦		₦
Balance c/d	4,200	Profit or Loss	17,500
Bank	<u>17,800</u>	Balance c/d	<u> 4,500</u>
	<u>22,000</u>		<u>22,000</u>

Total Sales

	₦
Trade Receivables	750,000
Cash Sales	192,600
	943,180

Total Purchases

	₦
Trade Payables	625,040
Cash Purchases	59,880
	684,920

EXAMINER'S REPORT

The question tested the knowledge of the candidates in preparing final accounts from incomplete records.

About 95% of them attempted the question and demonstrated good understanding of the question with most of them scoring above 50% of the allocated marks.

MARKING GUIDE		Marks	Marks
i.	Preparation of:		
	Statement of Affairs 3 ticks at ½ mark	1½	1½
ii.	Statement of Profit or Loss for the year ended		
	14 ticks at ½ mark	7	7
iii.	Statement of financial position		
	Any 8 ticks at ½ mark	4	4
	Total		12½

SOLUTION 4

APPIAH AND AYEW PARTNERSHIP
Realisation Account

	GH¢'000		GH¢'000
Freehold Buildings	86,400	Capital A/C – Appiah (M/V)	14,400
Vehicles	52,560	Purchase Consideration	292,320
Inventory	44,100	Trade Payable	11,000
Receivables	34,668		

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Dissolution Expenses	12,000				

Share of Profit:

Appiah – ½ x 87,992	43,996	
Ayew – ½ x 87,992	43,996	
	317,720	317,720

Partners' Capital Account

	Appiah GH¢'000	Ayew GH¢'000		Appiah GH¢'000	Ayew GH¢'000
Real-M/V taken-over	14,400	-	Balance b/f	112,752	84,816
Ord. Shares in Appiye Ltd.	146,160	146,160	Realisation Profit	43,996	43,996
			Cash/Bank		17,348
				3,812	
	160,560	146,160		160,560	146,160

Ordinary Shares in Appiye Limited Account

	GH¢'000		GH¢'000
Appiye Limited	292,320	Capital Account:	
		Appiah - ½ x 292,320	146,160
		Ayew - ½ x 292,320	146,160
	292,320		292,320

Cash/Bank Account

	GH¢'000		GH¢'000
Balance b/f	15,840	Loans	25,000
Capital A/C – Appiah	3,812	Dissolution Expenses	12,000
Cap A/C – Ayew	17,348		
	37,000		37,000

Trade Payables Account

	GH¢'000		GH¢'000
Realisation	11,000	Balance b/f	11,000

Loans Account

	GH¢'000		GH¢'000
Realisation	25,000	Balance b/f	25,000

Appiye Limited Account

	GH¢'000		GH¢'000

Realisation   292,320   Ord. Share in Appiye Ltd.   292,320

EXAMINER'S REPORT
The question tested the candidates' knowledge and understanding of necessary accounts to be prepared while converting from partnership to Limited Liability Company. About 50% of them attempted the question and about 25% of them scored above 50% thus demonstrating lack of understanding of the requirements of the question.

MARKING GUIDE	Marks	Marks
Preparation of Realisation account		
Any 8 ticks at ½ mark	4	4
Preparation of Partners Capital Account		
Any 5 ticks at ½ mark	2½	2½
Preparation of Ordinary Share in Appye Limited Account		
Any 3 ticks at ½ mark	1½	1½
Preparation of Cash/Bank Account		
Any 3 ticks at ½ mark	1½	1½
Preparation of Trade payable Account		
Two (2) ticks at ½ mark	1	1
Preparation of Loan Account		
Two (2) ticks at ½ mark	1	1
Preparation of Appiye Limited Account		
Two (2) ticks at ½ mark	1	1
Total		12½

SOLUTION 5

NOMART NIGERIA LIMITED
STATEMENT OF CASH FLOWS FOR THE YEAR ENDED 31 DECEMBER 2016

		₦'000	₦'000
Cashflow from customers	W(i)		4,035
Cash paid to Suppliers	W(ii)		(1,785)
Cash paid to Employees	W(iii)		(1,575)
Cashflow from Operating Activities			675
Tax Paid	W(iv)		(45)
			630
Cashflow from investing activities			
Purchase of non-current asset			(420)
			210

Cashflow from Financing activities

Loan Repayment		(60)	
Dividend paid	W(v)	(30)	
Interest Paid		(60)	150
Net increase in Cash and Cash equivalents			60
Cash and Cash equivalent at January 1			60
Cash and Cash equivalent at December 31			120

W(i)

Cashflow from customers	₦'000
Turnover	3,900
Increase in inventory	105,000
Increase in receivables	_____
	30
	4,035

W(ii)

Cash paid to suppliers	₦'000
Cost of goods sold	1,800
Less: increase in payables	(15)
	1,785

W(iii)

Cash paid to Employees	₦'000
Salaries, wages and general expenses	1,560
Add Accrued wages	
	15_____
	1,575

W(iv)

Tax Paid	₦'000		₦'000
Bank (balancing)	45.00	Balance b/f	45.00
Balance c/d	37.00	Income Tax for the year	37.50
	82.50		82.50
		Balance b/d	37.50

W(v)

	₦'000		₦'000
Dividend Paid	30		
Dividend	30	Balance b/f	300
Bank (balancing)		Profit & Loss	142.50
Balance c/d	382.50		_____
	442.50		442.50

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EXAMINER'S REPORT
The question tested the candidates' knowledge on preparation of statement of cash flows. About 25% of the candidates attempted the question while about 10% of them scored above 50% of the mark. The performance was very poor as they displayed lack of understanding of the question.

MARKING GUIDE

	Marks	Marks
Preparation of Statement of cashflow		
14 ticks at ½ mark	7	7
Preparation of working Note (1) - Cashflow from customers	1	
Any 2 ticks at ½ mark		
Preparation of working Note (ii) - Cash paid to suppliers	1	
2 ticks at ½ mark		
Preparation of working Note (iii) - Cash paid to Employees	1	
2 ticks at ½ mark		
Preparation working Note (iv) - Tax paid		
2 ticks at ½ mark	1	
Preparation of working Note (v) – Dividend paid		
3 ticks at ½ mark	1½	5½
Total		12½

SOLUTION 6
Alice Farms Limited
Statement of Gross Output for the year ended December 31, 2016

	Crops		Livestock		Grand
	Cassava	Yam	Cow	Ram	Total
	₦'000	₦'000	₦'000	₦'000	₦'000
Sales	4,800	5,360	23,120	4,960	38,240
Add: Closing Inventory	480	1,168	400	800	2,848

Add: Subsidies	420	448	840	400	2,108
(A)	5,700	6,976	24,360	6,160	43,196
Opening Inventory	2,512	2,480	4,400	1,680	11,072
Purchases	1,500	2,500	17,440	3,944	25,384
(B)	4,012	4,980	21,840	5,624	36,456
Gross Output (A-B)	1,688	1,996	2,520	536	6,740

Alice Farms Limited
Statement of Direct Expenses for the year ended December 31, 2016

	Crop	Livestock	Total
	₦'000	₦'000	₦'000
Fertilizer	1,200	-	1,200
Casual labour	80	240	320
Feeds	-	480	480
Livestock veterinary medicine	-	640	640
Livestock sundry expenses	-	380	380
Seeds	560	-	560
Crops and other expenses	420	-	420
Dairy expenses	-	160	160
Total Direct Expenses	2,180	1,900	4,080

EXAMINER'S REPORT
The question on the preparation of Farm's accounts was attempted by more than 80% of the candidates, while 40% of them scored above average marks.

	MARKING GUIDE	Marks	Marks
a.	Alice Farms Ltd. Preparation of gross Output - Crops 16 ticks at ¼ marks each	4	4
b.	Preparation of gross output - Livestock Any 16 ticks at ¼ mark each	4	4
c.	Preparation of direct Expenses Crops Any 8 ticks at ¼ mark each	2	2
d.	Preparation of direct Expenses – Livestock Any 10 ticks at ¼ each	2$\frac{1}{2}$	2$\frac{1}{2}$
	Total		12$\frac{1}{2}$

ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS – SEPTEMBER 2018

PUBLIC SECTOR ACCOUNTING

Time Allowed: 3 hours

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

ATTEMPT ALL QUESTIONS

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

1. The stores with useful life that is longer or at least more than 5 years is called

    A. Consumable store
    B. Expendable store
    C. Fixed Asset store
    D. Non-expendable store
    E. Capital Asset store

2. The check conducted by the Office of the Auditor-General on Parastatals and Statutory Corporations is called

    A. Internal Auditing
    B. External Auditing
    C. Auditor-General's Auditing
    D. Periodic checks
    E. Annual Audit review

3. Which voucher is used to effect inter-ministerial transaction?

    A. Adjustment Voucher (TF 23)
    B. Supplementary Journal Voucher (SJV)
    C. Principal Journal Voucher
    D. Cash Transfer Voucher
    E. Store Transfer Voucher

4. Who maintains the funds and assets, exclusive order of the Pension Fund Administration?

    A. National Pension Commission
    B. Pension Fund Custodian
    C. Pension Fund Administration
    D. Pension Department
    E. Appointed Investor

5. In public school account, feeding is usually charged to

    A. School fees
    B. Boarding fees
    C. Parent Teachers Accommodation Account

D. Principals Imprest Account

E. Bursars Imprest Account

6. The IPSAS that makes it mandatory to disclose each source of income separately is called

A. Segmented Accounting

B. Classified Accounting

C. Departmental Accounting

D. Unit Accounting

E. Sectional Accounting

7. The following are the objectives of Bureau of Public Procurement **EXCEPT**

A. Establishment of pricing standards and benchmarks

B. Harmonisation of existing government policies on Public Procurement

C. Awarding procurement contracts to selected contractors

D. Ensuring probity, accountability and transparency in the procurement process

E. Ensuring competitive, transparent, and value-for-money standards and practices

8. Which of the following is an advantage of a surplus budget?

A. It is used to solve the problem of inflation

B. It is a device to solve unemployment problems

C. It is used to stimulate economic growth

D. It enables Government to fully utilize its resources

E. It promotes infrastructural development

9. Which of the following CANNOT be categorized as a form of debt relief?

A. Debt rescheduling

B. Debt forgiveness

C. Debt repudiation

D. Debt refinancing

E. Debt equity-swap

10. Which of the following is **NOT** an advantage of Traditional Budgeting?

A. The budget system is simple to prepare
B. It is a means of expenditure control
C. It ensures that money is used for assigned purposes
D. Changes can be made in the "line items" easily
E. Items of expenditures are reviewed and justified before they are accepted

11. Imprest warrants are issued by the

A. Minister of Finance
B. Accountant-General
C. Revenue Collector
D. Sub-Accounting Officer
E. Accounting Officer

12. Which of the following Officers is required to report on the strength of the internal control system?

A. The Inspector of Internal Control System
B. The Vote Controller
C. The Internal Control System Office
D. The Accountant-General
E. The Auditor-General

13. GIFMIS is an acronym for

A. General Integrated Financial Management Information System
B. Government Instituted Financial Management Information System
C. Government Information Financial Management Information System
D. Government Integrated Financial Management Information System
E. Government Institution Financial Management Information System

14. Which of the following is **NOT** the purpose of Public Sector Accounting?

A. Ascertainment of the propriety of transaction
B. Tracking down ghost workers
C. Planning future operations
D. Facilitating the carrying out of audit exercise
E. Appraising the efficiency of those in authority

15. Which of the following is **NOT** an information concerning Accounting Automated Transaction Recording and Reporting System (ATRRS)?

    A. It is an ICT based Accounting Software application
    B. It facilitates the input of Accounting transaction
    C. It reconciles Standard Auditing Reports
    D. It reconciles Standard Accounting Reports
    E. It meets the required standard of the Treasury

16. GIFMIS addresses all the following critical Public Financial Management **EXCEPT**

    A. Failure to enact the budget before the start of the financial year
    B. Budget is not based on realistic forecasts of cash availability
    C. Lack of effective management
    D. Lack of effective medium term planning
    E. Lack of integration between different financial management function and processes

17. Code of Conduct Bureau is an example of

    A. Self-Accounting Unit
    B. Sub-Self Accounting Unit
    C. Non-Self Accounting Unit
    D. Above the line Account
    E. Below the line Account

18. A summary of total receipt and payment of a self-accounting department or unit is called

    A. Control sheet
    B. Supplementary transcript
    C. Transcript
    D. Cash Transcript
    E. Balance Sheet

19. The following are classes of Board of Survey
    i. Survey of buildings
    ii. Survey of cash
    iii. Survey of vote book
    iv. Survey of staff attendance register

    A. ii and iii
    B. iv

C.   i and ii
D.   ii
E.   iii and iv

20.   Which of the following Officers is charged with the duty of forwarding a brief information of the loss of fund to the Permanent Secretary or Head of Extra-Ministerial Department?
A.   Minister of Finance
B.   Head of Division, where the Officer concerned is serving
C.   Auditor-General
D.   Accounting-Officer of the Ministry
E.   Budget Allocation Committee

21.   Which of the following government official is responsible for the preparation of financial statements of the Federal Government?
A.   Accountant-General of the Federation
B.   Auditor-General for the Federation
C.   Revenue Collector
D.   Minister of Finance
E.   Federal Pay Officer

22.   Government Business Enterprise means an entity that has the following characteristics **EXCEPT**
A.   Relies on government funding to be a going concern
B.   Has the power to contract in its own name
C.   Provides goods and services in the normal course of its business to other entities without profit
D.   The entity is fully controlled by a Public Sector entity
E.   Has been assigned the financial and operational authority to carry on a business

23.   The following are the four major statements newly adopted by the Federal, State and Local Governments in Nigeria **EXCEPT**
A.   Cash flow statement
B.   Statement of Capital Development Fund
C.   Statement of Assets and Liabilities
D.   Statement of cash and bank balances
E.   Statement of Consolidated revenue Fund

24.   Under Section 125 (5) of the Constitution, the Auditor-General at the state level has to report on Accountant-General's financial statements and annual accounts to the House of Assembly within
A.   Thirty days of receipt of the financial statements
B.   Six months of receipt of the financial statements

C. Ninety days from first January of the financial year
D. Ninety days that ends on 31 December of the financial year
E. Ninety days of receipts of the statements

25. The Officer who has the authority to write off the arrears of revenue is the
    A. Auditor-General
    B. Accountant-General
    C. Minister of Finance
    D. Permanent Secretary
    E. Director of Finance and Accounts

26. Which of the following is **NOT** True about ICPC?
    A. It is established by an Act
    B. It is a body Corporate
    C. It has perpetual succession
    D. It can sue and be sued in its own name
    E. It can prosecute without recourse to Attorney-General

27. Basis of Accounting which records anticipated expenditure evidenced by a purchase order and/or a contract is called
    A. Accrual basis
    B. Cash basis
    C. Commitment basis
    D. Modified accrual basis
    E. Modified cash basis

28. Which of the following is NOT a part of legal framework of Public Sector Accounting?
    A. The Constitution
    B. Finance (Control and Management) Act
    C. Official Gazette
    D. Companies and Allied Matters Act
    E. Financial Regulations

29. Queries raised by the Auditor-General shall be handled by
    A. The Judiciary
    B. The Executive
    C. The Public Account Committee
    D. The Accountant-General
    E. The Vote Controller

30. Acquisition of tractor in the Public Sector will be treated as
    A. Revenue Expenditure

B. Recurrent Expenditure
C. Capital Expenditure
D. Committed Expenditure
E. Subsidized Expenditure

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

ATTEMPT ALL QUESTIONS

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

1.   The Officer who attests to the integrity and accuracy of financial statements prepared at the end of the year is ....

