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\(\frac{1}{3}\)% on the cost price
B. 33\(\frac{1}{3}\)% on the selling price
C. 50% on the selling price
D. 66\(\frac{2}{3}\)% on the selling price
E. 66\(\frac{2}{3}\)% 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. N10,000 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 N10,000        Cr. Cash book with N10,000
B. Dr. Cash book with N10,000        Cr. John Marku account N10,000
C. Dr. Cash book with N20,000        Cr. John Marku account N20,000
D. Dr. John Marku account N20,000        Cr. Cash book with N20,000
E. Dr. Suspense account with N 20,000    Cr. John Marku account N20,000

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
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 N 720,000. The inventory held at the beginning of the year was N 72,000 and at the end of the year was N 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\(\frac{1}{3}\)% 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

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 ........................................................................................................................................

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
........................................................................................................................................

12
SECTION B: ATTEMPT ANY FOUR QUESTIONS (50 Marks)

QUESTION 1


   (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)

<table>
<thead>
<tr>
<th>Account</th>
<th>L$</th>
<th>L$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance</td>
<td>113,900</td>
<td>589,740</td>
</tr>
<tr>
<td>Trade Payables</td>
<td>758,720</td>
<td>33,000</td>
</tr>
<tr>
<td>Rent</td>
<td></td>
<td>17,800</td>
</tr>
<tr>
<td>Rates</td>
<td></td>
<td>7,500</td>
</tr>
<tr>
<td>General expenses</td>
<td></td>
<td>16,320</td>
</tr>
<tr>
<td>Drawings</td>
<td></td>
<td>95,600</td>
</tr>
<tr>
<td>Salaries &amp; Wages</td>
<td></td>
<td>95,600</td>
</tr>
<tr>
<td>Transport expenses</td>
<td></td>
<td>18,900</td>
</tr>
<tr>
<td>Balance c/d</td>
<td>93,760</td>
<td>872,620</td>
</tr>
</tbody>
</table>

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.
Additional information:

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

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**

<table>
<thead>
<tr>
<th></th>
<th>GH¢’000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freehold buildings</td>
<td>86,400</td>
</tr>
<tr>
<td>Vehicles</td>
<td>52,560</td>
</tr>
<tr>
<td>Inventory</td>
<td>44,100</td>
</tr>
<tr>
<td>Receivables</td>
<td>34,668</td>
</tr>
<tr>
<td>Bank</td>
<td>15,840</td>
</tr>
<tr>
<td></td>
<td><strong>233,568</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Equity and Liabilities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital - Appiah</td>
<td>112,752</td>
</tr>
<tr>
<td>- Ayew</td>
<td>84,816</td>
</tr>
<tr>
<td></td>
<td><strong>197,568</strong></td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th></th>
<th>Le’000</th>
<th>Le’000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover</td>
<td>3,900</td>
<td></td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td></td>
<td>(1,800)</td>
</tr>
<tr>
<td>Gross profit</td>
<td></td>
<td>2,100</td>
</tr>
<tr>
<td>Salaries, wages and general expenses</td>
<td>(1,560)</td>
<td></td>
</tr>
<tr>
<td>Provision for depreciation</td>
<td></td>
<td>(300)</td>
</tr>
<tr>
<td>Interest on loan notes</td>
<td>(60)</td>
<td>(1,920)</td>
</tr>
<tr>
<td>Profit before taxation</td>
<td></td>
<td>180</td>
</tr>
<tr>
<td>Income tax expenses</td>
<td></td>
<td>(37.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>142.50</td>
</tr>
</tbody>
</table>
Statement of financial position as at 31 December 2016 & 31 December 2015

<table>
<thead>
<tr>
<th></th>
<th>31 December 2016</th>
<th>31 December 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Le’000</td>
<td>Le’000</td>
</tr>
<tr>
<td>Non-current Assets (Cost)</td>
<td>2,700</td>
<td>2,280</td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>(1,380)</td>
<td>(1,080)</td>
</tr>
<tr>
<td>Current assets:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inventories</td>
<td>240</td>
<td>345</td>
</tr>
<tr>
<td>Trade receivables</td>
<td>90</td>
<td>120</td>
</tr>
<tr>
<td>Bank</td>
<td>120</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>450</td>
<td>525</td>
</tr>
<tr>
<td>Current liabilities:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax</td>
<td>37.50</td>
<td>45</td>
</tr>
<tr>
<td>Trade payables</td>
<td>165</td>
<td>150</td>
</tr>
<tr>
<td>Accrued wages</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Interim Dividend - Unpaid</td>
<td>30</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>247.50</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>202.50</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>1,522.50</td>
<td>1,500</td>
</tr>
</tbody>
</table>

EQUITY & LIABILITIES

<table>
<thead>
<tr>
<th></th>
<th>31 December 2016</th>
<th>31 December 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinary shares</td>
<td>600.00</td>
<td>600</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>382.50</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>982.50</td>
<td>900</td>
</tr>
<tr>
<td>10% Loan notes</td>
<td>540.00</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>1,522.50</td>
<td>1,500</td>
</tr>
</tbody>
</table>

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.

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

Further information:

<table>
<thead>
<tr>
<th></th>
<th>Cassava</th>
<th>Yam</th>
<th>Cow</th>
<th>Ram</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Closing inventory</td>
<td>480</td>
<td>1,168</td>
<td>400</td>
<td>800</td>
</tr>
<tr>
<td>(ii) Sales</td>
<td>4,800</td>
<td>5,360</td>
<td>23,12</td>
<td>4,960</td>
</tr>
<tr>
<td>(iii) Opening inventory</td>
<td>2,512</td>
<td>2,480</td>
<td>4,400</td>
<td>1,680</td>
</tr>
<tr>
<td>(iv) Purchases</td>
<td>1,500</td>
<td>2,500</td>
<td>17,44</td>
<td>3,944</td>
</tr>
</tbody>
</table>
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

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

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 1⅓ per point.
   Subject to Maximising
   Total

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.**

<table>
<thead>
<tr>
<th>Description</th>
<th>¢’000</th>
<th>¢’000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase price</td>
<td>6,400</td>
<td></td>
</tr>
<tr>
<td>Less: Trade Discount</td>
<td>320</td>
<td>6,080</td>
</tr>
<tr>
<td>Delivery Cost</td>
<td></td>
<td>640</td>
</tr>
<tr>
<td>Installation Cost</td>
<td></td>
<td>800</td>
</tr>
<tr>
<td>Cost of site preparation</td>
<td></td>
<td>1,280</td>
</tr>
<tr>
<td>Architect’s fee</td>
<td></td>
<td>96</td>
</tr>
<tr>
<td>Removal cost</td>
<td></td>
<td>1,600</td>
</tr>
<tr>
<td>Test run cost</td>
<td>480</td>
<td></td>
</tr>
<tr>
<td>Less: Inventory produced</td>
<td>64</td>
<td>416</td>
</tr>
<tr>
<td>COST OF THE PPE</td>
<td></td>
<td>10,912</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks</th>
<th>Mark Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Correct explanation/meaning of carrying cost in accordance to IAS 16 – Property Plant and equipment (PPE)</td>
<td>4¹/₂</td>
<td>4¹/₂</td>
</tr>
<tr>
<td>b. Computation of cost of machine using the provisions of IAS 16 – PP&amp;E.</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Any 8 ticks at 1 mark each</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>12¹/₂</td>
</tr>
</tbody>
</table>

