

**ASSOCIATION OF ACCOUNTANCY BODIES IN WEST AFRICA  
ACCOUNTING TECHNICIANS SCHEME, WEST AFRICA  
PART III EXAMINATIONS – MARCH 2022**

**PRINCIPLES OF AUDITING**

**Time Allowed: 3 hours**

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

**ATTEMPT ALL QUESTIONS**

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

1. Which of the following is **NOT** a directorate under the office of the Auditor-General of your country?
  - A. Treasury Accounts
  - B. Project Audit
  - C. Presidency Audit
  - D. State Accounts
  - E. Pensions
  
2. Which of the following is an ethical principle governing the auditor's professional responsibilities?
  - A. Creativity
  - B. Objectivity
  - C. Suitability
  - D. Marketability
  - E. Profitability
  
3. Content of audit working papers may be affected by the following matters, **EXCEPT**
  - A. Nature of the engagement
  - B. Auditor's methodology used
  - C. Auditor's reporting format
  - D. Analyses of transactions
  - E. Complexity of client's business

4. The main purpose of letter of engagement is to
- A. Prepare the financial statements
  - B. Define clearly the extent of directors' and auditors' responsibilities
  - C. Appoint the new auditor
  - D. Test the system of internal control
  - E. Advise the client
5. Unintentional mistake in the financial statement is known as
- A. Fraud
  - B. Error
  - C. Teeming and lading
  - D. Audit risk
  - E. Risk assessment
6. Which of the following is **NOT** a symptom of going concern problems?
- A. Occurrence of substantial losses
  - B. Heavy dependence on overseas holding company
  - C. Deferment of normal purchases
  - D. Increase in number of staff
  - E. Increased dependence on short term finance
7. The ..... Act regulates the operations of banks and other financial institutions in the country.
- A. Chartered Institute of Bankers
  - B. Security Exchange Commission
  - C. National Insurance Commission
  - D. Banks and Other Financial Institutions
  - E. Central Bank of your country
8. Auditors can obtain knowledge of client's industry and entity from all, **EXCEPT**
- A. Previous experience with the entity and its industry
  - B. Discussion with predecessor auditor
  - C. Publications related to the industry
  - D. Companies and Allied Matters Act/Company Act
  - E. Discussions with knowledgeable people about the industry
9. The processes outlined in an audit programme are designed mainly to
- A. Detect errors or irregularities
  - B. Obtain audit evidence

- C. Ensure early completion of audit
  - D. Protect the auditor against litigation
  - E. Highlight movement in the accounts between years
10. Assertions about account balances at the period end used by the auditors in gathering evidence include all, **EXCEPT** which of the following
- A. Existence
  - B. Rights and obligations
  - C. Reliability
  - D. Completeness
  - E. Valuation and allocation
11. The process of obtaining and evaluating audit evidence through representations of information or an existing condition directly from a third party is known as
- A. Internal confirmation
  - B. External confirmation
  - C. Authority confirmation
  - D. Periodic confirmation
  - E. Subtle confirmation
12. The process of dividing a population into sub population is known as
- A. Subgroup
  - B. Stratification
  - C. Unit
  - D. Risk
  - E. Grouping
13. Which of the following procedures is usually adopted by auditors to verify assets and liabilities?
- A. Observation
  - B. Inspection
  - C. Computation
  - D. Balancing items
  - E. Analytical review
14. Example of Internal control is
- A. Management information
  - B. Supervision

- C. Transactionary motive
  - D. Narratives
  - E. Flowcharts
15. Factors that determine success of Internal control system include all BUT one of the following
- A. Nature, size and volume of transactions
  - B. Management attitude to control
  - C. Geographical distribution of the enterprise
  - D. Cost and benefit of setting up controls
  - E. System analysis
16. Appraisal activity established by an entity and carried out within the entity is referred to as
- A. Internal control
  - B. Internal auditing
  - C. Supervision and monitoring
  - D. Authorisation and approval
  - E. Physical control
17. What technical term describes the type of assessment carried out by an auditor on the work of another auditor?
- A. Quality review
  - B. Peer review
  - C. Self-assessment
  - D. Superior review
  - E. Analytical review
18. Which of the following is used to determine whether appropriate control system exists to prevent specific errors or omissions?
- A. Internal Control Questionnaire
  - B. Internal Control Evaluation Questionnaire
  - C. Internal Control Sampling
  - D. Internal Auditing
  - E. Internal Control Assessment