2.   The document which is being kept by Store keeper to ensure daily recording of transactions in the Stores is ....

3.   A parastatal established under the Pension Reform Act of which the members are appointed by the Minister of Finance to ensure smooth shift from the traditional Pension to Contributory Pension is called ....

4.   The funds being contributed by parent for supplementary welfare of students is called ....

5.   The budgeting system which stresses the functions and projects which are undertaken, as against the traditional budget which stresses on inputs or expenditure item is called ....

6.   The procedure by which national revenue is made available to the executive arm of government annually, to finance their programmes and activities is called ....

7.   The acquisition of goods and/or services, at the best possible total cost of ownership, in the right quantity, and quality, at the right time, in the right place, for the direct benefit or use of government, generally through contract is referred to as ....

8.   The process by which government will meet its financial obligations to contractors, suppliers, government, employees and pensioners without issuing cheques is called ....

9.   A sub-component of Economic Reform and Governance project that support the public resources management and targeted anti-corruption initiative is called ....

10.   The document prepared to serve as a control over the payroll prepared by the salary section is called ....

11. An Accounting unit that has control over its record is known as ....

12. The name of the document used by the revenue collector to record all the cash received and paid or transferred by him is called ....

13. The Public Procurement Act of 2007 was an enactment of ....

14. The tier of government that finances the Fiscal Responsibility Commission is ....

15. The Finance Officer that formulates the Accounting Policy of the Federal Government is ....

16. A fund operated by government to take care of all forms of natural disasters is called ....

17. On completion of a survey, a report shall be rendered in triplicate on ....

18. The appointment of Auditor-General for the Federation is subject to confirmation by ....

19. Under Financial regulation 3203, the government official that authorizes the opening of bank accounts by the Federal Parastatals and Agencies of government is ....

20. International Public Sector Accounting Standard (IPSAS) 14 relates to ....

SECTION B   ATTEMPT ANY FOUR QUESTIONS   (50 Marks)

QUESTION 1

a.   i. The Auditor-General for the Federation is expected to form his opinion on a number of issues about the public accounts of the Federation that he has audited. State **TWO** of such issues.
                              (2 Marks)

      ii. What are the responsibilities of the Auditor-General as regards audit of the accounts of government statutory corporations, commissions, authorities, agencies, including all persons and bodies established by an Act of the National Assembly?
                              (3 Marks)

b.   State briefly the purpose of the following:
      i.   Treasury/Financial Circulars
      ii.   Supplementary Appropriation Act
      iii. Virement   (7½ Marks)

                                                      (Total   12½ Marks)

QUESTION 2

a.   i.   As a Financial Officer of the Local Government, the Treasurer has a
            number of roles to play. State **FIVE** functions of the Treasurer in a Local Government.
            (5 Marks)

      ii.   State **FIVE** functions of Local Government as contained in the Fourth Schedule of 1999 Constitution
            (2½ Marks)

b. The Accountant-General shall convene a Board of Enquiry at the request of the Accounting Officer, the Chairman of the Board of Enquiry and the Federal Civil Service Commission.

    i.   With reference to FR 2531, state **TWO** conditions for convening a Board of Enquiry
(2 Marks)

    ii.   State **THREE** contents of the Board of Enquiry's Report

     (3 Marks)

(Total 12½ Marks)

QUESTION 3

a. As part of legal and administrative framework of government accounting, the constitution provides guidelines on revenue collections and disbursement of government funds. State **FIVE** of such provisions of the Constitution relating to finances of the government.
(5 Marks)

b. i.   What is a non-self accounting unit in the Public Sector?
(1½ Marks)

    ii.   State **FOUR** benefits of Automated Transaction Recording and Reporting System (ATRRS)
(6 Marks)

(Total 12½ Marks)

QUESTION 4

a. State **FIVE** of the cardinal objective of Treasury Single Accounting
(5 Marks)

b. Mr. Wale Moses was a Senior Accountant with the Wazobia State Ministry of Health. He retired after 35 years of meritorious service and was on a consolidated salary of ₦1,800,000 per annum. His cumulative contribution is ₦4,700,000 (both employee and employer

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contribution). National Pension Commission presented a bond of ₦7,500,000 to his Pension Fund Administrator.

He chose programmed withdrawal scheme, being 60 years old as at the time of retirement. Based on the template provided and approved by the Pension Commission, Mr. Wale Moses is entitled to 40% as lump sum.

You are required to:

i. Compute his total benefit
(3 Marks)

ii. Compute Lump sum receivable
(3 Marks)

iii. Advise him on the utility of lump sum payable to retirees
(1½ Marks)

(**Total 12½ Marks)**

QUESTION 5

a. The Ministry of Niger-Delta had the following transactions in the first week of June 2017. The Ministry adopts only cash book to record its transactions:

		₦'000
(i)	Balance brought forward from 31 May 2017:	
	Bank	9,500,000
	Cash	40,000
(ii)	Allocation for recurrent expenditure	18,000,000
(iii)	Allocation for capital expenditure	40,000,000
(iv)	Payment of staff salaries via Payroll No.	
	MND/A06/2017/GTB Cheque No. 000668	3,500,000
(v)	Deductions: Rent on Staff Quarters $^{10}/_{12}$	180,000
	Motor vehicle advance repayment	685,000

| | $10/16$ | 125,000 |
| | Salary advance repayment $10/07$ | |

(vi)   Payment for repair of furniture by cheque
(Voucher No. MND/04/078/FBN Cheque   48,500
No.000672 $13/07$

(vii)   Transport and Travelling paid by cash $17/06$ 7,500

(viii)   Cash withdrawn from Bank   140,500

(ix)   Purchase of Computer System vide Voucher
No. MND/05/110/GTB Cheque No. 000313   6,582,000

You are required to:

Post the transactions above in the Treasury Cash Book of the Ministry for the week ended 9 June 2017
(7½ Marks)

b.   While cross-checking the books of accounts of Cowadan State of Wazobia during the year ended 31 December 2016, the Accountant-General made the following observations:

(i)   On 30 June 2015 there was double payment of ₦5,000,000 to Oguns, a contractor, in respect of renovation work carried out on the office of the Governor. Recovery of ₦5,000,000 was made before the end of the year.

(ii)   Miscellaneous revenue of ₦15,000,000 which would have been collected by the Government was abandoned.

(iii)   Inadvertent overpayment of ₦400,000 which was made in year 2015 and charged to the Consolidated Revenue Fund (CRF), was recovered in year 2016.

R**equired**:
Prepare necessary journal entries to give effect to the developments stated above.
(5 Marks)

(**Total 12½**

Marks)
QUESTION 6

a. A Board of Survey is convened by the Accountant-General of the Federation mostly at the end of each financial year

  i.   State the composition of the Board of Survey
(1 Mark)

  ii.   State **FOUR** procedural activities for the conduct of surveys
(4 Marks)

b. i.   Define Money Laundering as contained in the Money Laundering Prohibition Act, 2011   (1½ Marks)

  ii.   What are the limitations on amount of cash payment under the Act?

                                          (2 Marks)

  iii.   Under the Act, Financial Institutions are to make a number of mandatory disclosures. State FOUR of such disclosures. (4 Marks)

                                (Total 12½ Marks)

SOLUTION TO MCQ

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

Examiner's Report

This part of section "A" consists of 30 compulsory questions which covered the entire syllabus. All the candidates attempted the questions and more than 60% of them scored above 40% of total marks obtainable.

SOLUTION TO SAQ

1. Auditor General
2. Bin Card or Tally Card
3. Pension Transitional Arrangement Directorate
4. Parent Teacher Association Contribution
5. Performance Budgeting
6. Appropriation
7. Due process
8. e-payment
9. Government Integrated Financial Management Information System (GIFMIS)
10. Variation Control Sheet
11. Self – Accounting unit
12. Revenue Collector's Cash book
13. The National Assembly
14. The Federal Government
15. The Accountant General
16. Contingences Fund
17. Revised treasury Form 42
18. The Senate or National Assembly
19. Accountant General
20. Events after the reporting date

Examiner's report

The part II of section "A" consists of 20 compulsory questions that covered the entire syllabus. It was well attempted by over 99% of the candidate. About 40% of the candidates scored 40% of total marks obtainable.

SOLUTION 1

ai.   The Auditor General shall ascertain whether in his opinion:
   a.   The accounts have been properly kept
   b.   all public monies have been fully accounted for and the rules and procedures applied are sufficient to secure an effective check on the assessment, collection and proper allocation of revenue.
   c.   monies have been expended for the purpose for which they were appropriated and expenditure have been made as authorised.

d.   essentials records are maintained and the rules and procedures applied are sufficient to safe-guard and control public property and funds.

ii.   Provide such bodies with:
a.   A list of qualified and experienced auditors from which the bodies shall appoint their external auditors.
b.   Guidelines on the level of fees to be paid to the external auditors
c.   Comment on their annual accounts and auditors reports thereon.

bi.   i.   Treasury and Financial Circulars.
These are administrative instruments issued to guide day-to-day operations of government departments.   They are used to introduce new policies and guidelines before their inclusion into Financial Regulations as part of a more permanent code of regulations.

ii.   Supplementary Appropriation Act: They are used to provide funds in situations when there is the need for excess expenditure due to unforeseen circumstances at the time of annual appropriation or previous supplementary provision. Such supplementary provision will be approved where it can be clearly demonstrated that;
1.   It is in public Interest to vote additional money
2.   It is urgent and cannot wait till the next annual appropriation.
3.   The need could not have been foreseen at the last appropriation estimates.
4.   The money required cannot be fund by virement

iii.   Virement: This is reallocation of provisions between subheads. The minister of budget is empowered to engage in virement where there are unforeseen circumstances resulting in the need for additional provision under a subhead while at the same time equivalent savings can be made under another subhead of the same head.   Virement will be approved if:

1.   Sound reasons exist for the additional expenditure
2.   It is within the ambit of the Head of Estimate concerned
3.   It will not give effect to a new principle, policy or service
4.   The amount involved does not exceed set limits
5.   It will not lead to creation of new subhead
6.   Virement does not apply to queries raised or reintroduced items disallowed

Examiner's Report

Part "a" requires the opinion of the Auditor-General for the Federation on the public accounts of the federation audited as well as his responsibilities.
Part "b" requires candidates' knowledge of the purpose of some terms. About 98% of the candidates attempted the question. However, due to not having good understanding of the requirements of the question, only 10% of them scored above 40% of marks obtainable.

SOLUTION 2

ai.   Functions of the Treasurer

The Treasurer has the following roles to play:

a.   He is responsible for all the receipts and disbursements of funds.

b.   He is responsible for keeping accurate and timely accounting records of funds received or disbursed.

c.   He should ensure that all records kept by his subordinate officers are checked routinely for accuracy.

d.   He is to intimate the Local Government of any economic policy that will increase the internally generated revenue (IGR) of the Council.

e.   He should exploit all the opportunities available for the collection of all forms of revenue as specified in the budget estimate.

f.   He is to see that all the laid out procedures as regards disbursements of funds are followed.

g.   He should assist in the preparation of annual and supplementary budgets

h.   He is to be actively involved in the appraisal of all capital projects before they are executed.

i.   He is to make recommendations to the Council in his capacity as the financial adviser.

j.   He is responsible for ensuring that the liquidity position of the Council is favourable at all times.

k.   He should ensure that payment vouchers are validly prepared and presented for payment

l.   He should maintain all records of accounts in a form suitable for decision-making by the Council

ii.   The Fourth Schedule of the 1999 constitution of Nigeria states the functions of a Local. Government Council, as follows:

a)   The consideration and the making of recommendations to a state commission on economic planning or any similar body on –

    (i)   the economic development of the state, particularly in so far as the areas of authority of the council and of the state are affected and

    (ii)   proposals made by the said commission or body;

b)   Collection of rates; radio and television licences;

c)   Establishment and maintenance of cemeteries, burial grounds and homes for the destitute or infirm;

d)   Licensing of bicycles, trucks (other than mechanically propelled trucks), canoes, wheel barrows and carts;

e)   Establishment, maintenance and regulation of slaughter houses, slaughter slabs, markets, motor parks and public conveniences;

f)   Construction and maintenance of roads, street lightings, drains and other public highways, parks, gardens, open spaces, or such public facilities as may be prescribed from time to time by the House of Assembly of a state;

g)   Naming of roads and streets and numbering of houses;

h)   Provision and maintenance of public conveniences, sewage and refuse disposal;

i)   Registration of all births, deaths and marriages;

j)   Assessment of privately owned houses or tenements for the purpose of levying such rates as may be prescribed by the House of Assembly of a state; and

k)   Control and regulation of-
    (i)   Out-door advertising and hoarding
    (ii)   movement and keeping of pets of all description
    (iii) shops and kiosks,
    (iv) restaurants, bakeries and other places for sale of food to the public
    (v)   laundries and

(vi)　licensing regulation and control of the sale of liquor

The functions of a local government council shall include participation of such council in the Government of a state as respects the following matters –

a.　the provision and maintenance of primary, adult and vocational education;
b.　the development of agricultural and natural resources, other than the exploitation of minerals;
c.　the provision and maintenance of health services; and
d.　such other functions as may be conferred on a local government council by the House of Assembly of the state.

bi.　**CONDITIONS FOR CONVENING A BOARD OF ENQUIRY**

In the public service, an enquiry may be set up to investigate the circumstances leading to an abnormality such as a loss of fund or stores.　In considering whether a Board of Enquiry should be held, evaluation is always given to the following points:

a)　If fraud could have taken place
b)　If the loss is significant
c)　If the fraud or loss has taken place through a syndicate
d)　If the responsibility of officers is not well spelt out
e)　If the loss took place systematically, over time

The Board of Enquiry should invariably be invited in the cases enumerated above.

bii.　Contents of the Board of Enquiry's Report

1.　A statement on the exact amount of loss sustained or involved

2.　Expression of idea or opinion as to whether or not the accounting system was faulty

3.　Suggestions as to any remedy which may be instituted in the peculiar circumstance:
　　1.　Recommendations for improving the physical security measures, to remove current inadequacy
　　2.　Recommendations for the evaluation of the extent of negligence of the officers who are responsible for the loss.

3. Recommendation as to surcharge of officer(s) responsible for the loss

4. Details of any mitigating circumstance, which should be taken into consideration in the assessment of the degree of negligence.

Examiner's Report

Part "a" tested the candidates' knowledge of functions of Treasurer in a Local Government and also Functions of Local Governments. Part 'b" is on conditions for convening a Board of Enquiry as well as contents of the Board of Enquiry's Report. About 98% of the candidates attempted the question. However, the performance was not impressive as only about 40% scoring 60% of marks obtainable.

SOLUTION 3

a. **CONSTITUTION OF THE FEDERAL REPUBLIC OF NIGERIA**

In Nigeria, section E of chapter V of the 1999 Constitution of the Federal Republic of Nigeria discusses the power and control over public finances, and specifies the authority for the generation of the revenue, expenditure authorisation and the audit process of the public accounts by the Auditor-General for each state.