**SOLUTION 3**

Statement of Affairs 1 October, 2015
Inventory 277,240
Trade Receivables 180,620
Rates 4,200
Furniture 50,000
Bank balance 113,900

Less: Trade Payables 112,480
Rent Owing 3,000

Capital 1 October, 2015 625,960

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

\[
\begin{array}{ll}
\text{Sales} & 943,180 \\
\text{Opening Inventory} & 277,240 \\
\text{Purchases} & 684,920 \\
& 962,160 \\
\text{Closing Inventory} & 302,880 \\
& 659,280 \\
\text{Wages} & 109,400 \\
\text{Rent} & 30,000 \\
\text{Rates} & 17,500 \\
\text{General Expenses} & 7,500 \\
\text{Salaries & Wages} & 95,600 \\
\text{Motor Transport Expenses} & 18,900 \\
\text{Stationery} & 23,280 \\
\text{Depreciation: Furniture} & 5,000 \\
\end{array}
\]

Net Profit Loss 23,320

Statement of Financial Position as at 30 September, 2016

\[
\begin{array}{ll}
\text{Non-Current Assets} & \\
\text{Furniture (₦50,000 - ₦5,000)} & 45,000 \\
\end{array}
\]

\[
\begin{array}{ll}
\text{Current Assets} & \\
\text{Inventory} & 302,880 \\
\text{Trade Receivables} & 172,480 \\
\text{Bank Balance} & 93,760 \\
\end{array}
\]

Prepayment (Rates)
### Trade Receivable Account

<table>
<thead>
<tr>
<th></th>
<th>₷</th>
<th>₷</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance c/d</td>
<td>180,620</td>
<td>Bank</td>
</tr>
<tr>
<td>Sales</td>
<td>750,580</td>
<td>Balance c/d</td>
</tr>
<tr>
<td></td>
<td>931,200</td>
<td>931,200</td>
</tr>
</tbody>
</table>

### Trade Payables Account

<table>
<thead>
<tr>
<th></th>
<th>₷</th>
<th>₷</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank</td>
<td>589,740</td>
<td>Balance b/d</td>
</tr>
<tr>
<td>Balance c/d</td>
<td>147,780</td>
<td>Purchases</td>
</tr>
<tr>
<td></td>
<td>737,520</td>
<td>737,520</td>
</tr>
</tbody>
</table>

### Rent Account

<table>
<thead>
<tr>
<th></th>
<th>₷</th>
<th>₷</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank</td>
<td>33,000</td>
<td>Balance b/d</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Profit or Loss</td>
</tr>
<tr>
<td></td>
<td>33,000</td>
<td>33,000</td>
</tr>
</tbody>
</table>

### Rates Accounts

<table>
<thead>
<tr>
<th></th>
<th>₷</th>
<th>₷</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance c/d</td>
<td>4,200</td>
<td>Profit or Loss</td>
</tr>
<tr>
<td>Bank</td>
<td>17,800</td>
<td>Balance c/d</td>
</tr>
<tr>
<td></td>
<td>22,000</td>
<td>22,000</td>
</tr>
</tbody>
</table>
**Total Sales**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Receivables</td>
<td>750,000</td>
</tr>
<tr>
<td>Cash Sales</td>
<td>192,600</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>943,180</td>
</tr>
</tbody>
</table>

**Total Purchases**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Payables</td>
<td>625,040</td>
</tr>
<tr>
<td>Cash Purchases</td>
<td>59,880</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>684,920</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Item</th>
<th>Marks</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Preparation of:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statement of Affairs</td>
<td>3</td>
<td>1(\frac{1}{2})</td>
</tr>
<tr>
<td>ii. Statement of Profit or Loss for the year ended</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>iii. Statement of financial position</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Any 8 ticks at (\frac{1}{2}) mark</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>12(\frac{1}{2})</td>
</tr>
</tbody>
</table>

**SOLUTION 4**

**APPIAH AND AYEW PARTNERSHIP**

**Realisation Account**

<table>
<thead>
<tr>
<th>Item</th>
<th>GH¢’000</th>
<th>GH¢’000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freehold Buildings</td>
<td>86,400</td>
<td></td>
</tr>
<tr>
<td>Capital A/C – Appiah (M/V)</td>
<td>14,400</td>
<td></td>
</tr>
<tr>
<td>Vehicles</td>
<td>52,560</td>
<td></td>
</tr>
<tr>
<td>Purchase Consideration</td>
<td>292,320</td>
<td></td>
</tr>
<tr>
<td>Inventory</td>
<td>44,100</td>
<td></td>
</tr>
<tr>
<td>Trade Payable</td>
<td>11,000</td>
<td></td>
</tr>
<tr>
<td>Receivables</td>
<td>34,668</td>
<td></td>
</tr>
</tbody>
</table>
Dissolution Expenses 12,000
Share of Profit:
Appiah - $\frac{1}{2} \times 87,992$ 43,996
Ayew - $\frac{1}{2} \times 87,992$ 43,996

\[\text{Total} = 317,720\]

### Partners’ Capital Account

<table>
<thead>
<tr>
<th></th>
<th>Appiah (GH¢’00)</th>
<th>Ayew (GH¢’00)</th>
<th>Appiah (GH¢’00)</th>
<th>Ayew (GH¢’00)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real-M/V taken-over</td>
<td>14,400</td>
<td>0</td>
<td>Balance b/f</td>
<td>112,752</td>
</tr>
<tr>
<td>Ord. Shares in Appiye Ltd.</td>
<td>146,160</td>
<td>146,160</td>
<td>Realisation Profit</td>
<td>43,996</td>
</tr>
<tr>
<td>Cash/Bank</td>
<td>3,812</td>
<td>17,348</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[\text{Total} = 317,720\]

### Ordinary Shares in Appiye Limited Account

<table>
<thead>
<tr>
<th></th>
<th>GH¢’000</th>
<th></th>
<th>GH¢’000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appiye Limited</td>
<td>292,320</td>
<td>Capital Account:</td>
<td></td>
</tr>
<tr>
<td>Appiah - $\frac{1}{2} \times 292,320$</td>
<td>146,160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ayew - $\frac{1}{2} \times 292,320$</td>
<td>146,160</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[\text{Total} = 292,320\]

### Cash/Bank Account

<table>
<thead>
<tr>
<th></th>
<th>GH¢’000</th>
<th></th>
<th>GH¢’000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance b/f</td>
<td>15,840</td>
<td>Loans</td>
<td>25,000</td>
</tr>
<tr>
<td>Capital A/C – Appiah</td>
<td>3,812</td>
<td>Dissolution Expenses</td>
<td>12,000</td>
</tr>
<tr>
<td>Cap A/C – Ayew</td>
<td>17,348</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[\text{Total} = 37,000\]