19. The power to appoint the Auditor-General of your country is vested in the
- A. Senate President
  - B. National Assembly
  - C. President
  - D. Minister of Finance
  - E. Public Accounts Committee
20. In most jurisdictions, Auditors of Public Interest Entities will be appointed by
- A. Board of Directors
  - B. Audit Committee
  - C. Government
  - D. Shareholders
  - E. Security and Exchange Commission
21. The Auditor-General submits his reports to the
- A. House of Senate
  - B. President
  - C. National Assembly
  - D. Parliament
  - E. Public Accounts Committee
22. The use of computers to perform some techniques in the conduct of audit work by the auditor is known as
- A. Computer Aided Accounting Software
  - B. Computer Assisted Aided Techniques
  - C. Computer Software Analysis
  - D. Computer Assisted Technologies
  - E. Computer Accounting Software
23. The type of facility which involves the creation of a fictitious entity within the framework of the regular application is called
- A. Simulation facility
  - B. Integrated test facility
  - C. Around the computer facility
  - D. Program logic and coding facility
  - E. Application control facility

24. Which of the following is an example of matters that do not affect auditor's opinion
- A. Inherent risk
  - B. Detection risk
  - C. Qualified report
  - D. Emphasis of matter
  - E. Adverse opinion
25. The Auditor's report includes the following basic elements, **EXCEPT**
- A. Title
  - B. Addressee
  - C. Scope Paragraph
  - D. Director's signature
  - E. Auditor's signature
26. Adjusting events include all, **EXCEPT**
- A. Property
  - B. Noncurrent assets
  - C. Discovery of fraud
  - D. Mergers and acquisitions
  - E. Debtors
27. **ONE** of the objectives of carrying out due diligence is to
- A. Ascertain the economic worth of an entity
  - B. Determine the level of preparedness of an entity
  - C. Assess the management of an entity
  - D. Know the directors of an entity
  - E. Familiarise with the members or shareholders of an entity
28. Which of the following is least likely to be required in an audit?
- A. Test appropriateness of journal entries and adjustment
  - B. Review accounting estimates for biases
  - C. Evaluate the business rationale for significant, unusual transactions
  - D. Make a legal determination of whether fraud has occurred
  - E. Test the adequacy of the internal control system

29. The meeting held in the auditor's office to share and discuss information on the success or failure of a just concluded audit is called
- A. Completion/Exit meeting
  - B. Debriefing
  - C. Partner's meeting
  - D. Report writing meeting
  - E. Management meeting
30. The process of auditing and presenting reports in a manner admissible for evidence in the court of law is called
- A. Investigation auditing
  - B. Peer review
  - C. Forensic auditing
  - D. Due diligence
  - E. Internal Audit

**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 external audit function of the examination of financial statements of the government and all its allied activities is performed by .....
2. The observations and points raised by the auditor in a particular transaction requiring further clarifications are known as .....
3. The type of audit that focuses on a particular activity within the establishment is known as .....
4. Procedure deemed necessary in the circumstances to achieve the objective of an audit is referred to as .....
5. The type of service whereby an auditor assists company to realise the best returns on their assets when the company is winding up is known as .....
6. An intentional misrepresentation affecting the financial statements by one or more individuals among management, employees or third party is referred to as .....