The Constitutional provision relates to the importance of finance as the basis for political power generated by the provisions enshrined in the Nigerian 1979, 1989 and 1999 constitutions, on power and control over government funds at the Federal, State and Local Government levels. The provisions of these constitutions relating the Finances of the government are the following:

a) Establishment and operation of the Consolidated Revenue Fund. (S74, S78 and 1979 and 1989 constitution. S.80 of the 1999 Constitution)

b) Establishment and operation of Federation Account. (S162 1999 Constitution)

c) Establishment and operation of the Contingency Fund. (S.83 of the 1999 Constitution)

d) Establishment, operation and appointment into Public Accounts Committee (S.62, 88, 89, 103, 128 and 129 of the 1999 Constitution)

e) Establishment, composition and powers of Revenue Mobilisation, Allocation and Fiscal Commission as well as National Planning Commission.

f) The Audit of Public Accounts, Appointment, Tenure, Termination and General Activities of the Auditor-General (S.85 to 87 of the 1999 Constitution for Federal and S 125 – 127 for States)

g) Appointment and Emolument of political appointees (S. 84 of the 1999 Constitution Federal, S 124 for States)

h) Budget Preparation and Execution (S. 81 of 1999 Constitution and S 124 for States).

i) Revenue Generation (S 162 – 168 of the 1999 constitution). This covers the legalisation of revenue generation, lodgments into relevant accounts and disbursements to various levels of government.

j) Revenue Allocation Formula (S 313 of 1999 constitution)

k) Provision for Debt Recognition

l) Provision for Joint Finance Committee

bi. A non-self accounting unit in public sector is a ministry or department which is only required to maintain incomplete resources of the above-the-line-payments and receipts but complete records of its below-the-line-payment and receipt.

ii. Four (4) benefits of Automated Transaction Recording and Reporting Systems (ATRRS) are to;

a) Familiarise the workforce with the use of IT equipment at an early stage of GIFMIS implementation

b) Potentially reduce training period and requirement of GIFMIS

c) Potentially reduce GIFMIS implementation cost

d)   Facilitate ease of reconciliation of the various bank accounts maintained by Government agencies

e)   Shorten Business process Re-engineering period

f)   Ensure clean and accounts data that will be available for migration into GIFMIS

Examiner's Report

Part "a" requested for provisions of the constitution relating to finances of the government. part "b" required the candidates to explain some terminologies as well as benefits of Automated Transaction Recording and Reporting System (ATRRS). About 95% of the candidates attempted the question. Performance was very poor as only about 10% of them scoring above 40% of obtainable marks.

SOLUTION 4

a.   The cardinal objective of Treasury Single Accounting is to facilitate the implementation of an effective cash flow policy with a view to:

   a)   Ensuring that sufficient cash is available as and when needed to meet payment commitments;

   b)   Controlling the aggregate of cash flows within fiscal, monetary and legal limits;

   c)   Improving the management of Government's domestic borrowing programmes;

   d)   Enhancing operating efficiency through the provision of high quality services at minimal costs;

   e)   Investing of excess or idle cash;

f) Ensuring greater accountability in public expenditure

b. i.
Total Benefit =

Contribution = 4, 700, 000

Nation Pension = 7, 500, 000
Commission

12, 200, 000

ii. He is entitle to maximum at 40% of total benefit

40 % of 12, 200.00

N4, 880, 000

iii. The lump sum given is to bring immediate succor to the retiree. He should not use it for expensive project like residential building, employment project where he will need to pay salary to workers monthly. He should just use it to establish small scale business to be runned personally.

Examiner's Report
The candidates were required to state cardinal objectives of Treasury Single Accounting as well as on computations of pension benefits payable to retirees. About 55% attempted the question. And the performance was average as about 60% scoring 40% of total obtainable marks.

SOLUTION 5

MINISTRY OF NIGER DELTA

TREASURY CASH – BOOK FOR THE WEEK ENDED 9-06-17

V No.	From Whom	Head & subhead	Treasury Receipt No.	Cash ₦OOO	Bank ₦'000	Total Amount ₦OOO	Treasury No.	To whom paid	Head and sub-Head	Payee Bank	Cheque No.	Gross Amount ₦OOO	Deduction ₦OOO	Bank or Net ₦OOO
	Balanced b/d Allocation: Recurrent capital Rent of /Qurts Motor Vehicle Salary Advance Bank	10/12 10/16 13/07		40,000 - - 180,000 685,000 125,000 140,500	9,500,000 18,000,000 40,000,000 180,000 685,000 125,000 140,500	9,540,000 18,000,000 40,000,000 180,000 685,000 125,000 140,500		Salaries Repairs of furniture Transport & Travelling Cash computer purchase Balance c/d	MND/A/06/2017/GTB 41/21 17/06 MND/05/110/GTB	GTB FBN GTB	000668 000672	3,500,000 48,500 7,500 140,500 6,582,000 58,392,000 68,670,500	990,000 7,500 173,000 1,170,500	2,510,000 48,500 140,500 6,582,000 58,219,000 67,500,000

Examiner's Report

The question required the candidates to post transactions in the Treasury Cash Book of Government Ministry. And the second part is on journal entries. About 85% of the candidates attempted the question. However only about 45% scoring above 40% of marks obtainable.

In the books of Cowadon State of Wazobia
JOURNAL ENTRIES

Date	Details	DR	CR
		₦'000	₦'000
31/12/2016	Advance (or cash Bank) Acct	5000	
	Renovation of Building A/c Being refund of overpayment made by Oguns contractor on renovation of Governor's office		5000
	No Journal entry is required. The Accountant-General of the state is to register the abandonment claim as a loss		
	Advance (or cash/Bank) Acct. Consolidated Revenue Fund. Being recovery on the year 2016 of overpayment made in year 2015	400	400

SOLUTION 6

ai.   A Board shall consist of three officers, including the president and not less than two members. The president of each Board should hold a post in grade level 08 or higher. Other members of the Board should not be below Grade Level 06. Where it is not possible, one member of the Board may be appointed, but reasons for this have to clearly stated on the Survey Report.

ii.   **PROCEDURAL ACTIVITIES FOR THE CONDUCT OF CURVEYS**
    a)   Check the cash and stamp register by casting the entries for the last month of the year and comparing the balance at hand with one disclosed by the record

    b)   Ensure that for a bank account, a certificate of bank balance is obtained and reconciled with the one shown in the cash book.

c) Ensure that all currency notes and coins (if any) are counted and denominated.

d) Certify the cash and bank balance on both the original and duplicate copies of the cash book.

e) Bring any surplus disclosed to account in the cash book as a credit to Revenue Head. Any shortage must be made good. A serious shortage should be reported to the Accountant-General.

f) On completion of the survey, a report is rendered in triplicate on treasury form 42 and the certificate signed by all members of the Board. Copies of the report are transmitted to the Auditor-General and Accountant-General.

bi. "Money Laundering" is defined as exchanging money or assets that were obtained criminally for money or assets which are clean. The clean money or assets do not have an obvious link with any criminal activities. Money laundering also includes money which is used to fund terrorism, regardless of how it is obtained.

ii. Limitation of the amount of cash payment
Except in a transaction through a financial institution, no person shall make or accept cash payment of a sum greater than:
(a) ₦500,000 or its equivalent, in the case of an individual;

(b) N2million or its equivalent, in the case of a body corporate

iii. **Mandatory disclosure by financial institutions**

1) Notwithstanding anything to the contrary in any other enactment, a financial institution or casino shall disclose and report to the Agency in writing, within seven days, any single transaction, lodgment or transfer of funds in excess of:-

(a) N500,000 or its equivalent, in the case of an individual; and

(b) N2 million or its equivalent, in the case of a body corporate

2) A person, other than a financial institution or casino, may voluntarily give information on any transaction, lodgment or transfer of funds in excess of:-

3)   The Agency shall acknowledge receipt of any disclosure, report of information received under this section and may collect such additional information as it may deem necessary.

4)   The acknowledgment of receipt shall be sent to the financial institution within the time allowed for the transaction to be carried out and it may be accompanied by a stop notice deferring the transaction for a period not exceeding 72 hours.

5)   If the acknowledgment of receipt is not accompanied by a stop notice, or if, when the stop notice expires, the order specified in subsection (6) of this section to block the transaction has not reached the financial institution, the financial institution may carry out the transaction.

6)   When it is not possible to determine the origin of the funds within the period of stoppage of the transaction, the Federal High Court may, at the request of the Agency, order that the funds, accounts or securities referred to in the report be blocked.

7)   An order made by the Federal High Court under subsection (6) of this section shall be enforceable forthwith.

Examiner's Report
Part "a" required knowledge of the candidates on the composition and procedural activities for the conduct of Board of surveys.
While part "b" is on Money Laundering prohibition Acts, 2011. Only about 35% attempted the question, performance was very poor as only about 15% of the candidates scored above 40% of total marks obtainable.

MARKING GUIDE

SN		Marks	Marks
1a.i	Stating the issues 2 ticks x 1 marks	2	
ii.	Listing responsibilities of Auditor. General 2 ticks x $1^1/_2$ Marks	3	5
B	Stating purposes 3 ticks x 2 ½ Marks		7 ½
	Total		**12½**
2a. i.	State functions 5 ticks x 1 Marks each	5	
	State functions 2 ticks x 1 Marks each	2	

ii.

	1 tick x ½ Mark	½	7 ½
b. i.	State conditions 2 ticks x 1 Mark each	2	
	State content 3 ticks x 1 Mark	3	5
ii.			
	Total		**12½**

3a	State provision 5 ticks x 1 Mark each	5	5
bi	Define term 1½ Mark	1½	
ii	State benefits 4 ticks x 1 ½ Mark each	6	7 ½
	Total		**12½**

4a	State Objective 5 ticks x 1 Mark each	5	5
bi	Compute total benefit 3 ticks x 1 Mark each	3	
ii	Compute Lump Sum 3 ticks x 1 Mark each	3	
iii.	To advise the retire 3 ticks x ½ Mark each	1½	7½
	Total		**12½**

5a	Posting of transaction 45 ticks x $^1/_6$ Mark each	7½	7½
bi	Prepare Journal entries 9 ticks x ½ Mark each	4 ½	
	Heading	½	5
	Total		**12½**

6a i	State the composition ticks x 1 Mark each	1	
ii	State procedural activities 4 ticks x 1 Mark each	4	5
b. i	Definition of term 1½ Mark each	1 ½	
ii	Limitations on amount 2 ticks x 1 Mark each	2	
iii	State disclosures 4 ticks x 1 Mark each	4	7 ½
	Total		**12½**

INSIGHT

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

ATTEMPT ALL QUESTIONS

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

1. Which of the following is **NOT** an input data?
    A.   Hourly rate
    B.   Number of hours
    C.   Net pay
    D.   Allowances
    E.   PAYE

2.   Which of the following is **NOT** a general characteristics of information? It must
    A.   Be detailed enough to allow effective decision
    B.   Contain an appropriate level of details for the recipient
    C.   Not be unrelated to the current situation
    D.   Be ambigious
    E.   Be easily understood by the recipient

3.   Which of the following is **NOT** an Accounting information system?
    A.   People
    B.   Procedures
    C.   Control
    D.   Fund
    E.   Information Technology

4.   Convert 0.875 to a Binary number
    A.   0.111
    B.   0.1011
    C.   0.1101101011
    D.   0.1101011011
    E.   0.11101

5. Which of the following is **NOT** a type of Micro Computer?
    A. Mini tower
    B. Workstation
    C. Mini computer
    D. Laptop
    E. Pen computer

6. Which of the following is a direct input device?
    A. Optical character reader
    B. Bar code
    C. Punch card
    D. Paper tape
    E. Tag

7. Which of the following is **NOT** needed for input controls?
    A. Input authorization
    B. Accuracy, batch controls and balancing
    C. Error reporting and handling
    D. Batch integrity in online or database system
    E. Reports are protected from disclosure

8. Which of the following is **NOT** a basic element of the computer hardware?
    A. Input device
    B. Output device
    C. Program
    D. Memory
    E. Control unit

9. An auxiliary equipment is a support equipment that is designed to work in a/an .... mode
    A. Online
    B. Offline
    C. Realtime
    D. Sleep
    E. Online realtime

10. Which of the following is **NOT** an element of control in a business system?
    A. Planning

    B.   Comparism

    C.   Self containment

    D.   Corrective action

    E.   Collecting facts

11.   In Graphical User Interface environment, an icon is a means to

    A.   Solving a problem

    B.   Helping a user

    C.   Accessing a program it represents

    D.   Providing user-friendliness

    E.   Running any program

12.   Which of the following is **NOT** contained in a computer's primary memory?

    A.   Programs which contain instructions that will be used for processing

    B.   Data that have been read from an input device

    C.   Data that are currently being processed

    D.   Data that will be inputted into the computer afresh

    E.   Data that are to be used for processing other data

13.   Power Point package is a .... package

    a.   Graphical

    b.   Presentation

    c.   Spreadsheet

    d.   Database management

    e.   Multi media

14.   Fourth generation languages are .... languages

    A.   Procedural

    B.   Non-procedural

    C.   Problem-oriented

    D.   Machine-oriented

    E.   User-oriented

15.   A compiler .... during compilation process

    A.   Recovers from errors

    B.   Translates and executes source programs

C. Stops when error is encountered

D. Produces source code

E. Displays error message immediately the error is encountered

16. Which of the following is **NOT** a benefit of multi processing?
    A. Increased throughput
    B. Reliable and failure-free
    C. Economy of scale of the resources
    D. The system is quite expensive
    E. Shared memory, storage and power supply for effective performance

17. Which of the following application packages is **NOT** considered useful in accounting environment?
    A. Spreadsheet package
    B. Word processing package
    C. Payroll software
    D. Graphic design software
    E. Peachtree/DacEasy

18. Which of the following is an input control?
    A. Logical relationship check
    B. Input authorisation
    C. Input media report
    D. Access to storage media authorisation
    E. Hard disk file labelling

19. A hot site in disaster recovery is
    A. A location burnt with fire
    B. A location always on power
    C. A location readily available for fire disaster
    D. An alternative location available to use immediately a disaster occurs
       in the main site
    E. An alternative location that will be available after some months if the
       main site experiences a disaster

20. Which of the following personnel may **NOT** be relevant in an information centre?

A. Software engineer
B. System analyst
C. Network engineer
D. Text editor
E. Software tester

21. Which of the following is **NOT** true about client/server model of computer network system?
A. Servers can be accessed remotely and across multiple platforms
B. Distributed processing is greatly impossible
C. Any components can be upgraded or replaced individually as the need
        arises
D. Resources and data security are centrally controlled
E. It provides sophisticated security

22. Which of the following protocols is **NOT** used to exchange information over the internet?
a. HTTP
b. FTP
c. PHP
d. POP
e. UDP

23. Which of the following is **NOT** true about an extranet?
A. Network links that uses internet technology
B. Can connect intranet of business with intranet of customers, suppliers or business partners
C. Make use of a browser
D. All internet users are allowed access
E. Enable company to offer new kinds of interactive web-enabled services to their business partners

24. Two or more people may engage in online interactive conversation over the internet through the use of
A. Usenet
B. Hypermedia language
C. Newsgroup
D. Contact streaming
E. Chat room

25. The network hardware device that provides a central connection point for cables from workstations, servers and peripherals in a network is called
    A.   Switch
    B.   Gateway
    C.   Bridge
    D.   Multiplexor
    E.   Modem

26. Which of the following is **NOT** an activity of computer forensics?
    A.   Data extraction
    B.   Data recovery
    C.   Data gathering of computer systems and peripherals
    D.   Investigation of computer personnel
    E.   Investigation of computers believed to be involved in cybercrime

27. Which of the following is **NOT** a challenge of big data?
    A.   Data capture
    B.   Data storage
    C.   Data origination
    D.   Data sharing
    E.   Data transfer

28. System testing is conducted for the development team while acceptance testing is carried out for
    A.   Managers
    B.   Vendors
    C.   End Users
    D.   Steering Committee
    E.   System Analyst

29. The process of moving data from the existing system into files in the new system is called
    A.   File conversion
    B.   File movement
    C.   Data transfer
    D.   File management
    E.   Cutover

30. The reduction in the strength of signals during data transmission is called
     A. Sales force services
     B. Desktop services
     C. Amazon services
     D. Attenuation
     E. Human service

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

ATTEMPT ALL QUESTIONS

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

1. A micro-computer designed to carry out dedicated operations only which is meant to handle a very narrow category of data processing activities   is   known   as ....