### Trade Payables Account

<table>
<thead>
<tr>
<th></th>
<th>GH¢’000</th>
<th></th>
<th>GH¢’000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realisation</td>
<td>11,000</td>
<td>Balance b/f</td>
<td>11,000</td>
</tr>
</tbody>
</table>

### Loans Account

<table>
<thead>
<tr>
<th></th>
<th>GH¢’000</th>
<th></th>
<th>GH¢’000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realisation</td>
<td>25,000</td>
<td>Balance b/f</td>
<td>25,000</td>
</tr>
</tbody>
</table>

### Appiye Limited Account

<table>
<thead>
<tr>
<th></th>
<th>GH¢’000</th>
<th></th>
<th>GH¢’000</th>
</tr>
</thead>
</table>
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

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks</th>
<th>Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation of Realisation account</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Any 8 ticks at ½ mark</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Preparation of Partners Capital Account</td>
<td></td>
<td>2½</td>
</tr>
<tr>
<td>Any 5 ticks at ½ mark</td>
<td></td>
<td>2½</td>
</tr>
<tr>
<td>Preparation of Ordinary Share in Appye Limited Account</td>
<td></td>
<td>1½</td>
</tr>
<tr>
<td>Any 3 ticks at ½ mark</td>
<td></td>
<td>1½</td>
</tr>
<tr>
<td>Preparation of Cash/Bank Account</td>
<td></td>
<td>1½</td>
</tr>
<tr>
<td>Any 3 ticks at ½ mark</td>
<td></td>
<td>1½</td>
</tr>
<tr>
<td>Preparation of Trade payable Account</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Two (2) ticks at ½ mark</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Preparation of Loan Account</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Two (2) ticks at ½ mark</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Preparation of Appiye Limited Account</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Two (2) ticks at ½ mark</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>12½</td>
<td></td>
</tr>
</tbody>
</table>

SOLUTION 5

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

<table>
<thead>
<tr>
<th>Description</th>
<th>N'000</th>
<th>N'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cashflow from customers</td>
<td>W(i)</td>
<td>4,035</td>
</tr>
<tr>
<td>Cash paid to Suppliers</td>
<td>W(ii)</td>
<td>(1,785)</td>
</tr>
<tr>
<td>Cash paid to Employees</td>
<td>W(iii)</td>
<td>(1,575)</td>
</tr>
<tr>
<td>Cashflow from Operating Activities</td>
<td></td>
<td>675</td>
</tr>
<tr>
<td>Tax Paid</td>
<td>W(iv)</td>
<td>(45)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>630</td>
</tr>
<tr>
<td>Cashflow from investing activities</td>
<td></td>
<td>(420)</td>
</tr>
<tr>
<td>Purchase of non-current asset</td>
<td></td>
<td>210</td>
</tr>
</tbody>
</table>
### Cashflow from Financing activities

<table>
<thead>
<tr>
<th>Description</th>
<th>£'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loan Repayment</td>
<td>(60)</td>
</tr>
<tr>
<td>Dividend paid</td>
<td>W(v)</td>
</tr>
<tr>
<td>Interest Paid</td>
<td>(60)</td>
</tr>
<tr>
<td>Net increase in Cash and Cash equivalents</td>
<td>60</td>
</tr>
<tr>
<td>Cash and Cash equivalent at January 1</td>
<td>60</td>
</tr>
<tr>
<td>Cash and Cash equivalent at December 31</td>
<td>120</td>
</tr>
</tbody>
</table>

W(i)

<table>
<thead>
<tr>
<th>Description</th>
<th>£'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cashflow from customers</td>
<td></td>
</tr>
<tr>
<td>Turnover</td>
<td>3,900</td>
</tr>
<tr>
<td>Increase in inventory</td>
<td>105,000</td>
</tr>
<tr>
<td>Increase in receivables</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

4,035

W(ii)

<table>
<thead>
<tr>
<th>Description</th>
<th>£'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash paid to suppliers</td>
<td></td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>1,800</td>
</tr>
<tr>
<td>Less: increase in payables</td>
<td>(15)</td>
</tr>
<tr>
<td></td>
<td>1,785</td>
</tr>
</tbody>
</table>

W(iii)

<table>
<thead>
<tr>
<th>Description</th>
<th>£'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash paid to Employees</td>
<td></td>
</tr>
<tr>
<td>Salaries, wages and general expenses</td>
<td>1,560</td>
</tr>
<tr>
<td>Add Accrued wages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

1,575

W(iv)

<table>
<thead>
<tr>
<th>Description</th>
<th>£'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax Paid</td>
<td></td>
</tr>
<tr>
<td>Bank (balancing)</td>
<td>45.00</td>
</tr>
<tr>
<td>Balance c/d</td>
<td>37.00</td>
</tr>
<tr>
<td></td>
<td>82.50</td>
</tr>
</tbody>
</table>

82.50

W(v)

<table>
<thead>
<tr>
<th>Description</th>
<th>£'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dividend Paid</td>
<td>30</td>
</tr>
<tr>
<td>Dividend</td>
<td>30</td>
</tr>
<tr>
<td>Bank (balancing)</td>
<td></td>
</tr>
<tr>
<td>Balance c/d</td>
<td>382.50</td>
</tr>
</tbody>
</table>

442.50

Balance b/f 300

Profit & Loss 142.50

Balance c/d 442.50
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

<table>
<thead>
<tr>
<th>Item</th>
<th>Marks</th>
<th>Mark</th>
<th>1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation of Statement of cashflow</td>
<td>14</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Preparation of working Note (1) - Cashflow from customers</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Any 2 ticks at ½ mark</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Preparation of working Note (ii) - Cash paid to suppliers</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2 ticks at ½ mark</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Preparation of working Note (iii) - Cash paid to Employees</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2 ticks at ½ mark</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Preparation working Note (iv) - Tax paid</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2 ticks at ½ mark</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Preparation of working Note (v) – Dividend paid</td>
<td></td>
<td>3</td>
<td>5/2</td>
</tr>
<tr>
<td>3 ticks at ½ mark</td>
<td></td>
<td>1/2</td>
<td>12/2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>Crops</th>
<th>Livestock</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cassava</td>
<td>Yam</td>
<td>Cow</td>
</tr>
<tr>
<td>Sales</td>
<td>N’000</td>
<td>N’000</td>
<td>N’000</td>
</tr>
<tr>
<td>Add: Closing Inventory</td>
<td>480</td>
<td>1,168</td>
<td>400</td>
</tr>
</tbody>
</table>