7. Which institution is charged with the responsibility of administering Banks and Other Financial Institutions Act (BOFIA) with the aims of ensuring high standards of banking practice and sustaining financial stability?
8. The technical term used for the process that sets the scope, timing and direction of the audit and guides development of the more detailed audit plan is .....
9. The type of control that ensures that one person is not responsible for both recording and processing of a complete transaction is referred to as .....
10. Two categories of working paper file of an auditor are ..... and.....
11. The procedure whereby trade debtors are contacted directly to confirm their balances is referred to as .....
12. The method where words are used to describe the systems of Internal control is known as .....
13. The processes, the auditor is expected to undertake to bring an audit to end in an orderly and efficient manner is known as .....
14. Subsequent events can be classified into either ..... or.....
15. Test which seeks to provide audit evidence that internal control procedures are being applied as prescribed is called .....
16. A company can remove an auditor before the expiration of his term of office through the means of .....
17. If the disclosure or non-disclosure of an item will affect the decision of users of financial statements, it is considered to be .....
18. The program which the auditor writes with the intention to perform the same operation as a clients' program is known as.....
19. That audit which determines whether an entity is utilising its resources in the most economical and efficient manner is termed .....
20. In order to guard against suffering serious losses as a result of negligence in the work they perform, auditors may set up ..... mechanism for reviewing the processes adopted by each other's audit firm's systems and procedures.



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

- a. State **FIVE** sampling selection methods and explain each of them **(5 Marks)**
- b. Enumerate **FOUR** advantages each of statistical and judgmental sampling **(4 Marks)**
- c. Briefly explain the following terms:
- i. Anomalous error **(1 Mark)**
  - ii. Sampling risk **(1 Mark)**
  - iii. Analytical procedures **(1 Mark)**
  - iv. Tolerable error **(1/2 Mark)**
- (Total 12½ Marks)**

**QUESTION 2**

- a. State **FIVE** scopes and components of Internal Control System **(5 Marks)**
- b. Explain the **FIVE** components stated in (a) above **(7½ marks)**
- (Total 12½ Marks)**

**QUESTION 3**

- a. Itemize **FOUR** functions of the office of the Auditor-General of your country **(4 Marks)**
- b. Briefly explain the **FOUR** functions stated in (a) above **(6 Marks)**
- c. List **FIVE** functions of the Bureau of Public Procurement(BPP)/Public Procurement Committee (PPC) **(2½ Marks)**
- (Total 12½ Marks)**

#### QUESTION 4

Explain briefly the following terms

- a. Forensic audit (2½ Marks)
  - b. Issues documentation (2½ Marks)
  - c. Debriefing (2½ Marks)
  - d. Qualified opinion (2½ Marks)
  - e. Audit completion checklist (2½ Marks)
- (Total 12½ Marks)**

#### QUESTION 5

- a. State and explain the roles of Public Accounts Committee in the audit process (5 Marks)
  - b. Enumerate **FIVE** problems of Public Accounts Committee (2½ Marks)
  - c. State and explain **FIVE** types of audit carried out by the Internal Auditor in the Public Sector (5 Marks)
- (Total 12½ Marks)**

#### QUESTION 6

- a. Briefly explain “Database Management Systems” (DBMS) (2½ Marks)
  - b. State and explain **THREE** controls that might be incorporated into Database Management Systems. (6 Marks)
  - c. State and explain **TWO** control problems associated with small computer systems. (4 Marks)
- (Total 12½ Marks)**

## **SOLUTION TO QUESTIONS**

### **MULTIPLE-CHOICE QUESTIONS**

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

### **EXAMINER'S COMMENTS**

The thirty questions covered the entire syllabus. Candidate's performance was encouraging as many scored more than 20 marks.

## **SHORT-ANSWER QUESTIONS**

1. The Auditor General
2. Audit Query
3. Operational audit
4. Audit programme
5. Liquidation
6. Fraud
7. Central Bank of Nigeria
8. Overall audit strategy
9. Segregation of duties
10. Permanent audit file and Current audit file
11. Debtors circularization
12. Narrative notes
13. Audit completion procedures
14. Adjusting events or Non-Adjusting events
15. Compliance test
16. Ordinary resolution
17. Material
18. Parallel simulation
19. Value-for-money audit
20. Peer review

## SECTION B

### QUESTION 1

(a) Five sampling selection methods are:

- i Random Sampling
- ii Systematic Sampling
- iii Haphazard Sampling
- iv Stratified Sampling
- v Cluster Sampling

- i. **Random Sampling:** This ensures that all items in the population have an equal chance of selection, for example by use of random number tables.
- ii. **Systematic Sampling:** This involves selecting items using a constant interval between selections, the first interval having a random start. When using systematic selection, the auditors need to ensure that sampling interval corresponds with a particular pattern in the population.
- iii. **Haphazard Sampling:** This may be an acceptable alternative to random selection provided the auditors are satisfied that the sample is not unrepresentative of the entire population. When auditors use this method, care needs to be taken to guard against making a selection which is biased, for example, towards items which are easily located, as they may not be representatives.
- iv. **Stratified Sampling:** This involves the division of the population into layers or strata, each stratum being subjected to a separate test which could be conducted by random or interval sampling methods.

This technique is appropriate where the population consists of a wide range of values among the items under examination. Under such circumstances, the entire population would be split into a number of layers, each covering a specific range of values or prices, and each layer would then be subjected to a separate test.

The relative materiality of each stratum would determine the confidence level and precision range required.

- v. **Cluster Sampling:** This is suitable when data to be examined are stored in such a manner that the selection of group, or cluster, would be appropriate test. In these circumstances, each cluster could be allocated

a number, the particular cluster to be tested being selected by the use of random table.

**(b) Advantages each of Statistical and Judgmental Sampling**

**Advantages of Statistical Sampling are:**

- i. It leads to unbiased result.
- ii. The result obtained can be independently verified.
- iii. It makes use of all the variables in the population.
- iv. Sample size is objectively determined.

**Advantages of Judgmental Sampling are:**

- i. It allows the auditor to make use of his experience, knowledge and judgment to determine the sample size.
- ii. It does not involve any difficult mathematical formulae.
- iii. No condition must be present before this method can be used.
- iv. It can be used to achieve more than one audit objective.

**(c) Explanation of terms:**

- i. **Anomalous error:** means an error that arises from an isolated event that has not recurred other than on specifically identifiable occasions and is therefore not representative of errors in the population.
- ii. **Sampling risk:** arises from the possibility that the auditor's conclusion, based on a sample may be different from the conclusion reached if the entire population were subjected to the same procedures.
- iii. **Analytical procedures:** are evaluations of financial information made by a study of plausible relationships among both financial and non-financial data. Analytical procedures also encompass the investigation of identified fluctuations and relationships that are inconsistent with other relevant information or deviate significantly from predicted amounts.
- iv. **Tolerable Error:** is the maximum error in a population that the auditor is willing to accept.

## QUESTION 2

**(a) The scope and components of Internal Control System are:**

- i. The Control Environment
- ii. Risk Assessment
- iii. Control Procedures
- iv. Information and Communication Systems
- v. Monitoring

**(b) Explanations**

**i. The Control Environment**

This is the foundation of all other components of internal control. This refers to all the overall attitude, awareness and actions of directors and management regarding the internal control systems and its importance in the entity, i.e. a strong control environment can complement specific control procedures, but does not in itself ensure the effectiveness of the internal control system.

**ii. Risk Assessment**

Managers need to assess business risk as part of designing and operating the internal control system to minimize errors and irregularities. Business risk represents factors, events and condition that can prevent an organization from achieving its business objectives. If management effectively assesses and respond to risk, the auditor will need to accumulate less evidence than when management fails to, because control risk is lower. Conditions that may increase business risk include new personnel, new technology, corporate restructuring and foreign operations.

**iii. Control procedures**

Control procedures sometimes called control activities represent policies and procedures and specific actions taken by a client's management and employees that help ensure management's directives are carried out. Control procedures involve establishing a policy of control and defining procedures to effect the policy. All control procedures should be analyzed for risk.