2. A collection of all Accounting students record in a particular class is called
    ....
    ......

3. A computer that is built on a very large scale integrated circuit belongs to ....generation.

4. The representation of data in the usual natural language (i.e, the use of English alphabets) to represent characters is called ....

5.   Another name for primary memory is . ...

6.   A computer system consists of three broad components; the hardware, the software and the ....

7.   Most widely used audio-input device is known as ....

8.   A device that senses the presence or absence of a mark, such as pencil mark is called ....

9.   In a windows-based environment, the act of pressing the left button of a mouse in two rapid succession is referred to as ....

10.   The utility software in a windows operating system that provides access to each major component of the computer is...

11.   Data maintenance activities are performed in word processing packages through .... menu option

12.   What term is used to describe data sets that are so large or complex that traditional data processing application software is inadequate to deal with them?

13.   A closed system has neither an input nor output, which means it is ....

14.   A computer-networking method whereby many computers linked across geographical locations but share computer-processing capability is called ....

15.   In order to investigate and analyse business problems and then design information systems that provide a feasible solution, the role of .... is inevitable

16. A program that migrate through networks and operating systems and attach themselves to different programs and databases is called ....

17. A transaction processing technique that is associated with severe time limitation is called ....

18. The Internet Technology through which employees or business associates/partners at different locations hold joint meetings by means of audio, video and data communication is known as ....

19. A free social networking micro-blogging service that allows registered friends, family and co-workers to communicate and stay connected through the exchange of quick and frequent messages is called ....

20.   Non-permanent and mobile office run with computer and communication technology using pocket pagers, portable computers and phones with network services that enable employees to work from their cars, home and other sites is called ....

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

QUESTION 1
a.   State **THREE** main features of each of the following:
      i.   First Generation Computers
      ii.   Second Generation Computers
      iii.   Third Generation Computers
      vi.   Fourth Generation Computers
      v.   Fifth Generation Computers

                                                    (7½ Marks)
b.   State **FIVE** roles of information in an Accounting Environment.
(5 Marks)   **(Total 12½ Marks)**
QUESTION 2
a.   Define the following:

i.   Cache Memory   (1½ Marks)   ii.   RAM   (1 Mark)

b.   Enumerate **FIVE** characteristics of primary memory   (5 Marks)

c.   Enumerate **FIVE** characteristics of secondary storage devices (5 Marks)   **(Total 12½ Marks)**

QUESTION 3

a.   Given below are three logical structures of a computer program:
   i.   Sequencing
   ii.   Selection
   iii.   Repetition

Give **TWO** examples of each logical structure.
(6 Marks)

b.   List **THREE** good programming practice
(4½ Marks)

c.   Define the term "Portability" as it relates to computer programs.
(2 Marks)   **(Total 12½ Marks)**

QUESTION 4

a. i.   State **TWO** differences between batch processing and online
        processing techniques.
        (2 Marks)

   ii. List **TWO** advantages of batch processing over online processing
        techniques.
        (2 Marks)

b. i.   What is Asymmetric Multiprocessing
        (1½ Marks)
        Symmetric Multiprocessing   (1½ Marks)

   ii. Which of the (bi) above is more complex? (Give reason)
        (1 Mark)

c.i.   What is computer bureau service?   (2 Marks)

   ii. State **FIVE** importance of microcomputer to an accountant.
        (2½ Marks)

(Total 12½ Marks)

QUESTION 5

a.   Define the following terms in relation to the internet:
     i.   uploading   (1 Mark)
     ii.   downloading
(1 Mark)

b.   Transmission media are the paths through which data and information are sent from one location to the other.
     You are required to:
     i.   List **THREE** examples of wired and **TWO** examples of Wireless media.
          (2½ Marks)
     ii.   Enumerate **FOUR** advantages and **FOUR** disadvantages of Wireless LAN.
          (8 Marks)

(Total 12½ Marks)

QUESTION 6

a. i.   When the results from the old and new systems do not agree during parallel changeover, list **THREE** likely reasons for this.
          (3 Marks)
  ii.   Enumerate **THREE** features to be considered during post implementation systems review.
          (3 Marks)
b. i.   What is computer crime?
     (2 Marks)
  ii.   List **FOUR** ways by which computer crime could be prevented
     (2 Marks)
c.   State **TWO** mental health concerns associated with computer
     (2½ Marks)

(Total 12½ Marks)

SOLUTION TO MULTIPLE CHOICE QUESTIONS

1.   C
2.   D
3.   D
4.   A
5.   C

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

Examiner's Report

Multiple Choice Questions (MCQ)

The thirty questions in this section covered almost the entire syllabus, and they were not difficult for the candidates.

80% of the candidates scored 50% and above of the allocated marks.

SOLUTION TO SHORT ANSWER QUESTIONS

1. Special Purpose Digital Computer

2. File

3. Fourth

4. External Data Representative

5. Main/Internal Memory/Random Access Memory (RAM)

6. Human ware

7. Microphone

8. Optical Mark Reader (OMR)

9. Double Clicking

10. My Computer/Control Panel

11. File

12. Big data

13. Self-Contained

14. Distributed data Processing

15. System Analyst

16. WORMS

17. Real Time

18. Teleconference

19. Twitter/Face Book/Whats Application

20. Virtual Office

Examiner's Report
Short Answer Questions (SAQ)
The twenty questions in this section covered the entire syllabus and the candidates performed well as about 70% of the candidates scored 50% and above of the allocated marks.

SOLUTION 1
a.
i. **First Generation**
    - The use of vacuum tube/valve technology
    - Very unreliable for data processing
    - They supported machine language only
    - They were very costly
    - Their input and output devices were slow
    - Huge Size
    - Generated lot of heat

- Uses Memory delay lines
- Uses Cathode Ray tube

ii. **Second Generation**
- Use of transistors
- More reliable than first generation
- Smaller than the first generation
- Generated less heat as compared with first generation
- Consumed less electricity
- Uses Magnetic Core Memory
- Uses Cathode Raytube

iii. **Third Generation**
- Use of integrated circuit made of silicon instead of individual transistors
- The computers are cheaper, smaller and more efficient
- Use high level programming languages
- Storage media was magnetic storage
- Uses Micro-chips

iv. **Forth Generation**
- They used VLSI technology
- They are very cheap compared to earlier Generation Computers
- Portable and reliable
- Use pipeline processing for data processing
- They are micro computers with memory disk
- Used solid logic (LSIC) silicon
- Uses semiconductors

iv. Fifth Generation
- Use of ULSI technology
- Development of artificial intelligence
- Development of Natural Language Processing
- Advancement in parallel processing
- Advancement in Superconductor technology
- Used Pentium Processor/Arsenide chips
- Uses Nano Technology
- Uses Expert Systems, Robotics

b.
- It identifies activities requiring action

- It reduces uncertainty and thus provides a basis for choosing among
  alternative actions
- It makes decision making process of the Accountant to be fast
- It enhances the accuracy of Accountants output
- It enables the Accountant to develop strategies and formulate policies for the survival of their profession
- It enables effective planning and control
- It enables the Accountants to meet customers' requests adequately
- It enables the Accountants to maintain patronage and goodwill of
  their customers
- It enables the Accountants to be abreast of government policies and regulations.
- It helps to make decision on profitability
- It helps to make decision on cashflow

Examiner's Report

This question tested the candidates' understanding of the main features of the five generations of computer systems and the roles of information in an Accounting Environment.

The question was very popular among the candidates as over 95% of them attempted the question and the performance was good as over 50% of those that attempted the question scored 50% and above of the allocated marks.

Then major pitfall was that:

(i) Majority of the candidates enumerated the good quality of information instead of the effect of information on an Accounting environment

(ii) Majority of the candidates were considering the software in the computer Generation instead of the hardware, which had definite classification.

The candidates are advised to study very hard in future examinations by using standard textbooks and the Institute's study Texts.

Marking Guide

		Total Marks
(a)	$\frac{1}{2}$ mark for each of three features in each of the five generations $\frac{1}{2}$ x 3 x 5 =	7½
(b)	1 mark for each of five roles	5
	Total	**12½**

SOLUTION 2

a.

i.   Cache Memory is a very high speed semiconductor memory which can speed up the CPU. It acts as a buffer between the CPU and the main memory. It is used to hold those parts of data and program which are most frequently used by the CPU. These parts of data and program are transferred from the disk to cache memory by the operating system, from where the CPU can access them.

ii.   RAM- (Random Access Memory) is the Internal memory of the CPU for storing data, program and processed result. It is a read/write memory which stores data while the machine is working. As soon as the machine is switched off, data is erased.

       RAM is volatile and it is small both in terms of its physical size and in the amount of data it can hold.

b.   **Characteristics of Primary Memory**
       i.   They are semiconductor memories
       ii.   It is known as the main memory
       iii.   It is a volatile Memory
       v.   Data is lost in case power is switched off
       iv.   It is the working memory of the computer
       v.   It is faster than secondary memories
       iv.   A computer cannot run without the primary memory

c.   **Characteristics of Secondary Storage devices**
       i.   It has small access time for information retrieval
       ii.   They are magnetic and optical memories
       iii.   It is known as the backup memory
       iv.   Data is permanently stored even if power is switched off
       v.   Some has magnetic memory
       vi.   Stores large quantity of data compared to RAM
       vii.   It stores operating systems
       viii.   It is removable
       ix.   It can be re-formatted and re-use
       x.   It is an I/O device

Examiner's Report
This question tested candidates' understanding of the different memories of the computer system. It demands for the definitions and characteristics of both the Cache Memory and the RAM.

This question was very popular among the candidates as over 95% of them attempted it and the performance was good as over 60% of those that attempted it scored over 55% and above of the allocated marks.

The major pitfall was that many candidates could not explain the characteristics of both the primary and secondary memories.

The candidates are advised to make use of ICAN Study Text in future examinations.

Marking Guide

		Marks	Total
2(a)	1½ marks for Cache Memory	1½	
	I mark for RAM	1	
			2½
(b)	1 mark for each of five Characteristics of RAM	5	
(c)	1 mark for each of five Characteristics of secondary storage	5	
			10
			12½

SOLUTION 3

a.   Examples of the logical structures

   (i)   **Sequencing**: Programs are executed in the order they are written,
   except for Branching/Selection commands. Examples,

   READ Statements
   WRITE Statements

(ii) Selection
Examples are:
- GOTO Statement
- Logical IF
- Arithmetic IF
- IF - THEN - ELSE
- CASE
- COMPUTE

(iii) Repetition
Examples are:
- DO - until
- FOR - Statement
- DO - WHILE
- REPEAT - UNTIL

b. Good programming practices include:

1. The problem to be solved should be specified in full and in writing in order to avoid ambiguities.

2. All working papers used during program development, such as program flowchart and decisions table, should be kept, in case there is a need to refer to them for possible error checking.

3. The program coding should be as short as possible i.e. it should be well logically structured.

4. After writing a program, it should be 'dry run', i.e. the programmer should read over the source code to ascertain the logic.

5. After dry running, the program should be run with a test data to establish whether the program will run according to specification and detect possible errors.

6. Provision should be for program amendment by using large gaps between instruction numbers sequencing.

7. Appropriate comments should be inserted in the program to indicate the purpose of some routines.

c. Definition of Portability as it relates to computer program:

- Portability refers to the ability of a computer program to be transferrable to a different computer with little or no modification.

Examiner's Report

The question tested candidates' understanding of the major logical structures of a computer program. It also demands for the listing of good programming practices.

Less than 15% of the candidates attempted this question and the performance was very poor as about 70% of those who attempted it scored 30% and below of the allocated marks.

The major pitfall was that many candidates had no idea of the logical structures.

The candidates are advised to study harder in future examinations.

Marking Guide

			Total Marks
3 (a)	1 mark each for two examples of each of the three logical structure 1 x 2 x 3 = 6		6
(b)	1½ mark each for three good programming practices 1½ x 3		4½
(c)	2 marks for definition		2
	Total		**12½**

SOLUTION 4

a. i. Differences of batch processing over online processing:
   - Data are processed in groups or batches
   - Batch processing is typically used for large amounts of data that must be processed on a routine schedule.
   - A batch processing system has general main characteristics: collect, group, and process transactions periodically.
   - Batch programs required no user involvement and requires significantly fewer network resources than online systems
   - It is less expensive
   - Compute failure and temporary breakdowns have less impact on processing.
   Online Processing

- Handles transactions when they occur and provides output directly to users.

- Because it is interactive, online processing avoids delays and allows a constant dialog between the user and the system.

- The system processes transaction completely when and where they occur.

- Users interact directly with the information system.

- The information system must be available whenever necessary to support business functions.

a.ii Advantages of batch processing
- Repeated jobs are done fast in batch systems without user interactions
- No special hardware and system support to input data in batch system
- Batch systems can work offline so it makes less stress on processor
- It is less expensive
- It encourage proper documentation of transaction data
- It allows enough time for independent review and authorisation of input data by responsible officer before processing
- Computer failure and temporary breakdowns have less impact on processing
- Specific time can be assigned for batch jobs so when the computer is idle, it starts processing the batch jobs
- Sharing of batch system for multiple use

b.i **Asymmetric Multiprocessing**

This is a type of multiprocessing where there is one master processor that controls the data structure of the system. The master Processor assigns processes to the slave processors, or sometimes they have predefined processes.

Symmetric Multiprocessing

In symmetric multiprocessing, the processor share the same memory. Each processor runs the tasks in the operating system.

ii.   Symmetric Multiprocessing has proper load balancing, better fault tolerance and also reduces the chance of CPU bottleneck. It is more complex as the memory is shared among all the processors.

c.i.   Computer bureau service is essentially a business office that accepts out-sources service based on the use of their computing facilities and capabilities.
The term has been extensively used to describe e technology-based services to financial services companies.

ii.   Importance of Micro-computers to an Accountant
   - Labour Saving
   - Time Saving
   - Accuracy
   - Minimization of fraud
   - Effect on personnel
   - Simultaneous access to data
   - Improved reports
   - Information tracking
   - Storage and accessibility
   - Security
   - Allows running of Accounting package
   - Creation of charts of accounts
   - Recurring Journal entries
   - Variance analysis report
   - Presentation of Payroll, Accounts payable and Accounts receivable.

Examiner's Report
This question tested candidates' abilities on two major processing techniques. It also demands for the explanation of computer Bureau and the importance of microcomputer to an accountant.
About 60% of the candidates attempted this question and the performance was good as over 75% of the candidates that attempted the question scored 50% and above of the allocated marks.
Many of the candidates had no idea of both Asymmetric and Symmetric multiprocessing techniques.
In future examinations, candidates are advised to use standard textbooks.
Marking Guide   **Total**

			Marks
4 (a)	1 mark each for the differences	2	
	1 mark each for two advantages	2	
			4
(b)	1½ marks each for definition of asymmetric	1½	
	1½ marks each for definition of symmetric	1½	
	1 mark for reason	1	
			4
(c)	2 marks for definition	2	
	½ mark each for five importance	2½	
			4½
	Total		**12½**

SOLUTION 5

a.i. Uploading is the process through which users or organizations send files and documents to the internet for authorised users to access.

ii. Downloading is the process of extracting or getting information, files and documents from the internet for usage by users or organization e.g. downloading of messages sent to one's e-mail.

b.i. Examples of Wired Media include:

1. Twisted pair cable (shielded and unshielded)
2. Coaxial cable
3. Fiber-optic cable

Examples of Wireless Media include:
1. Microwaves
2. Carrier - Connect radio
3. Infrared light
4. Satellite
5. Blue tooth
6. Wi-fi

ii. Advantages of **Wireless LAN** include:

1. It is easier to provide connectivity in areas that is difficult to lay cables.
2. Installation is fast, easy and can eliminate the need to pull cable through walls and ceilings.