Balance b/d 382.50
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

<table>
<thead>
<tr>
<th>Crop</th>
<th>Livestock</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>N'000</td>
<td>N'000</td>
<td>N'000</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>1,200</td>
<td>-</td>
</tr>
<tr>
<td>Casual labour</td>
<td>80</td>
<td>240</td>
</tr>
<tr>
<td>Feeds</td>
<td>-</td>
<td>480</td>
</tr>
<tr>
<td>Livestock veterinary medicine</td>
<td>-</td>
<td>640</td>
</tr>
<tr>
<td>Livestock sundry expenses</td>
<td>-</td>
<td>380</td>
</tr>
<tr>
<td>Seeds</td>
<td>560</td>
<td>-</td>
</tr>
<tr>
<td>Crops and other expenses</td>
<td>420</td>
<td>-</td>
</tr>
<tr>
<td>Dairy expenses</td>
<td>-</td>
<td>160</td>
</tr>
<tr>
<td>Total Direct Expenses</td>
<td>2,180</td>
<td>1,900</td>
</tr>
</tbody>
</table>

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

a. Alice Farms Ltd.
Preparation of gross Output - Crops
16 ticks at ¼ marks each
4 marks

b. Preparation of gross output - Livestock
Any 16 ticks at ¼ mark each
4 marks

c. Preparation of direct Expenses Crops
Any 8 ticks at ¼ mark each
2 marks

d. Preparation of direct Expenses – Livestock
Any 10 ticks at ¼ each
2 ¼ marks
Total 12 ¼ marks

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. Segmental 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 ........................
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
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:

   (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 \( \frac{10}{12} \)
       Motor vehicle advance repayment 180,000 685,000
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.

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

(Total 12½ Marks)
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
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.
1. 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. (§74, §78 and 1979 and 1989 constitution. §80 of the 1999 Constitution)

b) Establishment and operation of Federation Account. (§162 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.


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 entitled to maximum at 40% of total benefit

\[
40\% \text{ of } 12,200.00 = N4,880,000
\]

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.
### 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

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<td>Advance (or cash Bank) Acct.</td>
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<td>Renovation of Building A/c Being refund of overpayment made by Oguns contractor on renovation of Governor’s office</td>
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<td>5000</td>
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<tr>
<td></td>
<td>No Journal entry is required. The Accountant-General of the state is to register the abandonment claim as a loss</td>
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<td></td>
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<tr>
<td></td>
<td>Advance (or cash/Bank) Acct. Consolidated Revenue Fund. Being recovery on the year 2016 of overpayment made in year 2015</td>
<td>400</td>
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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) ₦2 million 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) ₦500,000 or its equivalent, in the case of an individual;

   and

   (b) ₦2 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

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<tr>
<td>i.</td>
<td>Stating the issues 2 ticks x 1 marks</td>
<td>2</td>
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<tr>
<td>ii.</td>
<td>Listing responsibilities of Auditor. General 2 ticks x 1½ Marks</td>
<td>3 5</td>
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<td>B</td>
<td>Stating purposes 3 ticks x 2½ Marks</td>
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<tr>
<td>2a.</td>
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</tr>
<tr>
<td>i.</td>
<td>State functions 5 ticks x 1 Marks each</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>State functions 2 ticks x 1 Marks each</td>
<td>2</td>
</tr>
</tbody>
</table>
## ii.

1. 1 tick x $\frac{1}{2}$ Mark $\frac{1}{2}$

## 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 1½ Mark each 6 7½

**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 $\frac{1}{2}$ Mark each 1½ 7½

**Total**

12½

### 5a

Posting of transaction 45 ticks x $\frac{1}{6}$ Mark each 7½ 7½

### bi

Prepare Journal entries 9 ticks x $\frac{1}{2}$ Mark each 4 ½

**Total**

12½

### 6a

State the composition ticks x 1 Mark each 1

### i

State procedural activities 4 ticks x 1 Mark each 4 5

### ii

Definition of term 1½ Mark each 1½

### i

Limitations on amount 2 ticks x 1 Mark each 2

### ii

State disclosures 4 ticks x 1 Mark each 4 7½

### iii

**Total**

12½
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 ambiguous
   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. Multimedia

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
   iv. 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:
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)
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  

(Solution) (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  

SOLUTION TO MULTIPLE CHOICE QUESTIONS

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

- 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

Mark Total

(a) ½ mark for each of three features in each of the five generations ½ x 3 x 5 = 7½

(b) 1 mark for each of five roles Total 5 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**

<table>
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<tr>
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<tbody>
<tr>
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<tr>
<td></td>
<td>I mark for RAM</td>
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<tr>
<td></td>
<td><strong>2½</strong></td>
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<tr>
<td>(b)</td>
<td>1 mark for each of five Characteristics of RAM</td>
</tr>
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<td>(c)</td>
<td>1 mark for each of five Characteristics of secondary storage</td>
</tr>
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<td><strong>10</strong></td>
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<td><strong>12½</strong></td>
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</tbody>
</table>

**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

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<td><strong>Total</strong></td>
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</table>

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

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ATSWA PART II SEPTEMBER 2018 DIET
### 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. Devices 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**

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**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**

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**ATSWA PART II SEPTEMBER 2018 DIET**

87
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</table>
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
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\(\text{c} 50,000\) monthly.

A. GH\(\text{c} 500,000\)
B. GH\(\text{c} 522,500\)
C. GH\(\text{c} 600,000\)
D. GH\(\text{c} 622,500\)
E. GH\(\text{c} 822,500\)

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 smoothing
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
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: \( ATC = \frac{100}{q} + 1000 - 10q + q^2 \)?
   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 $\leq$ and $\geq$ 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.
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:

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:

<table>
<thead>
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<th>Class</th>
<th>1 – 5</th>
<th>6 – 10</th>
<th>11 – 15</th>
<th>16 – 20</th>
<th>21 – 25</th>
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<td>Frequency</td>
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<td>11</td>
<td>15</td>
<td>6</td>
<td>3</td>
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</table>

The Median age of the people is……………………

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

<table>
<thead>
<tr>
<th>Class Interval</th>
<th>Frequency (f)</th>
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<tbody>
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<td>15 – 20</td>
<td>1</td>
</tr>
<tr>
<td>20 – 25</td>
<td>4</td>
</tr>
</tbody>
</table>
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 N 10m now and receives N120m 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:

<table>
<thead>
<tr>
<th>Years</th>
<th>Quarters</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>I</td>
<td>18</td>
<td>25</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>2001</td>
<td>II</td>
<td>26</td>
<td>34</td>
<td>48</td>
<td>27</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Price per unit (₦'000)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015</td>
</tr>
<tr>
<td>Sugar</td>
<td>12</td>
</tr>
<tr>
<td>Milo</td>
<td>15</td>
</tr>
</tbody>
</table>
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:

<table>
<thead>
<tr>
<th>Age (Years)</th>
<th>Bachelor’s degree</th>
<th>Higher Diploma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>25 to 35</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>Over 35</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Days of the Week</th>
<th>Milk</th>
<th>Butter</th>
<th>Custard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>25</td>
<td>23</td>
</tr>
</tbody>
</table>

Out of 2018 Diet
<table>
<thead>
<tr>
<th>Week</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thur</th>
<th>Fri</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>14</td>
<td>21</td>
<td>32</td>
<td>36</td>
</tr>
<tr>
<td>2</td>
<td>28</td>
<td>30</td>
<td>37</td>
<td>45</td>
<td>48</td>
</tr>
</tbody>
</table>

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.

\[
\begin{align*}
\text{Max} & \quad Z = 40x_1 + 35x_2 \\
\text{Subject to} & \quad 2x_1 + 3x_2 \leq 60 \\
& \quad 4x_1 + 3x_2 \leq 96 \\
& \quad x_1, x_2 \geq 0
\end{align*}
\]

(6½ Marks)  
(Total 12½ Marks)

QUESTION 5

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

<table>
<thead>
<tr>
<th>Possible Sales</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability</td>
<td>0.30</td>
<td>0.10</td>
<td>0.40</td>
<td>0.10</td>
<td>0.10</td>
</tr>
</tbody>
</table>

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)

(12½ Marks)

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 = N200 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)
FORMULAE

Sample variance, \( s^2 = \frac{\sum (x-\bar{x})^2}{n-1} \)

Economic Order Quantity

\[
Q = \sqrt{\frac{2cd}{h}}
\]

\[
Z_{cal} = \frac{\bar{x} - \mu}{\frac{\sigma}{\sqrt{n}}}
\]

Slope of a regression equation

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

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

The 95% confidence interval for \( \mu \)

\[
= \bar{x} \pm t_{\alpha/2, n-1} \frac{s}{\sqrt{n}}
\]

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

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

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

\[
\text{SAPI} = \frac{\sum P_{n1}}{\sum P_{o1}} \times 100
\]

\[
\text{LPI} = \frac{\sum p_1q_{o1}}{\sum p_0q_o} \times 100
\]

\[
t = \sqrt{\frac{p}{pq}}\sqrt{\frac{n}{1}}
\]

EOQ with stock-out

\[
Q = \sqrt{\frac{2cd}{h}} \times \sqrt{\frac{h+c_s}{c_s}}
\]
\[ Z = \frac{p - \hat{p}}{\sqrt{\frac{\hat{p}(1 - \hat{p})}{n}}} \]

\[ Q_i = L_Q + \left( \frac{iN}{4} - \sum f_Q \right) c \]

\[ D_i = L_D + \left( \frac{iN}{10} - \sum f_D \right) c \]

\[ P_i = L_P + \left( \frac{iN}{100} - \sum f_P \right) c \]

**Spearman’s rank correlation coefficient**

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

**EOQ with gradual replenishment**

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

Length of Inventory cycle = \( \frac{Q}{d} \)

Number of production runs = \( \frac{d}{Q} \)

Production cost = Ordering cost + Holding cost

\[ Mode = L_{mo} + \left( \frac{\Delta_1}{\Delta_1 + \Delta_2} \right) c \]
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 \( x = 50,000 \)
   \( y = 22,500 + 12(50,000) \)
   \( y = 22,500 + 600,000 \)
   \( y = 622,500 \)
   \( y = \text{GH₵ 622,500} \) (D)

8. The Adjusted forecast \[= 2.52 \times 90.5\]
11. Expected sales = 
\[250,000 \times 0.1 + 200,000 \times 0.9\]
\[= 25,000 + 180,000\]
\[= \text{₦205,000} \]  
(C)

14. \[5x - 2 < -7 \quad \text{or} \quad 5x - 2 > 7\]
\[5x < -7 + 2 \quad \text{or} \quad 5x < 7 + 2\]
\[5x < -5 \quad \text{or} \quad 5x > 9\]
\[x < -1 \quad \text{or} \quad x > 9/5\]
\[x < -1 \quad \text{or} \quad x > 1.8\]

15. \[A_n = P(1 + r)^n\]
where \(P = \) Principal
But amount = \(3P \Rightarrow A_n = 3P\)
\(r = 0.075, \ n = ?\)
\(3P = P(1 + 0.075)^n\)
\(3 = (1 + 0.075)^n\)
\(3 = (1.075)^n\)
\(\log 3 = n \log(1.075)\)
\(n = \frac{\log 3}{\log(1.075)} = \frac{0.477121}{0.0314084}\)
\(n = 15.1908 \) years  
(B)

17. \(TC = ATC \times q\)
\(TC = \left(\frac{100}{q} + 1,000 - 10q + q^2\right)q\)
\(TC = 100 + 1,000q - 10q^2 + q^3\)
\(MC = \frac{dTC}{dq}\)
\(MC = 1,000 - 20q + 3q^2\)
When \(q = 50\)
\(MC = 1,000 - 20(50) + 3(50)^2\)
\(MC = 1,000 - 20(50) + 3(2,500)\)
\(MC = \text{₦7,500} \)  
(B)

18. \(C = \int MC \, dx\)
\[ C = \int (4x + 3)\,dx \]

\[ C = 2x^2 + 3x + k \]

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

\[ \therefore \ C = 2x^2 + 3x + 10 \text{ in thousands of } \mathbf{N} \quad \text{(C)} \]

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

With \( C_o = \mathbf{C}3,250 \), then \( C_H = 10\% \text{ of 150} = \mathbf{C}15 \)
and \( D = 60,000 \)

\[ \therefore \ Q = \sqrt{26,000,000} = 5099.0195 \approx 5100 \quad \text{(C)} \]

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. \( i = -3 \)
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

<table>
<thead>
<tr>
<th>CLASS</th>
<th>FREQUENCY</th>
<th>CUM.FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>6-10</td>
<td>11</td>
<td>21</td>
</tr>
<tr>
<td>11-15</td>
<td>15</td>
<td>36</td>
</tr>
<tr>
<td>16-20</td>
<td>6</td>
<td>42</td>
</tr>
<tr>
<td>21-35</td>
<td>3</td>
<td>45</td>
</tr>
</tbody>
</table>

\[\text{Median} = L_{me} + \left(\frac{N}{2} - Cf_{\text{med}}\right) \cdot c\]

where

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

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

\[= 10.5 + 0.5\]

\[= 11\]

3.