3. Access to the network can be from anywhere within the range of an access point.

4. Portable or semi permanent buildings can be connected using wireless LAN

5. Allow the possibility of individual allocation of wireless devices that move around the location with the users.

6. Where laptops are used, the computer suite can be moved from one location to another.

7. Long-term benefit can be found in dynamic environments requiring frequent moves and changes.

Disadvantages of **Wireless LAN** include:

1. As number of computers using the wireless LAN increases, the data

   transfer rate to each compute will decrease

2. When standards change, it may be necessary to replace wireless cards and/or access points

3. Security is more difficult to guarantee

4. With lower wireless bandwidth, some applications such as video streaming will be less effective

5. Long term cost benefits are harder to achieve in static environments that requires few moves and changes.

6. It is easier to make a wired network "future proof'' for high data transfer than wireless LAN

7. Devises using wireless LAN will only operate at limited distance from an access point

8. It can be hacked

9. It is subject to interference

10. It is slower than wired network

11. It has huge setup cost

12. It may sometimes result into limited access

Examiner's Report

This question texted candidates' knowledge on the different Data transmission media. It demands for the examples, advantages and disadvantages of both the wireless and wired media.

About 95% of the candidates attempted the question and the performance was poor as about 50% of those that attempted the question scored 30% and less of the allocated marks.

Many of the candidates showed lack of understanding of the question.

The students are advised to read standard textbooks for future examinations.

Marking Guide

		Marks	**Total**
5(a)	1 mark each for definition	1	
	1 mark each for definition of downloading	<u>1</u>	
			2
(b)	½ mark each for three examples of wired	1½	
	½ marks each for two examples of wireless	1	
	1 mark for four advantages	4	
	1 mark each for four disadvantages	<u>4</u>	
			<u>10½</u>
	Total		<u>**12½**</u>

SOLUTION 6

a.i. The likely reasons include:
- errors in the new system
- errors in the old system
- sabotage of the new system
- wrong handling of the new system

ii. The features to be considered during post implementation system review include:
1. Compare actual with planned performance
2. Verify that the stated objectives of the system are still valid in the present environment
3. Evaluate the achievement of stated objectives
4. Examine the level of control in the system

b.i Computer crime is an illegal act performed by a knowledgeable computer user, sometimes referred to as a hacker that illegally browses and steals a company's or individual private information. The crimes include wire tapping, data diddling, salami technique, and impersonation.

ii.   Prevention of computer crime includes:
- Unclipping or encoding all messages
- Usage of passwords
- Use of firewalls
- Use of physical and data security including restriction of access to computer workplace
- Backup of data
- Securing microcomputers including avoidance of extreme conditions, worms/viruses and guarding of computers
- Use of Anti-virus
- Restriction to sensitive information

d. Mental health concerns associated with computer technology include:

1. Noise from clattering printers and high frequency squeal from computers

2. Stress from electronic monitoring natural adaptation to computers can cause techno stress

3. Low temperature in the computer environment

4. Long hours of sitting working on systems

5. Excessive exposure to computer monitor

6. Mental stress from writing of complicated program

7. Mental stress due to program running/testing.

Examiner's Report
This question tested candidates' knowledge on System Development. It demands for reason on malcontents during System Changeover and computer crime.
About 70% of the candidates attempted this question and the performance was poor as about 60% of those that attempted the question scored 40% and less of the allocated marks.
Majority of the candidates had no idea of the malcontent of the System Changeover techniques.
Candidates are advised to use standard textbooks in future examinations.
Marking Guide   **Total Mark**

ATSWA PART II SEPTEMBER 2018 DIET

INSIGHT

6(a)	1 mark each for three reasons	3	
	1 mark each for three features	3	
			6
(b)	2 mark for definition of crime	2	
	½ marks each for four preventions	2	
			4
(c)	1¼ marks each for two mental health	2½	2½
	Total		**12½**

INSIGHT

ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA
PART II EXAMINATIONS –SEPTEMBER 2018

QUANTITATIVE ANALYSIS

Time Allowed: 3 hours

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

ATTEMPT ALL QUESTIONS

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

1.   The following are probability sampling methods **EXCEPT**

    A.   Simple random sampling
    B.   Systematic sampling
    C.   Quota sampling
    D.   Cluster sampling
    E.   Multi-stage sampling

2.   Which of the following classes is most useful in constructing histograms and Ogives?

    A.   Class size
    B.   Class intervals
    C.   Class limits
    D.   Class boundaries
    E.   Class marks

3.   The following are measures of partition EXCEPT

    A.   Median
    B.   Quintiles
    C.   Deciles
    D.   Mode
    E.   Percentile

4.   Which of the following is used to estimate quartiles and percentiles?

    A.   Frequency polygon
    B.   Histogram
    C.   Ogive

D.   Lorentz curve

E.   Z- chart

5.   The relationship between the annual income (y) and monthly expenditure (x) of a house head is estimated by the regression equation $y = 22,500 + 12x$. Find the annual income of the house head if he spends GH¢50,000 monthly.

   A.   GH¢500,000
   B.   GH¢522,500
   C.   GH¢600,000
   D.   GH¢622,500
   E.   GH¢822,500

6.   Which of the following is NOT a benefit derivable from Times Series analysis?

   A.   The prediction of the future tendencies of the variable from its past
        behavior
   B.   Determination of the direction of periodic fluctuations of the variable
   C.   Determination of the impact of the various forces influencing the
        differences that may have to do with price of commodities.
   D.   Determination of the influence of demand and supply
   E.   Determination of the behavior of the variables in order to iron-out
        intra-year variations.

7.   The estimation of a trend in Time Series can be achieved with the following methods **EXCEPT**

   A.   Freehand
   B.   Moving average
   C.   Least square
   D.   Exponential smoothening
   E.   Seasonal adjustment

8.   If the seasonal adjustment obtained by forecasting an investment in the 4th quarter of a particular year is 2.52, then the adjusted forecast using the multiplicative model for a 4th quarter forecast of ₦90.5 million is

A. ₦93.02m
B. ₦100.58m
C. ₦228.06m
D. ₦364.52m
E. ₦912.24m

9. Which of the following is **NOT** a problem associated with the construction of an index number?

A. Selection of commodities to be included in the index
B. Selection of sources of data
C. Selection of choice of base year
D. Selection of choice of current year
E. Method of data collection

10. Probability theory is mainly concerned with chance and calculated risks in the
    face of

A. Adversity
B. Certainty
C. Problem
D. Uncertainty
E. Imagination

11. A petrol attendant makes an average sale of ₦250,000 on a sunny day and
    ₦200,000 on a rainy day. If the weather forecast on a particular day shows   that the probabilities of a sunny day and a rainy day are respectively 0.10 and 0.90, then the expected sales of the petrol attendant on that day is

A. ₦150,000
B. ₦180,000
C. ₦205,000
D. ₦235,000
E. ₦245,000
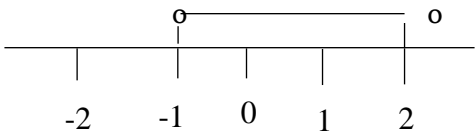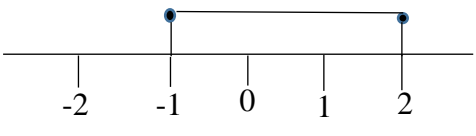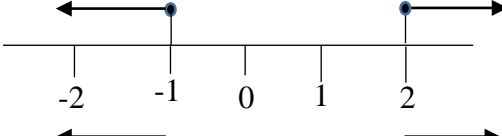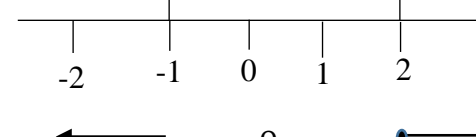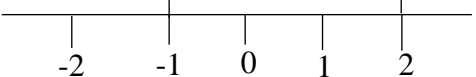
12. The maximum probability of the willingness to risk the rejection of a hypothesis which is supposed to be accepted is known as

    A.   Significance level
    B.   Test statistic
    C.   Confidence level
    D.   Critical value
    E.   Decision value

13. If the Break-even graph has two break-even points, then the revenue function
    is
    A.   Linear
    B.   Exponential
    C.   Logarithmic
    D.   Quadratic
    E.   Polynomial

14. The inequality $|5x - 2| > 7$ corresponds to

A.

B.

C.

D.

E.

15. How long will it take a sum of money to triple itself at 7.5% compound interest
   rate?
   A.   15.1928 years
   B.   15.1908 years
   C.   15.1098 years
   D.   15.0918 years
   E.   15.0819 years

16. The first derivative of a function can be used to find the following
EXCEPT
   A.   Marginal revenue
   B.   Marginal cost
   C.   Maximum profit (when MR = MC)
   D.   Slope of a line
   E.   Point of inflexion

17.   What is the marginal cost (in L$) of producing 50 units, if the average total
   cost is given as: $ATC = \dfrac{100}{q} + 1000 - 10q + q^2$?
   A.   L$151,000
   B.   L$7,500
   C.   L$5,875
   D.   L$300
   E.   L$280

18.   The marginal cost (₦'000) of production is given by $MC = 4x + 3$, where x is the
   quantity produced and sold. If the initial cost is ₦10,000.00, then the total
   cost function (in thousands of Naira) is given as
   A. $2x^2 + 3x + 10,000$
   B. $2x^2 + 3x + 1000$

C. $2x^2 + 3x + 10$

D. $2x^2 + 3x$

E. $2x^2 + 3x + 100$

19. Which of the following is **NOT** a main stage in an Operations Research project?

   A. Problem identification
   B. Identification of parameters for the problems
   C. Examining the possible solutions for the problem and decide on one
   D. There should not be assumption in the solution
   E. An implementation of the solution to be carried out.

20. The following are the uses of Operations Research (OR) **EXCEPT**

   A. It is useful in business operations such as an effective handling of
       inventory planning.
   B. It does not follow systematic approach for the conduct of business
   C. It is useful in decision making on some challenging issues such as the order of executing some projector tasks.
   D. It is relevant and useful in the control and supervision of all the routine
       tasks.
   E. Various departments can be coordinated well with suitable OR technique.

21. Which of the following is **NOT** a Linear Programming assumption?

   A. Linearity of the objective function and the constraints
   B. Non-negativity of the decision variables
   C. Non-additivity of the constraints

D. Certainty of coefficients involved in the decision variables and the
    constraints.
E. There is proportionality in the objective function and the
    constraints

22. In the graphical method of solving linear programming problem, the areas to
    be shaded for inequalities of type $\geq$ *and* $\leq$ are, respectively

    A. The lower and upper parts of the lines drawn
    B. The lower and middle parts of the lines drawn
    C. The upper and middle parts of the lines drawn
    D. The upper and lower parts of the lines drawn
    E. The left side and the right side of the x-axis.

23. In inventory control, which of the following does **NOT** support the
    "precautionary motive"?

    A. To take advantage of quantity discount by buying in bulk
    B. To keep to the barest minimum the delay in production process
       which may be caused by lack of raw materials.
    C. To act as a buffer for variations in demand and usage
    D. To ensure no stock-outs
    E. To take care of uncertainty in the supply and demand

24. Which of the following is **NOT** a consequence of shortage or Stock-
    out Costs?
    A. Loss of customers
    B. Loss of sale and contribution earned from the sale
    C. Loss on production stoppages
    D. Loss on emergency purchase of stock at a higher price
    E. Loss due to pilferage and vermin damage

25. A firm utilizes 60,000 units of material ''A'' annually, and the cost
    per unit is
    GH¢150. If the placing of order is GH¢3,250 for each order and the
    annual holding inventory cost is 10% of the purchase price per unit,
    determine the Economic Order Quantity of material A.

A.   5099.0195
B.   5099.000
C.   5100.000
D.   5100.0195
E.   5100.050

26.   Which of the following is NOT a consequential advantage of Activity-On-   Node (AON) over Activity-On-Arrow (AOA)?
   A.   Dummy is not utilized in AON
   B.   Very simple and easy to understand
   C.   It is widely used and amenable to industrial construction
   D.   It is better adapted to PERT
   E.   Revising and updating are very easy

27.   Non-critical activities can be identified by

   A.   No floats
   B.   Total float
   C.   Free float
   D.   Independent float
   E.   Activities having floats only

28.   For a sudden failure, the type of policies to be applied is identified as
   A.   Individual replacement policy
   B.   Group replacement policy
   C.   Selective replacement
   D.   A and B policies
   E.   A, B and C policies

29. In transportation problem, a situation where the row and column totals are not equal is known as
   A.   Degenerating problem
   B.   Balanced problem
   C.   Unbalanced problem
   D.   Mixed problem
   E.   Unmixed problem

30.   Which of the following is **NOT** part of the similarities between Assignment and

Transportation models?

A.   Both are linear-related problems

B.   Both have the same structural formulation

C.   Both allocate resources

D.   Both have their constraints always equal to one

E.   Both are used for minimization or maximization problems.

SECTION A: PART II   SHORT-ANSWER QUESTIONS

(20 Marks)

ATTEMPT ALL QUESTIONS

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

1.   The sampling method in which each unit or element of the population has a known chance of being selected in the sample is known as ....

2.   The following are the data collected on the ages (in years) of the people living in ODO-ONA Village:

Class	1 – 5	6 – 10	11 – 15	16 – 20	21 – 25
Frequency	10	11	15	6	3

The Median age of the people is..........................

3.   Determine the third quartile for the following data from the given Ogive:

Class Interval	Frequency (f)
5 – 10	2
10 – 15	3
15 – 20	1
20 – 25	4

G. 5
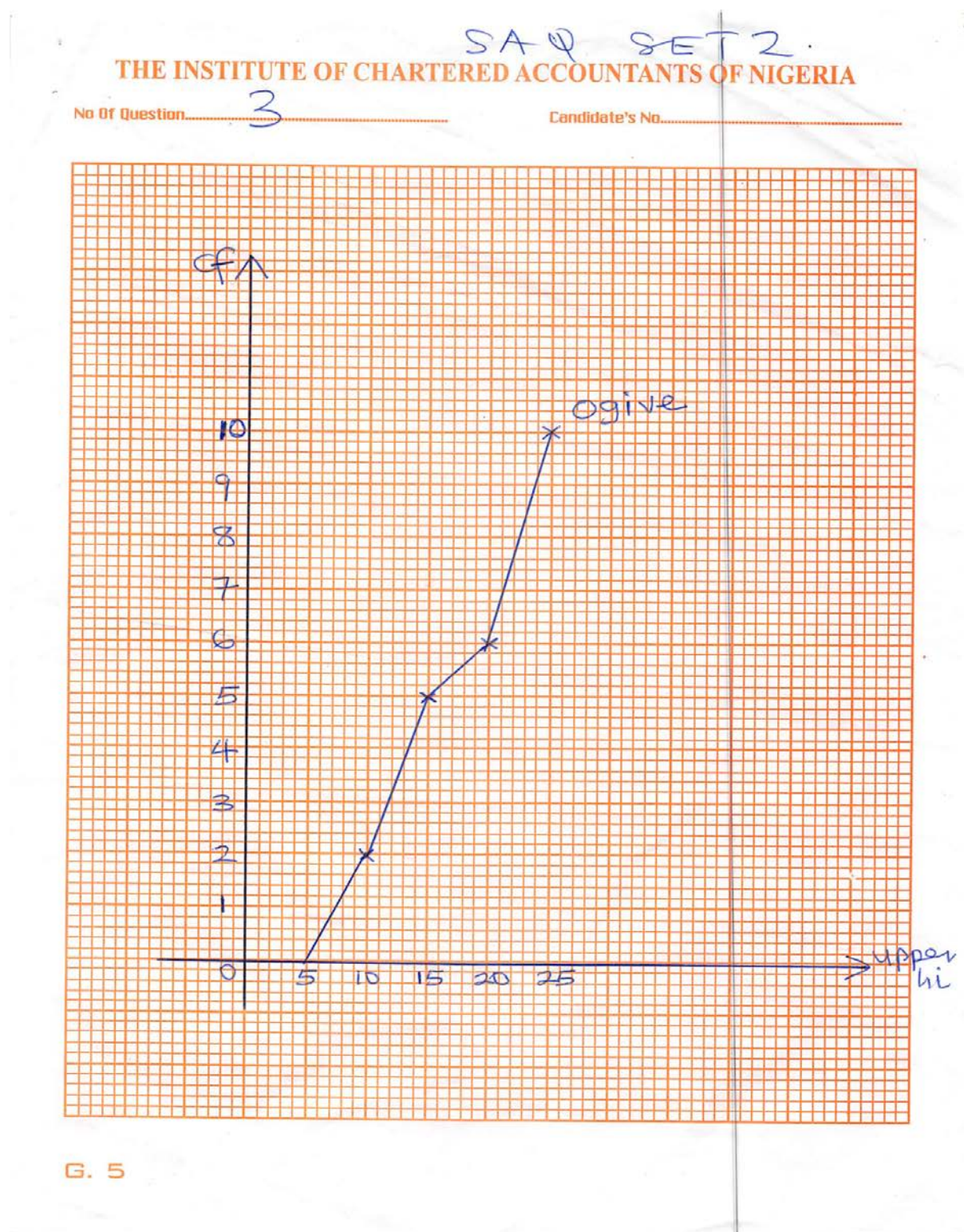
4. The systematic rising and falling in which the Time Series data appears to follow is known as ....