<table>
<thead>
<tr>
<th>CLASS</th>
<th>FREQUENCY</th>
<th>CUM.FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 - 10</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>10-15</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>15-20</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>20-25</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

\[Q_3 = \frac{3}{4} \cdot N = \frac{3}{4} \cdot 10 = 7.5^{\text{th}} \text{ item}\]
From graph $Q_1 = 22$

7.  
\[ P(\text{Mr. A alive}) = 0.85 \]
\[ P(\text{Miss. B will not be alive}) = 0.4 \]

\[ \therefore \quad P(\text{Miss B will be alive}) = 1 - 0.4 = 0.6 \]

Hence, \( P(\text{Both Mr. A and Miss. B will be alive}) \) in 15 years
\[ = P(\text{Mr. A alive}) \times P(\text{Miss B alive}) \]
\[ = 0.85 \times 0.6 \]
\[ = 0.51 \]
10. \[6x + 15 \leq 3x + 6\]

\[6x - 3x \leq 6 - 15\]
\[3x \leq -9\]
\[x \leq -\frac{9}{3}\]
\[x \leq -3\]

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
\[-10,000,000 + \frac{120,000,000}{(1+i)^2} = 0\]
\[\frac{120,000,000}{10,000,000} = 12\]
\[\therefore (1 + i)^2 = \frac{120,000,000}{10,000,000} = 12\]
\[i = \sqrt{12} = 3.46\]
\[i = 3.46 - 1\]
\[i = 2.46\]

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

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

\[= \frac{x^3}{3} - \frac{5x^2}{2} + 6x \bigg|_0^{100}\]
\[= \frac{100^3}{3} - 2.5(100^2) + 6(100) - 0\]
\[= 308,933.33\]

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)

<table>
<thead>
<tr>
<th>Year</th>
<th>Qtr</th>
<th>Y</th>
<th>x</th>
<th>x²</th>
<th>xy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>I</td>
<td>18</td>
<td>1</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>25</td>
<td>2</td>
<td>4</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>40</td>
<td>3</td>
<td>9</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>20</td>
<td>4</td>
<td>16</td>
<td>80</td>
</tr>
<tr>
<td>2001</td>
<td>I</td>
<td>26</td>
<td>5</td>
<td>25</td>
<td>130</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>34</td>
<td>6</td>
<td>36</td>
<td>204</td>
</tr>
<tr>
<td></td>
<td>III</td>
<td>48</td>
<td>7</td>
<td>49</td>
<td>336</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>27</td>
<td>8</td>
<td>64</td>
<td>216</td>
</tr>
</tbody>
</table>

\[y = a + bx\]

\[\hat{b} = \frac{n \sum xy - (\sum x)(\sum y)}{n \sum x^2 - (\sum x)^2} = \frac{8(238) - 204(36)}{8(204) - 36^2} = \frac{664}{336} = 1.98\]

\[\hat{a} = \bar{y} - \hat{b}\bar{x} = \frac{238}{8} - 1.98 \left(\frac{36}{8}\right) = 29.75 - 8.91 = 20.84\]

Therefore, trend line is \[y = 20.84 + 1.98x\]

<table>
<thead>
<tr>
<th>Year</th>
<th>X</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>9</td>
<td>38.66</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>40.64</td>
</tr>
<tr>
<td>III</td>
<td>11</td>
<td>42.62</td>
</tr>
<tr>
<td>IV</td>
<td>12</td>
<td>44.60</td>
</tr>
</tbody>
</table>
ALITER

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

\[
y = a + bx
\]

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

\[
b = \frac{8(238) - 28(28)}{8(140) - 28^2} = \frac{7328 - 664}{1120 - 784} = \frac{664}{336} = 1.98
\]

\[
\hat{b} = 1.98
\]

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

\[
\hat{a} = 29.75 - 6.93 = 22.82
\]

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.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>( P_o )</th>
<th>( P_n )</th>
<th>( P_o / P_n \times )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar</td>
<td>12</td>
<td>14</td>
<td>116.67</td>
</tr>
<tr>
<td>Milo</td>
<td>15</td>
<td>18</td>
<td>120.00</td>
</tr>
<tr>
<td>Milk</td>
<td>11</td>
<td>20</td>
<td>181.82</td>
</tr>
<tr>
<td>Butter</td>
<td>17</td>
<td>25</td>
<td>147.06</td>
</tr>
</tbody>
</table>
c.

i. SARPI for 2016 = \[ \frac{\sum \left( \frac{P_n}{P_o} \times 100 \right)}{N} \]
   where \( N = 5 \) is the number of commodities
   \[ \therefore \text{SARPI}_{2016} = \frac{686.6}{5} \]
   \[ = 137.32\% \]

ii. SAPI\textsubscript{2016} = \[ \frac{\sum P_n \times 100}{\sum \frac{P_n}{P_o} \times 100} \]
   \[ = \frac{100}{\frac{74}{100}} \]
   \[ = 135.14\% \]

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)

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Bachelor's Degree</th>
<th>Higher Diploma</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>15</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>25 to 25</td>
<td>25</td>
<td>35</td>
<td>60</td>
</tr>
<tr>
<td>over 35</td>
<td>10</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>

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. \( P(B/D) = \frac{P(B \cap D)}{P(D)} = \frac{5/100}{15/100} = \frac{5}{15} = \frac{1}{3} = 0.33 \)

ii. \( P(C/A) = \frac{P(C \cap A)}{P(A)} = \frac{15/100}{50/100} = \frac{0.15}{0.5} = 0.3 \)

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

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

\( q_1 = 1 - p_1 = 1 - 0.0625 = 0.9375 \)

\( P = \) Population proportion

\( H_0 : P = p_1 \)

Versus

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

Test – Statistic is given by

\[
z = \frac{p_1 - \mu}{\sqrt{\frac{\mu(1-\mu)}{n}}} = \frac{0.0625 - 0.0625}{\sqrt{\frac{0.0625 \times 0.9375}{400}}} = \frac{0.0625 - 0.0625}{\sqrt{0.000146}} = \frac{0.012}{0.012} = 5.21
\]

\( z_{cal} = 5.21 \) 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 $\alpha = 0.05$ 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. 

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

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
.: 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

$$\frac{dc}{dx} = 8 - \frac{640}{x^2}$$

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

$$8x^2 = 640$$

$$x^2 = 80$$

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

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

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 formula for EOQ with stock-out is given as

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

With \( c = 50 \), \( d = 12,000 \times 12 = 144,000 \) (per annum), \( h = 5 \), \( c_s = 1.5 \)

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

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

\[
Q = (1,697.056)(2.082)
\]

\[
Q = 3,533.27
\]

(b) For \( 2x_1 + 3x_2 \leq 60 \)

\[
\Rightarrow 2x_1 + 3x_2 = 60
\]

When \( x_1 = 0 \), \( x_2 = 20 \) \( \Rightarrow \) (0, 20)

When \( x_2 = 0 \), \( x_1 = 30 \) \( \Rightarrow \) (30, 0)

For \( 4x_1 + 3x_2 \leq 96 \)

\[
\Rightarrow 4x_1 + 3x_2 = 96
\]

When \( x_1 = 0 \), \( x_2 = 32 \) \( \Rightarrow \) (0, 32)

When \( x_2 = 0 \), \( x_1 = 24 \) \( \Rightarrow \) (24, 0)
\[ z = 40x_1 + 35x_2 \]

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.

\[
\begin{array}{ccc}
\text{WORKER} & \text{JOB} \\
1 & 2 & 3 \\
1 & 105 & 85 & 65 \\
2 & 65 & 75 & 95 \\
3 & 95 & 125 & 105 \\
\end{array}
\]

**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

\[
\begin{array}{ccc}
\text{WORKER} & \text{JOB} \\
1 & 2 & 3 \\
1 & 40 & 20 & 0 \\
2 & 0 & 10 & 30 \\
3 & 0 & 30 & 10 \\
\end{array}
\]

**Column Iteration:** Subtract the lower entry from all entries in each column

\[
\begin{array}{ccc}
\text{WORKER} & \text{JOB} \\
1 & 2 & 3 \\
1 & 40 & 10 & 0 \\
\end{array}
\]
It is optimal since the number of covered lines is equal to the number of rows or columns.

\[ \therefore \text{ Worker 1 } \rightarrow \text{ Job 3 } \]
\[ \text{ Worker 2 } \rightarrow \text{ Job 2 } \]
\[ \text{ Worker 3 } \rightarrow \text{ Job 1 } \]

b.