5. In estimating the Trend values in Time-Series analysis, the regular loss of the extreme is **ONE** of the disadvantages of.................. method.

6. The varied relative importance of items in the construction of index numbers in order to have a fair or an accurate index number can be achieved by the appropriate..........................

7. If the probability that Mr. S will be alive in 15 years' time is 0.85 and the probability that Miss B will not be alive in 15 years' time is 0.4. What then is the probability that they will both be alive in 15 years time?

8. In hypothesis testing, the maximum probability of the willingness to risk a Type I error is known as.........................

9. A polynomial function in which the variables are of first degree is called

....

10. The number line solution of $6x + 15 \leq 3x + 6$ is given as..........................

11. If a financial group can make an investment of ₦10m now and receives ₦120m in 3 years' time, estimate the internal rate of return.

12. If the marginal revenue function of a production company is given by $x^2 - 3x + 6$, where x is the number of items produced and sold, calculate the total revenue if 100 items are produced and sold.

13. In the Linear Programming problem, a fundamental assumption that negative quantities of an activity are **NOT** possible is known as .... assumption.

14. The motive for holding buffer stocks so as **NOT** to run out of supply is known as .... motive.

15. An inventory where no element of risk is involved is known as.................... model.

16. Drawing a network diagram, requires starting off with the activity(ies) that has/have .... activity(ies).

17. Machines used in factories are examples of equipment that gradually.........

18. Balancing an unbalanced transportation problem costs requires the creation of a ....row or column with ....

19. The **TWO** major methods of simulation are ....and.............. simulation methods.

20. Monte Carlo simulation method generally utilizes samples from a real population, while system simulation draws samples from a table of random numbers. TRUE OR FALSE

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

a. The quarterly sales (₦'000) of BAKATARI Limited for the years 2000 – 2001 are given in the table below:

Years	Quarters			
	I	II	III	IV
2000	18	25	40	20
2001	26	34	48	27

Estimate the sales for each quarter in 2002 using least squares regression method.
(6 Marks)

b. The following table shows the unit prices in (₦'000) of an item required by a family in rural area during the period 2015 – 2016.

Commodity	Price per unit (₦'000)	
	2015	2016
Sugar	12	14
Milo	15	18

Milk	11	20
Butter	17	25
Custard	19	23

Use the year 2015 as the base year to determine:

i. Simple Average of Relative Price Index for 2016.   (4½ Marks)

ii. Simple Aggregate Price Index for 2016.   (2 Marks)

(TOTAL: 12½ Marks)

QUESTION 2

a. The personnel department of an auditing firm has records which show the following analysis of its 100 Accountants:

Age (Years)	Bachelor's degree	Higher Diploma
Under 25	15	10
25 to 35	25	35
Over 35	10	5

If one accountant is selected at random from the firm, find the probability that he

(i)   has a higher diploma given that he is over 35 years.   (2½ Marks)

(ii) is under 25 given that he has only a Bachelor's degree.   (2½ Marks)

(iii) has a bachelor's degree   (1 Mark)

b. Out of 15,000 customers' ledger accounts, a sample of 400 was taken to test the accuracy of posting and balancing. 25 mistakes were found in the process. Test the hypothesis that the proportion of mistakes is not equal to population proportion at $\alpha = 0.05$ level of significance.   (6½ Marks)

(Total: 12½ Marks)

QUESTION 3

a. The table below shows the daily expenses (GH¢'000) of a manufacturing company for two weeks of 5 working days per week:

	Days of the Week

Week	Mon	Tue	Wed	Thur	Fri
1	10	14	21	32	36
2	28	30	37	45	48

Determine the trend values using 3-point moving averages and obtain the seasonal variations that correspond to daily expenses of Wednesday and Thursday for week 2.
(5 Marks)

b. A store sells 40 lawnmowers per annum. It costs the owner L$8 to store each lawnmower. For each order, which he places for the lawnmowers, he incurs a charge of L$ 16 for handling and delivery.

How many orders should he place to minimize the cost of storing and ordering? (7½ Marks) **(Total 12½ Marks)**

QUESTION 4

a. The demand for an item is 12,000 units per month. It costs L$50 to place an order, the holding cost per item is L$5 per annum and the cost associated with stock-out is L$1.50 per item.

Calculate the Economic Order Quantity (EOQ)
(6 Marks)

b. Solve the following Linear Programming problem by graphical method.

$$Max \quad Z = 40x_1 + 35x_2$$
$$Subject\ to\ 2x_1 + 3x_2 \leq 60$$
$$4x_1 + 3x_2 \leq 96$$
$$x_1, x_2 \geq 0$$

(6½ Marks)
(Total 12½ Marks)

QUESTION 5

a. The costs to perform different jobs by different workers are given as follows:

JOBS

		1	2	3
	1	105	85	65
Workers	2	65	75	95
	3	95	125	105

Obtain the optimal assignment of jobs to workers. (6 Marks)

b. A vendor in a Local government is seeking your advice on the level of sales of Newspaper to carry on daily basis so as to optimize his profit. His possible sales and associated probabilities are given in the table below:

Possible Sales	2 0	3 0	4 0	5 0	6 0
Probability	0.30	0.10	0.40	0.10	0.10

Use the following random numbers: 07, 90, 35, 65, 55 to simulate the daily sales of newspaper for 5 days. Hence find the average daily sales.

(6½ Marks)

(Total 12½Marks)

QUESTION 6

a. A software store procures and sells software items.
The following information on an item is given as shown below:
Expected annual demand   =   10,000 units
Ordering cost   =   ₦200 per order
Holding cost   =   42% of the ordering cost

Calculate:

      i.   Economic Order Quantity

(3½ Marks)

      ii.   Number of orders per annum?

(1½ Marks)

b. The supply function S(x) and the demand function D(x) of a commodity are given by

S(x)   = $200 - 10x - 2x^2$

D(x)   = $24x - 20$

where x denotes the quantity.

  Calculate the equilibrium quantity and the equilibrium price. (7½ Marks)   **(Total 12½ Marks)**

INSIGHT

FORMULAE

Sample variance, s² = $\dfrac{\sum(x-\bar{x})^2}{n-1}$

Economic Order Quantity

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

Z_{cal}= $\dfrac{\bar{x}-\mu}{\dfrac{\sigma}{\sqrt{n}}}$

Slope of a regression equation

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

Elasticity of demand, $e = \left(-\dfrac{p}{q}\right)\left(\dfrac{dq}{dp}\right)$

The 95% confidence interval for μ

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

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

b = $\dfrac{\sum ty}{\sum t^2}$. **a =** $\bar{y} - bx_m$, **x_m= median of x values**

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

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

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

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

EOQ with stock-out

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

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

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

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

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

Spearman's rank correlation coefficient

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

EOQ with gradual replenishment

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

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

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

$$\text{Production cost} = Ordering\ \cos t + Holdering\ \cos t$$

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

SOLUTION TO MULTIPLE CHOICE QUESTIONS

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

WORKINGS

5. $y = 22,500 + 12x$

   when $x = 50,000$

   $y = 22,500 + 12(50,000)$

   $y = 22,500 + 600,000$

   $y = 622,500$

   $y = \text{GH} \cent \, 622,500$ (D)

8. The Adjusted forecast   = 2.52 x 90.5

$$= 228.06 \qquad (C)$$

11. Expected sales $=$ $(250,000 \times 0.1 + (200,000 \times 0.9)$

$$= 25,000 + 180,000$$
$$= ₦205,000 \qquad (C)$$

14. $5x - 2 < -7$ or $5x - 2 > 7$
    $5x < -7 + 2$ or $5x < 7 + 2$
    $5x < -5$ or $5x > 9$
    $x < -1$ or $x > 9/5$
    $x < -1$ or $x > 1.8$

$\qquad\qquad$ (D)
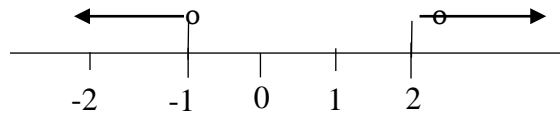
15. $A_n = P(1+r)^n$

where P = Principal
But amount = $3P$ $\therefore$ $A_n = 3P$

$r = 0.075$, n = ?

$3P = P(1+0.075)^n$

$3 = (1+0.075)^n$

$3 = (1.075)^n$

$\log 3 = n \log(1.075)$

$n = \dfrac{\log 3}{\log(1.075)} = \dfrac{0.477121}{0.0314084}$

$n = 15.1908$ years $\qquad\qquad$ (B)

17. $TC = ATC \times q$

$TC = \left(\dfrac{100}{q} + 1,000 - 10q + q^2 \right) q$

$TC = 100 + 1,000q - 10q^2 + q^3$

$MC = \dfrac{dTC}{dq}$

$MC = 1,000 - 20q + 3q^2$

When $q = 50$

$MC = 1,000 - 20(50) + 3(50)^2$

$MC = 1,000 - 20(50) + 3(2,500)$

$MC = L\$ 7,500 \qquad\qquad$ (B)

18. $C = \int MC dx$

$$C = \int (4x + 3)dx$$

$$C = 2x^2 + 3x + k$$

When $x = 0$, $k = 10$ (initial cost), $C = k = 10$

$\therefore$ $C = 2x^2 + 3x + 10$ in thousands of ₦   (C)

25. $Q = \sqrt{\dfrac{2C_o D}{C_H}}$ = $\sqrt{\dfrac{2(3,250)(60,000)}{15}}$

With C_o = ₵3,250, then C_H = 10% of 150 = ₵15

and D = 60,000

$\therefore$ $Q = \sqrt{26,000,00}$ =5099.0195 ≈ 5100 (C)

Examiner's Report

All the candidates attempted the questions. About 55% of the candidates scored 5 marks and above.

SHORT ANSWER QUESTIONS

1. Probability sampling
2. 11
3. 22
4. Trend/Secular Trend
5. Moving Average
6. Choice of Weight
7. 0.51
8. Level of significance / or Significance level
9. Linear function
10. $x \leq -3$
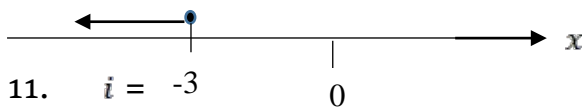
11. $i = -3$ 0
12. 308,933.33
13. Non- negativity
14. Precautionary
15. Deterministic
16. No preceding
17. Deteriorate or wear-out
18. Dummy, Zero (in that order)
19. Monte Carlo, System or Computer (in any order)
20. False

WORKINGS

2

Median =

CLASS	FREQUENCY	CUM.FREQUENCY
1-5	10	10
6-10	11	21
11-15	15	36
16-20	6	42
21-35	3	45

$$L_{me} + \left(\frac{\frac{N}{2} - Cf_{bmed}}{f_{me}} \right) c$$

where

$$\frac{N}{2} = \frac{45}{2} = 22.5, \quad Cf_{bmed} = 21, \quad f_{med} = 15, \quad c = 15.5 - 10.5 = 5$$

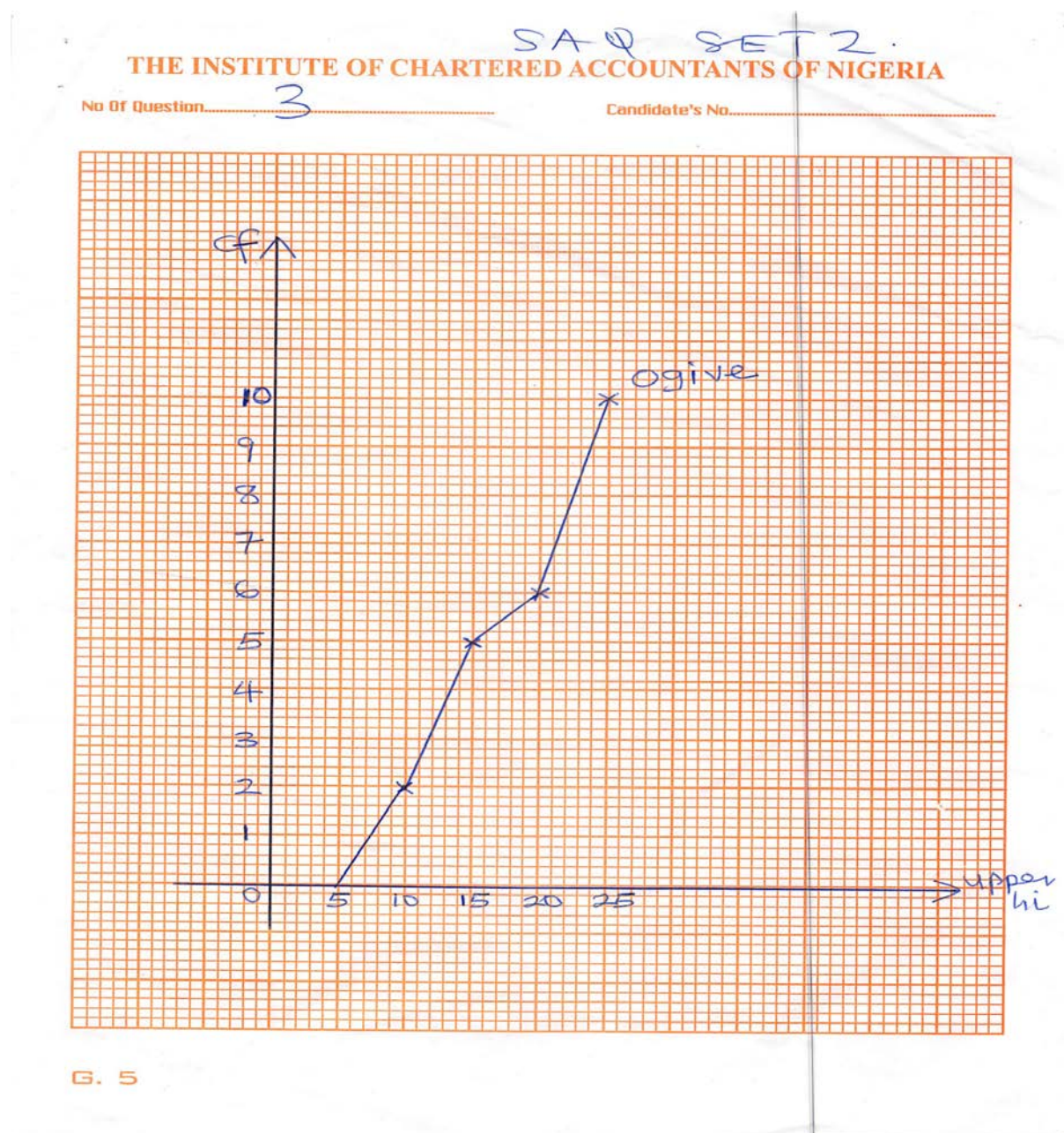$$\text{Median} = 10.5 + \left(\frac{22.5 - 21}{15} \right) 5$$

$$= 10.5 + 0.5$$

$$= 11$$

3.