<table>
<thead>
<tr>
<th>Sales</th>
<th>Probability</th>
<th>Probability allocated</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>30</td>
<td>0.1</td>
<td>0.4</td>
</tr>
<tr>
<td>40</td>
<td>0.4</td>
<td>0.8</td>
</tr>
<tr>
<td>50</td>
<td>0.1</td>
<td>0.9</td>
</tr>
<tr>
<td>60</td>
<td>0.1</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Simulates for Five days is as follows:

<table>
<thead>
<tr>
<th>Days</th>
<th>R - N</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>07</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>90</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>35</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>65</td>
<td>40</td>
</tr>
<tr>
<td>5</td>
<td>55</td>
<td>40</td>
</tr>
</tbody>
</table>

\[ \therefore \text{ Total sales } = 190 \]
\[ \therefore \text{ Average daily sales } = \frac{190}{5} = 38 \]

**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.
SOLUTION 6

(a) 
A = Expected annual quantity = 10,000 units  
C_o = ordering cost = N200 per order  
∴ 
Holding Cost = C_h = \frac{42}{100} \times 200 = N84

(i) ∴ EOQ = \frac{2AC_o}{C_h}
= \frac{2 \times 10,000 \times 200}{84}
= \sqrt{47,619}
= 218.22 \approx 219

(ii) 
No of orders per annum 
N = \frac{\text{Expected annual sales}}{\text{Quantity}}
= \frac{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^2 = 0
220 - 34x - 2x^2 = 0
110 - 17x - x^2 = 0
x^2 + 17x - 110 = 0
x = \frac{-17 \pm \sqrt{17^2 + 4(1)(110)}}{2(1)}
\therefore x = \frac{-17 \pm \sqrt{289 + 440}}{2}
\therefore x = \frac{-17 \pm 27}{2}

\[ x = \frac{-17 + 27}{2} \quad \text{or} \quad x = \frac{-17 - 27}{2} \]

\[ x = 5 \quad \text{or} \quad -22 \]

\[ \therefore x = 5 \quad \text{since } x \text{ cannot be negative. Hence, the equilibrium quantity is } x = 5. \]

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

\[
S(5) = 200 - 10(5) - 2(5^2) \\
= 200 - 50 - 50 \\
= 100
\]

Alternatively,

\[
\begin{align*}
\text{At equilibrium } S(x) &= D(x) \\
200 - 10x - 2x^2 &= 24x - 20 \\
200 + 20 - 10x &= 24x - 2x^2 = 0 \\
220 - 34x - 2x^2 &= 0 \\
110 - 17x - x^2 &= 0 \\
x^2 + 17x - 110 &= 0
\end{align*}
\]

Using factorization method,

\[
(x - 5)(x + 22) = 0 \\
(x - 5) = 0 \quad \text{or} \quad (x + 22) = 0 \\
x = 5 \quad \text{or} \quad x = -22
\]

\[ \therefore x = 5 \quad \text{since } x \text{ cannot be negative. Hence, the equilibrium quantity is } x = 5. \]

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

\[
S(5) = 200 - 10(5) - 2(5^2) \\
= 200 - 50 - 50 \\
= 100
\]

**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

(i) For either correct $\Sigma y = 238$ or $\Sigma x = 36$ (starting x values from 1)
   - For correct $\Sigma x^2 = 204$  \[\frac{1}{2}\]
   - For correct $\Sigma xy = 1154$  \[\frac{1}{2}\]
   - For correct substitution into $\hat{b}$ equation  \[\frac{1}{2}\]
   - For correct value of $\hat{b}$ i.e 1.98  \[\frac{1}{2}\]
   - For correct substitution into $\hat{a}$ equation  \[\frac{1}{2}\]
   - For correct value of $\hat{a}$ i.e 22.82  \[\frac{1}{2}\]
   - For correct trend line  \[\frac{1}{2}\]
   - For correct 2002 Q1 estimate i.e 38.66  \[\frac{1}{2}\]
   - For correct 2002 Q2 estimate i.e 40.64  \[\frac{1}{2}\]
   - For correct 2002 Q3 estimate i.e 42.64  \[\frac{1}{2}\]
   - For correct 2002 Q4 estimate i.e 44.60  \[\frac{1}{2}\]

ALITER

- For either correct $\Sigma y = 238$ or $\Sigma x = 28$ (starting x values from 0)
  - For correct $\Sigma x^2 = 140$  \[\frac{1}{2}\]
  - For correct $\Sigma xy = 1154$  \[\frac{1}{2}\]
  - For correct substitution into $\hat{b}$ formular  \[\frac{1}{2}\]
  - For correct value of $\hat{b}$ i.e 1.98  \[\frac{1}{2}\]
  - For correct substitution into $\hat{a}$ equation  \[\frac{1}{2}\]
  - For correct value of $\hat{a}$ i.e 22.82  \[\frac{1}{2}\]
  - For correct trend line  \[\frac{1}{2}\]
  - For correct 2002 Q1 estimate i.e 38.66  \[\frac{1}{2}\]
  - For correct 2002 Q2 estimate i.e 40.64  \[\frac{1}{2}\]
  - For correct 2002 Q3 estimate i.e 42.64  \[\frac{1}{2}\]
  - For correct 2002 Q4 estimate i.e 44.60  \[\frac{1}{2}\]
  - For correct $\left(\frac{p_0 \times 100}{p_o}\right)$ columns (\[\frac{1}{2}\] for each correct value i.e 116.67,120,181.82,147.06, 121.05)  \[2\frac{1}{2}\]
For correct \[ \sum \left( \frac{p_n}{P_0} \times 100 \right) = 686.6 \] \[ \frac{1}{2} \]

For correct substitution into SARPI formular \[ \frac{1}{2} \]
For correct SARPI for 2016 i.e 137.32% \((-\frac{1}{2})\) for no % sign \[ \frac{1}{2} \]

ii. For correct \[ \sum p_n = 74 \] \[ \frac{1}{2} \]
For correct \[ \sum p_n = 100 \] \[ \frac{1}{2} \]
For correct substitution into SAPI formular \[ \frac{1}{2} \]
For correct SAPI for 2016 i.e 135.14% \((-\frac{1}{2})\) for no % sign \[ \frac{1}{2} \]

6\[\frac{1}{2}\]

QUESTION 2

MARKING GUIDE

(i) For correct interpretation of \[ P(B/D) = \frac{P(BnD)}{P(D)} \] \[ \frac{1}{2} \]

For \[ P(BnD) = \frac{5}{100} \] \[ \frac{1}{2} \]
For \[ P(D) = \frac{15}{100} \] \[ \frac{1}{2} \]
For correct answer i.e \(\frac{1}{3}\) or 0.33 \[ 1 \] \[ 2\frac{1}{2} \]

(ii) For correct interpretation of \[ P(C/A) = \frac{P(C \cap A)}{P(A)} \] \[ \frac{1}{2} \]

For \[ P(C \cap A) = \frac{15}{100} \] \[ \frac{1}{2} \]
For \[ P(A) = \frac{50}{100} \] \[ \frac{1}{2} \]
For correct answer i.e 0.3 \[ 1 \] \[ 2\frac{1}{2} \]

(iii) For \[ P(A) = \frac{50}{100} \] \[ \frac{1}{2} \]
For correct answer i.e \(\frac{1}{2}\) or 0.5 \[ \frac{1}{2} \]

2b For correct \[ p_1 = \frac{25}{400} = 0.0625 \] \[ \frac{1}{2} \]
For correct \[ q_1 = 0.9375 \] \[ \frac{1}{2} \]
For correct \[ H_0 : P = p_1 \] \[ 1 \]

For correct \[ H_1 : P \neq p_1 \]
For correct substitution into Z formula \[ \frac{1}{2} \]
For correct simplification i.e \[ \sqrt{0.000146} = 0.012 \] \[ \frac{1}{2} \]
For correct \[ Z_{cal} = 5.21 \] \[ \frac{1}{2} \]
For correct \[ Z_{tab} = 1.96 \] \[ \frac{1}{2} \]

ATSWA PART II SEPTEMBER 2018 DIET
For correct decision \( \frac{1}{2} \)
For correct conclusion \( \frac{1}{2} \)

**SOLUTION 3**

**MARKING GUIDE**

<table>
<thead>
<tr>
<th>MARKS</th>
<th>MARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

**a.**
For correct 3-point moving total column \( \frac{-1}{2} \) each error
For correct 3-point moving average column \( \frac{-1}{2} \) each error
For correct seasonal variation for Wednesday week 2 i.e 0.99
For correct seasonal variation for Thursday week 2 i.e 1.0

**b.**
For storage cost for \( x \) lawnmower i.e 8x
For number of orders required per year i.e \( \frac{40}{x} \)
For correct cost \( C = \frac{640}{x} \)
For correct cost function. \( C = 8x + \frac{640}{x} \)
For \( \frac{dc}{dx} = 0 \)
For correct \( \frac{dc}{dx} = 8 - \frac{640}{x^2} \)
For equating \( 8 - \frac{640}{x^2} = 0 \)
For correct values of \( x = \pm 8.9 \)
For correct approximation \( x = \pm 9 \)
For correct \( \frac{d^2c}{dx^2} = \frac{2(640)}{x^2} \)
For \( \frac{d^2c}{dx^2} = 0 \)
For final conclusion that \( x = 9 \) orders gives the minimum Cost

**SOLUTION 4**

**MARKING GUIDE**

<table>
<thead>
<tr>
<th>MARKS</th>
<th>MARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/2</td>
</tr>
</tbody>
</table>

**a.**
For correct value of \( d \) i.e 144,000
For correct substitution into the first bracket of \( Q \) formular
For correct substitution into the second bracket of \( Q \)
formular
For correct value of expression in the first bracket i.e \( \sqrt{28,800,000} \)
For correct value of expression in the second bracket i.e \( \sqrt{4.33} \)
For getting 1697.056
For getting 2.082
For correct final answer i.e 3533.27

b.
For plotting line \( 2x_1 + 3x_2 = 60 \) using two points (0,20) and (30,0)
For plotting line \( 4x_1 + 3x_2 = 96 \), using two points (0,32) and (24,0)
For vertex A(0,20) of feasible region
For \( z \) value for vertex A i.e \( z = 700 \)
For vertex B (18,8) of feasible region
For \( z \)-value for vertex B i.e \( z = 1000 \)
For vertex C (24,0) of feasible region
For \( z \)-value for vertex B i.e \( z = 960 \)
For optimal solution of \( x_1 = 18 \)
For optimal solution of \( x_2 = 8 \)
For optimal solution of \( z = 1,000 \)

Total  \( 6^{1}/2 \)  

SOLUTION 5
MARKING GUIDE
a. For the 3 correct rows after row iteration (\( {1}/2 \) mark for each row)
For the 3 correct columns after column iteration (\( {1}/2 \) mark for each column)
For the 3 lines to cover all zeros (\( {1}/2 \) mark for each line)
For the 3 correct assignment of 3 jobs to the 3 workers (\( {1}/2 \) mark for each assignment)

Total  \( 6\)
b. For correct cumulative probability column 1
   For correct random number allocation column 1
   For correct simulated sales for five days (\(\frac{1}{2}\)mark for each daily simulated sale) 2\(\frac{1}{2}\)

   For correct total sales i.e 190 1
   For average daily sales expression i.e \(\frac{190}{5}\) 1
   For correct average daily sales i.e 38 1

\[SOLUTION\ 6\]
For correct expression for holding cost i.e \(\frac{42}{100} \times 200\) 1

For correct value of holding cost i.e N84 1
For correct substitution into the EOQ formular 1
For correct simplification to get \(\sqrt{47,619}\) 1
For getting 218.22 1
For correct answer i.e 219 1

\(\frac{1}{2}\)

(ii)
For correct number of order per annum formular 1
For correct substitution into the number of order per annum formular 1
For correct answer i.e 46 orders 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.
\[ 200 - 10x - 2x^2 = 24x - 20 \]
For correct quadratic equation i.e. \( 110 - 17x - x^2 = 0 \) or \( x^2 + 17x - 110 = 0 \)
For correct substitution of \( a, b \) and \( c \) values into quadratic equation formular
For getting \( x = \frac{-17 \pm 27}{2} \)
For getting \( x = 5 \)
For getting \( x = -22 \)
For concluding that \( x = 5 \) is equilibrium quantity
For correct substitution of \( x = 5 \) into either demand function or supply function
For correct answer i.e. 100

ALITER 6 b
For equating \( S(x) = D(x) \)
For equating the given supply function \( S(x) \) to demand function \( D(x) \) i.e.
\[ 200 - 10x - 2x^2 = 24x - 20 \]
For correct quadratic equation i.e. \( 110 - 17x - x^2 = 0 \) or \( x^2 + 17x - 110 = 0 \)
For correct factorization into \( (x-5)(x+22) = 0 \)
For getting \( x = 5 \)
For getting \( x = -22 \)
For concluding that \( x = 5 \) is equilibrium quantity
For correct substitution of \( x = 5 \) into either demand function or supply function
For correct answer i.e. 100

\[ 12 \frac{1}{7} \]