CLASS	FREQUENCY	CUM.FREQUENCY
5 - 10	2	2
10-15	3	5
15-20	1	6
20-25	4	10
	10	

$$Q_3 = \frac{3}{4} N = \frac{3}{4} \times 10 = 7.5^{\text{th}} \text{ item}$$

THE INSTITUTE OF CHARTERED ACCOUNTANTS OF NIGERIA

No Of Question........3........

Candidate's No..........

SAQ SET 2.

G. 5

From graph $Q_3 = 22$

7.　　$P(Mr. A\ alive) = 0.85$

$P(Miss. B\ will\ not\ be\ alive) = 0.4$

∴　$P(Miss\ B\ will\ be\ alive) = 1 - 0.4 = 0.6$

Hence, P(Both Mr. A and Miss. B will be alive) in 15 years

　　　= P(Mr. A alive) x P(Miss B alive)

　　　= 0.85 x 0.6

　　　= 0.51

10. $6x + 15 \leq 3x + 6$

$6x - 3x \leq 6 - 15$

$3x \leq -9$

$x \leq \dfrac{-9}{3}$

$x \leq -3$
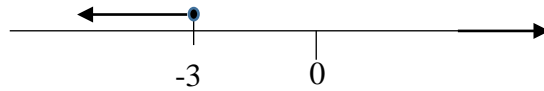
11. IRR is the value of I which makes the NPV = 0

$$\therefore NPV = -10,000,000 + \frac{120,000,000}{(1+i)^2}$$

where i is the discount rate

$$-10,000,000 + \frac{120,000,000}{(1+i)^2} = 0$$

$$\frac{120,000,000}{(1+i)^2} = 10,000,000$$

$$\therefore (1+i)^2 = \frac{120,000,000}{10,000,000} = 12$$

$(1+i) = \sqrt{12} = 3.46$

$i = 3.46 - 1$

$i = 2.46$

12. The total revenue when 100 items are produced is obtained as

$$\int_0^{100} \frac{dR(x)}{dx} dx = \int_0^{100} (x^2 - 5x + 6) dx$$

$$= \frac{x^3}{3} - \frac{5x^2}{2} + 6x \Big|_0^{100}$$

$$= \frac{100^3}{3} - 2.5(100^2) + 6(100) - 0$$

$$= 308,933.33$$

Examiner's Report

All the candidates attempted the question. The general performances of the candidates were below average. Not more than 35% scored 5 marks and above.

SOLUTION B
SOLUTION 1
(a)

Year	Qtr	Y	x	x²	xy
	I	18	1	1	18
2000	II	25	2	4	50
	III	40	3	9	120
	IV	20	4	16	80
2001	I	26	5	25	130
	II	34	6	36	204
	III	48	7	49	336
	IV	27	8	64	216
	-	238	36	204	1154

$$y = a + bx$$

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

$$= \frac{8(1,154) - 238(36)}{8(204) - 36^2} = \frac{664}{336}$$

$$\hat{b} = 1.98$$

$$\hat{a} = \bar{y} - \hat{b}\bar{x} = \frac{238}{8} - 1.98\left(\frac{36}{8}\right)$$

$$= 29.75 - 8.91$$

$$\hat{a} = 20.84$$

Therefore, trend line is $y = 20.84 + 1.98x$

		X	T
2002	I	9	38.66
	II	10	40.64
	III	11	42.62
	IV	12	44.60

INSIGHT

ALITER

Year	Qtr.	Y	x	x²	xy
	I	18	0	0	0
	II	25	1	1	25
	III	40	2	4	80
	IV	20	3	9	60
	I	26	4	16	104
	II	34	5	25	170
	III	48	6	36	288
	IV	27	7	49	189
	-	238	28	140	916

$$y = a + bx$$

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

$$= \frac{8(916) - 238(28)}{8(140) - 28^2} = \frac{7,328 - 6,664}{1,120 - 784}$$

$$= \frac{664}{336}$$

$$\hat{b} = 1.98$$

$$\hat{a} = \bar{y} - \hat{b}\bar{x} = \frac{238}{8} - 1.98\left(\frac{28}{8}\right)$$

$$= 29.75 - 6.93$$

$$\hat{a} = 22.82$$

Therefore, trend line is $y = 22.82 + 1.98x$

For 2002:

$$Q_1 = 22.82 + 1.98(8) = 38.66$$
$$Q_2 = 22.82 + 1.98(9) = 40.64$$
$$Q_3 = 22.82 + 1.98(10) = 42.62$$
$$Q_4 = 22.82 + 1.98(11) = 44.60$$

b.

Commodity	P_o	P_n	P_n/P_o x 100
Sugar	12	14	116.67
Milo	15	18	120.00
Milk	11	20	181.82
Butter	17	25	147.06

Custard	19	23	121.05
-		74	100	686.60

c.

i. SARPI for 2016 = $\dfrac{\sum\left(\dfrac{P_n}{P_o}\times 100\right)}{N}$

where N = 5 is the number of commodities

$\therefore$ SARPI$_{2016}$ = $\dfrac{686.6}{5}$

= 137.32%

ii. SAPI$_{2016}$ = $\dfrac{\sum P_n}{\sum P_o}\times 100$

= $\dfrac{100}{74}\times 100$

= 135.14%

Examiner's Report

The question tested the candidates' understanding and knowledge of the application of least squares regression method to estimate the sales of time-series data and Index numbers. About 98 percent of the candidates attempted the question of which about 50 percent scored between 2½ and 4½ marks. The area of shortcomings of the candidates is the inability of the application of the techniques involved. Candidates are advised to adhere strictly to read Study Pack and other relevant textbooks for better performance.

SOLUTION 2

(a)

Age (years)	Bachelor's Degree	Higher Diploma	Total
Under 25	15	10	25
25 to 25	25	35	60
over 35	10	5	15
Total	50	50	100

Let A be the event that an accountant has bachelor's degree only
B be the event that an accountant has a higher diploma
C be the event that an accountant is under 25 years
D be the event that an accountant is over 35 years of age

i. $P(B/D) = \dfrac{P(B \cap D)}{P(D)} = \dfrac{5/100}{15/100}$

$= \dfrac{5}{15} = \dfrac{1}{3} = 0.33$

ii. $P(C/A) = \dfrac{P(C \cap A)}{P(A)}$

$= \dfrac{15/100}{50/100} = \dfrac{0.15}{0.5}$

$= 0.3$

iii. $P(A) = \dfrac{50}{100} = 0.5$

2(b)   Proportion of mistakes from sample: $p_1 = \dfrac{25}{400} = 0.0625$

∴ $q_1 = 1 - p_1 = 1 - 0.0625 = 0.9375$

P = Population proportion

H_0 : $P = p_1$

Versus

$H_1 : P \neq p_1$ (2- tailed)

Test – Statistic is given by

$z = \dfrac{p_1}{\sqrt{\dfrac{p_1 q_1}{n}}} = \dfrac{0.0625}{\sqrt{\dfrac{0.0625 \times 0.9375}{400}}}$

$= \dfrac{0.0625}{\sqrt{0.000146}} = \dfrac{0.0625}{0.012}$

$= 5.21$

$z_{cal} = 5.21$ and $z_{table} = z_{0.025} = 1.96$

Decision: Since $z_{cal} = 5.21$ is greater than $z_{table} = 1.96$, then H_0 is rejected and it is concluded that the sample proportion is not equal to population proportion at α = 0.05 level of significance.

Examiner's Report
The question tests the candidates' knowledge and understanding of Conditional Probability and Hypothesis Testing of proportion.
About 15% of the candidates attempted the question of which less than 5% of them scored a maximum of three marks out of total marks allocated to the questions. The pitfall identified centers on the candidates' lack of proper understanding of the hypothesis being tested. Candidates are advised to read the Study Pack and other relevant materials for better performance in future.

Solution 3

a.

X Days	Y Observation	3-Point Moving Total	3- Point Moving Average (T)	SV= Y/T
Monday	10	-	-	-
Tuesday	14	45	15.00	-
Wednesday	21	67	22.33	-
Thursday	32	89	29.67	-
Friday	36	96	32.0	-
Monday	28	94	31.33	-
Tuesday	30	95	31.67	-
Wednesday	37	112	37.33	0.99
Thursday	45	130	43.33	1.04
Friday	48	-	-	-

Hence, the seasonal variation that corresponds to daily expenses of Wednesday for week 2 is 0.99 while that of Thursday for week 2 is 1.04.

b. Let x be the number of lawnmowers ordered at any time. The storage cost for x lawnmowers is Le $8x$.
Since the store sells 40 lawnmowers every year, the number of orders required per year will be $\frac{40}{x}$

Cost of each order placed = Le 16

$\therefore$ The cost for $\frac{40}{x}$ orders placed is

$C_1 = 16 \times \frac{40}{x} = \frac{640}{x}$

Cost function, C=Storage cost + C_1

$$= 8x + \frac{640}{x}$$

At the turning point, $\frac{dC}{dx} = 0$

i.e $\qquad \frac{dc}{dx} = 8 - \frac{640}{x^2}$

$\Rightarrow \qquad 8 - \frac{640}{x^2} = 0$

$\qquad 8x^2 = 640$

$\qquad x^2 = 80$

$\qquad x = \pm\sqrt{80} = \pm 8.9 \approx \pm 9$

$\qquad \frac{d^2C}{dx^2} = \frac{2(640)}{x^3}$

When $x = 9$,

$\frac{d^2C}{dx^2} = \frac{2(640)}{9^3} = 1.76 > 0$

Therefore, $x = 8.9 \approx 9$ orders gives the minimum cost

Examiner's Report

The question tests the candidates' knowledge and understanding of the use of Moving Averages Method to measure seasonal variations in time-series data and application of differentiation for determining the number of units to be produced in order to minimize the cost of production. About 30% of the candidates attempted the question with an average score of 2 out of 5 marks allocated to it in 3(a) and 'O' mark out of the 7½ marks allocated to question 3(b). The candidates demonstrated very poor knowledge and understanding of the question. The question should be made clear for the candidates in order for them to understand the concept or application of differentiation.

Solution 4

(a)

The formular for EOQ with stock-out is given as

$$Q = \left(\sqrt{\frac{2cd}{h}}\right)\left(\sqrt{\frac{h+c_s}{c_s}}\right)$$

With $c = 50$, $d = 12{,}000 \times 12 = 144{,}000$ (per annum), $h = 5$, $c_s = 1.50$

$$Q = \left(\sqrt{\frac{2 \times 50 \times 144{,}000}{5}}\right)\left(\sqrt{\frac{5+1.5}{1.5}}\right)$$

$$Q = \left(\sqrt{28{,}800{,}000}\right)\left(\sqrt{4.33}\right)$$

$$Q = (1{,}697.056)(2.082)$$

$$Q = 3{,}533.27$$

(b)

For $\quad 2x_1 + 3x_2 \leq 60$

$\Rightarrow \quad 2x_1 + 3x_2 = 60$

When $x_1 = 0$, $x_2 = 20 \Rightarrow (0, 20)$

When $x_2 = 0$, $x_1 = 30 \Rightarrow (30, 0)$

For $\quad 4x_1 + 3x_2 \leq 96$

$\Rightarrow \quad 4x_1 + 3x_2 = 96$

When $x_1 = 0$, $x_2 = 32 \Rightarrow (0, 32)$
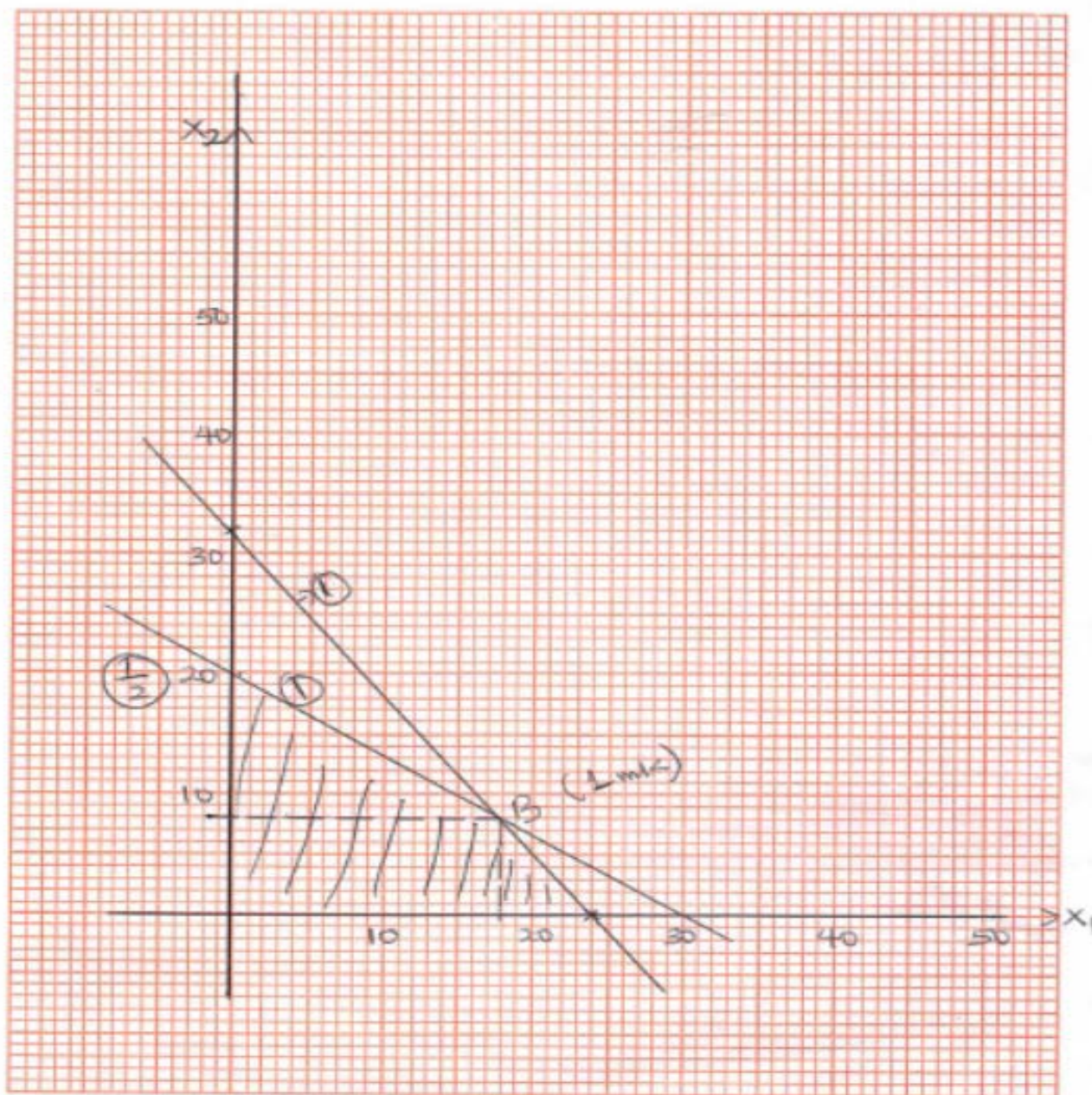
When $x_2 = 0$, $x_1 = 24 \Rightarrow (24, 0)$

INSIGHT

G. 5

$$z = 40x_1 + 35x_2$$

From the graph,

For point $A(0, 20)$, $z = 40(0) + 35(20) = 700$

For point $B(18, 8)$, $z = 40(18) + 35(8) = 1,000$

For point $C(24, 0)$, $z = 40(24) + 35(0) = 960$

$\Rightarrow$ At $x_1 = 18$, and $x_2 = 8$, the maximum value of $z = 1,000$

Examiner's Report

The question tested the candidates' understanding on the application of Inventory Control and Linear Programming Problem.

About 98% of the candidates attempted it. Not more than 40% scored above 6 marks out of total marks allocated to it. The major pitfall of the candidates was due to wrong graph reading and lack of computation of Economic Order Quantity.

Candidates still need to consult more relevant textbooks for better understanding.

SOLUTION 5

a.

WORKER	JOB		
	1	**2**	**3**
1	105	85	65
2	65	75	95
3	95	125	105

Step 1: Balanced, since number of rows equals number of columns.

Row Iteration: Subtract the lowest entry in each row of the cost table from all entries in that row
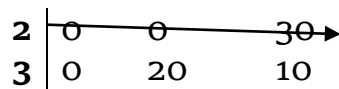
WORKER	JOB		
	1	**2**	**3**
1	40	20	0
2	0	10	30
3	0	30	10

Column Iteration: Subtract the lower entry from all entries in each column

WORKER	JOB		
	1	**2**	**3**
1	40	10	0

2	O	O	~~30~~ →
3	O	20	10

It is optimal since the number of covered lines is equal to the number of rows or columns.

∴   Worker 1 ⟶ Job 3
     Worker 2 ⟶ Job 2
     Worker 3 ⟶ Job 1

b.

Sales	Probability	Cumulative Probability	R-N allocated
20	0.3	0.3	00 - 29
30	0.1	0.4	30 - 39
40	0.4	0.8	40 - 79
50	0.1	0.9	80 - 89
60	0.1	1.0	90 - 99

Simulates for Five days is a follows:

Days	R - N	Sales
1	07	20
2	90	60
3	35	30
4	65	40
5	55	40
-	-	190

∴ Total sales = 190

∴ Average daily sales $= \dfrac{190}{5} = 38$

Examiner's Report

The question tested the candidates' knowledge of the concepts of Assignment Modelling and Simulation. About 80% of the candidates attempted the question. More than 60% of them scored above 7 marks. The error that affected their performance was their inability to use the concepts involved in simulation and assignment model correctly. However, adequate preparation is essential for better performance.

INSIGHT

SOLUTION 6

(a)

A = Expected annual quantity = 10,000 units
C_o = ordering cost = ₦200 per order

∴ Holding Cost = C_h = $\frac{42}{100}$ x 200 = ₦84

(i) ∴ EOQ = $\sqrt{\dfrac{2AC_o}{C_h}}$

$= \sqrt{\dfrac{2 \times 10,000 \times 200}{84}}$

$= \sqrt{47,619}$

$= 218.22 \approx 219$

(ii) No of orders per annum

N $= \dfrac{\textit{Expected annual sales}}{\textit{Quantity}}$

$= \dfrac{10,000}{219}$

$= 45.66 \approx 46$

i.e 46 orders

(b)

At equilibrium $S(x) = D(x)$

$200 - 10x - 2x^2 = 24x - 20$

$200 + 20 - 10x - 24x - 2x^x = 0$

$220 - 34x - 2x^2 = 0$

$110 - 17x - x^2 = 0$

$x^2 + 17x - 110 = 0$

∴ $x = \dfrac{-(17) \pm \sqrt{17^2 + 4(1)(110)}}{2(1)}$

$x = \dfrac{-17 \pm \sqrt{289 + 440}}{2}$

$x = \dfrac{-17 \pm 27}{2}$

$$x = \frac{-17 + 27}{2} \text{ or } x = \frac{-17 - 27}{2}$$

$$x = 5 \text{ or } -22$$

$\therefore x = 5$ since x cannot be negative. Hence, the equilibrium quantity is $x = 5$.

Also to obtain the equilibrium price, we substitute $x = 5$ into either the supply function or demand function.

    D(5) = 24 (5) – 20

           = 120 – 20

           = 100

Or

    S(5) = 200 -10(5) - 2(5²)

        = 200 – 50 -50

        = 100

Alternatively,

At equilibrium $S(x) = D(x)$

$200 - 10x - 2x^2 = 24x - 20$

$200 + 20 - 10x - 24x - 2x^x = 0$

$220 - 34x - 2x^2 = 0$

$110 - 17x - x^2 = 0$

$x^2 + 17x - 110 = 0$

Using factorization method,

$(x - 5)(x + 22) = 0$

$(x - 5) = 0 \text{ or } (x + 22) = 0$

$x = 5 \text{ or } x = -22$

$\therefore x = 5$ since x cannot be negative. Hence, the equilibrium quantity is $x = 5$.

Also to obtain the equilibrium price, we substitute $x = 5$ into either the supply function or demand function.

    D(5) = 24 (5) – 20

           = 120 – 20

           = 100

Or

    S(5) = 200 -10(5) - 2(5²)

        = 200 – 50 -50

        = 100

Examiner's Report

The question tested the candidates' understanding of the application of Inventory Control. More than 90% of the candidates attempted the

question with about 70% of them scoring 4 marks out of the 5 marks allocated to question 5(a).

The major pitfall of the candidates was their inability to factorise correctly. They should be encouraged to study the ÁTSWA Study Pack and other relevant text books.

MARKING GUIDE FOR QUANTITATIVE ANALYSIS

SOLUTION 1

MARKING GUIDE	marks	Marks
(i) For either correct $\sum y$ = 238 or $\sum x$ = 36 (starting x values from 1)	¹/₂	
For correct $\sum x^2$ = 204	¹/₂	
For correct $\sum xy$ = 1154	¹/₂	
For correct substitution into $\hat{b}$ equation	¹/₂	
For correct value of $\hat{b}$ i.e 1.98	¹/₂	
For correct substitution into $\hat{a}$ equation	¹/₂	
For correct value of $\hat{a}$ i.e 22.82	¹/₂	
For correct trend line	¹/₂	
For correct 2002 Q_1, estimate i.e 38.66	¹/₂	
For correct 2002 Q_2 estimate i.e 40.64	¹/₂	
For correct 2002 Q_3 estimate i.e 42.64	¹/₂	
For correct 2002 Q_4 estimate i.e 44.6	¹/₂	
		6

ALITER

	marks
For either correct $\sum y$ = 238 or $\sum x$ = 28 (starting x values from 0)	¹/₂
For correct $\sum x^2$ = 140	¹/₂
For correct $\sum xy$ = 1154	¹/₂
For correct substitution into $\hat{b}$ formular	¹/₂
For correct value of $\hat{b}$ i.e 1.98	¹/₂
For correct substitution into $\hat{a}$ equation	¹/₂
For correct value of $\hat{a}$ i.e 22.82	¹/₂
For correct trend line	¹/₂
For correct 2002 Q_1 estimate i.e 38.66	¹/₂
For correct 2002 Q_2 estimate i.e 40.64	¹/₂
For correct 2002 Q_3 estimate i.e 42.64	¹/₂
For correct 2002 Q_4 estimate i.e 44.60	¹/₂

For correct $\left(\dfrac{p_n}{p_o}\times100\right)$ columns (½ for each correct value i.e 116.67,120,181.82,147.06, 121.05) $2^1/_2$

For correct $\sum\left(\dfrac{p_n}{p_0}\times 100\right)$ = 686.6 $^1/_2$

For correct substitution into SARPI formular $^1/_2$

For correct SARPI for 2016 i.e 137.32% ($-^1/_2$ for no % sign)   1

ii. For correct $\sum p_o$ = 74 $^1/_2$

For correct $\sum p_n$ = 100 $^1/_2$

For correct substitution into SAPI formular $^1/_2$

For correct SAPI for 2016 i.e 135.14% ($-^1/_2$ for no % sign $^1/_2$

                         $6^1/_2$

QUESTION 2

	MARKING GUIDE	marks	Marks
(i)	For correct interpretation of $P(B/D)=\dfrac{P(B\cap D)}{P(D)}$	$^1/_2$	
	For $P(BnD)=\dfrac{5}{100}$	$^1/_2$	
	For $P(D)=\dfrac{15}{100}$	$^1/_2$	
	For correct answer i.e $^1/_3$ or 0.33	1	$2^1/_2$
(ii)	For correct interpretation of $P(C/A)=\dfrac{P(C\cap A)}{P(A)}$	$^1/_2$	
	For $P(C n A)=\dfrac{15}{100}$	$^1/_2$	
	For $P(A)=\dfrac{50}{100}$	$^1/_2$	
	For correct answer i.e 0.3	1	$2^1/_2$
(iii)	For $P(A)=\dfrac{50}{100}$	$^1/_2$	
	For correct answer i.e $^1/_2$ or 0.5	$^1/_2$	
2b	For correct $p_1=\dfrac{25}{400}$ = 0.0625	$^1/_2$	
	For correct q_1 = 0.9375	$^1/_2$	
	For correct H_0 : P = p_1	1	
	For correct H_1 : P $\neq$ p_1		
	For correct substitution into Z formula	$^1/_2$	
	For correct simplication i.e $\sqrt{0.000146}$ = 0.012	$^1/_2$	
	For correct Z_{cal} = 5.21	$^1/_2$	
	For correct Z_{tab} = 1.96	$^1/_2$	

For correct decision	$^1/_2$
For correct conclusion	$^1/_2$

SOLUTION 3

	MARKING GUIDE	marks	Marks
a	For correct 3-point moving total column (-$^1/_2$ each error	2	
	For correct 3-point moving average column(-$^1/_2$ each error)	2	
	For correct seasonal variation for Wednesday week 2 i.e 0.99	$^1/_2$	
	For correct seasonal variation for Thursday week 2 i.e 1.0	$\underline{^1/_2}$	5

b.	For storage cost for x lawnmower i.e 8x	$^1/_2$
	For number of orders required per year i.e $\frac{40}{x}$	$^1/_2$
	For correct cost $C_1 = \frac{640}{x}$	$^1/_2$
	For correct cost function. $C = 8x + \frac{640}{x}$	$^1/_2$
	For $\frac{dc}{dx} = 0$	$^1/_2$
	For correct $\frac{dc}{dx} = 8 - \frac{640}{x^2}$	1
	For equating $8 - \frac{640}{x^2} = 0$	$^1/_2$
	For correct values of x = ± 8.9	1
	For correct approximation x = ± 9	$^1/_2$
	For correct $\frac{d^2C}{dx^2} = \frac{2(640)}{x^3}$	$^1/_2$
	For condition $\frac{d^2C}{dx^2} > 0$	$^1/_2$
	For final conclusion that x = 9 orders gives the minimum Cost	$^1/_2$

SOLUTION 4

	MARKING GUIDE	marks	Marks
a	For correct value of d i.e 144,000	1	
	For correct substitution into the first bracket of Q formular	$^1/_2$	
	For correct substitution into the second bracket of Q	$^1/_2$	

formular

For correct value of expression in the first bracket i.e $\sqrt{28,800,000}$	1	
For correct value of expression in the second bracket i.e $\sqrt{4.33}$	1	
For getting 1697.056	$^1/_2$	
For getting 2.082	$^1/_2$	
For correct final answer i.e 3533.27	1	
		6

b.

For plotting line $2x_1 + 3x_2 = 60$ using two points (0,20) and (30,0)	1	
For plotting line $4x_1 + 3x_2 = 96$, using two points (0,32) and (24,0)	1	
For vertex A(0,20 of feasible region	$^1/_2$	
For z value for vertex A i.e $z = 700$	$^1/_2$	
For vertex B (18,8) of feasible region	$^1/_2$	
For z-value for vertex B i.e $z = 1000$	$^1/_2$	
For vertex C (24,0) of feasible region	$^1/_2$	
For z-value for vertex B i.e $z = 960$	$^1/_2$	
For optimal solution of $x_1 = 18$	$^1/_2$	
For optimal solution of $x_2 = 8$	$^1/_2$	
For optimal solution of $z = 1,000$	$^1/_2$	
		$6^1/_2$
Total		$12^1/_2$

SOLUTION 5

	MARKING GUIDE	marks	Marks
a	For the 3 correct rows after row iteration ($^1/_2$ mark for each row)	$1^1/_2$	
	For the 3 correct columns after column iteration ($^1/_2$ mark for each column)	$1^1/_2$	
	For the 3 lines to cover all zeros ($^1/_2$ mark for each line)	$1^1/_2$	
	For the 3 correct assignment of 3 jobs to the 3 workers ($^1/_2$ mark for each assignment)	$1^1/_2$	
			6

b. For correct cumulative probability column   1
    For correct random number allocation column   1
    For correct simulated sales for five days ($^1/_2$mark $2^1/_2$
    for each daily simulated sale)

    For correct total sales i.e 190 $^1/_2$
    For average daily sales expression i.e $\frac{190}{5}$ $^1/_2$
    For correct average daily sales i.e 38   1

                                                         $\underline{6^1/_2}$
                                                         $\underline{12^1/_2}$

SOLUTION 6
For correct expression for holding cost i.e $\frac{42}{100}$ x 200
    $\frac{1}{2}$
For correct value of holding cost i. e ₦84 $\frac{1}{2}$
For correct substitution into the EOQ formular
    1
For correct simplification to get $\sqrt{47,619}$
    $\frac{1}{2}$
For getting 218.22
    $\frac{1}{2}$
For correct answer i.e 219
    $\frac{1}{2}$

                                                         $\mathbf{3\frac{1}{2}}$

(ii)
For correct number of order per annum formular
    $\frac{1}{2}$
For correct substitution into the number of order per annum formular
    $\frac{1}{2}$
For correct answer i.e 46 orders
    $\frac{1}{2}$

                                                         $\mathbf{1\frac{1}{2}}$

(b)
For equating S(x) = D(x)
    1

For equating the given supply function (S(x)) to demand function (D(x))
i.e
200 - 10$x - 2x^2$ = 24x -20
$\frac{1}{2}$

For correct quadratic equation i.e. 110 - 17x - x^2 = 0 or $x^2 + 17x - 110 = 0$
1

For correct substitution of a, b and c values into quadratic equation formular   1

For getting $x = \dfrac{-17 \pm 27}{2}$ $\frac{1}{2}$

For getting $x = 5$ $\frac{1}{2}$

For getting $x = -22$
$\frac{1}{2}$

For concluding that $x = 5$ is equilibrium quantity
1

For correct substitution of $x = 5$ into either demand function or supply function $\frac{1}{2}$

For correct answer i.e. 100
1

12 $\frac{1}{2}$

ALITER 6 b
For equating S(x) = D(x)
1

For equating the given supply function (S(x)) to demand function (D(x))
i.e
200 - 10$x - 2x^2$ = 24x -20
$\frac{1}{2}$

For correct quadratic equation i.e. 110 - 17x - x^2 = 0 or $x^2 + 17x - 110 = 0$
1

For correct factorization into $(x - 5)(x + 22) = 0$
$1\frac{1}{2}$

For getting $x = 5$ $\frac{1}{2}$

For getting $x = -22$
$\frac{1}{2}$

For concluding that $x = 5$ is equilibrium quantity
1

For correct substitution of $x = 5$ into either demand function or supply function $\frac{1}{2}$

For correct answer i.e. 100
1

INSIGHT