**iv. Information and Communication system**

The information and communication component of internal control is a necessary prerequisite for achieving management objective. Communication includes report production and distribution. Every organization is expected to capture pertinent information relating to both internal and external events and both financial and non-financial activities of the organization. For an audit, the auditor should obtain an understanding of the information system and the related business process relevant to financial reporting.

v. **Monitoring**

Internal controls need to be monitored. Management should assess the quality of control performance on a timely basis. Monitoring involves the process of assessing the design of controls and their operation on a timely basis and taking necessary corrective actions. Examples of monitoring controls include: Company of Operations Manager's Report and Published Financial Statement, analysis of customer's complaints, periodic comparison of recorded amounts to actual assets and examining internal auditor's reports on control performance.

**QUESTION 3**

**(a) Functions of the office of the Auditor-General are:**

- i. Financial and Regularity audit
- ii. Economy and efficiency audit
- iii. Effectiveness audit
- iv. Value for money audit

**(b) Brief discussions of the functions**

**i. Financial and Regularity Audit**

A financial audit is undertaken to ensure that:

- Systems of accounting and financial control are efficient and operating Properly, and

- Financial transactions have been correctly controlled, authorised and accounted for while a regularity audit is the type of audit which verifies that expenditure has been incurred on approved services and in accordance with statutory and other regulations and authorities governing them. Regularity audit is sometimes called Compliance Audit.

- ii. Economy and efficiency audit:** This is a measurement of how economic resources are efficiently employed. It is also to highlight areas of wastes, extravagant or unrewarding expenditure. It looks into failures to maximize receipts, financial arrangements that are detrimental to the treasury and weaknesses leading to them.

**iii. Effectiveness audit**

This is an examination to assess whether programmes or projects undertaken to meet established policy goals or objectives have met their respective aims. It is also called Programme Results Audit. It aims at focused or comprehensive audit in government.



iv. **Value-for-Money Audit**

This is variously called Performance Audit, or Economic and Efficiency audit. The essence is to determine whether an entity is acquiring, managing or utilizing its resources in the most economical and efficient manner. It traces the causes of any inefficiencies or uneconomical practice. Value-for-money Audit is defined as an objective professional and systematic assessment of:

- nature and function of an authority's managerial systems and procedures
- economy and efficiency with which its services are processed and
- effectiveness of its performance in achieving objectives

Value for money audit has 5 phases which are the proposal phase, the scooping phase, the planning phase, the implementation phase and the evaluation phase.

**(c) Functions of the Bureau of Public Procurement**

- i. Formulate the general policies and guidelines relating to public sector procurement for the approval of the Council.
- ii. Publicize and explain the provisions of this Act
- iii. Subject to thresholds as may be set by the Council, certify Federal Procurement prior to the award of contract
- iv. Supervise the implementation of established procurement policies
- v. Monitor the prices of tendered items and keep a national data base of standard prices
- vi. Publish the details of major contracts in the procurement journal
- vii. Publish paper and electronic editions of the procurement journal and maintain an archival system for the procurement journal
- viii. Maintain a national database of the particulars and classification and categorization of federal contractors and service providers.
- ix. Collate and maintain in an archival system, all federal procurement plans and information
- x. Undertake procurement research and surveys
- xi. Organise training and development programme for procurement professionals
- xii. Periodically review the socio-economic effect of the policies on procurement and advise the council accordingly.
- xiii. Prepare and update standard bidding and contract documents
- xiv. Prevent fraudulent and unfair procurement and where necessary apply administrative sanctions
- xv. Review the procurement and award of contract procedures of every entity to which this Act applies.
- xvi. Perform procurement audits and submit such reports to the National Assembly bi-annually.

- xvii. Introduce, develop, update and maintain related database and technology
- xviii. Establish a single internet portal that shall, subject to section 16(2) to this Act serve as a primary and definitive source of all information on government procurement containing all public sector procurement information at all times and
- xix. Co-ordinate relevant training programme to build institutional capacity.

#### **QUESTION 4**

(a) **Forensic Audit**

Forensic audit is the process of auditing and presenting reports in a manner that is admissible for evidence in the court of law. It often requires investigative skill and appropriate grounding in the law and presentation of evidence in the court by auditors.

(b) **Issues Documentation**

To assist the partner in the efficient review of the financial statements and clearance of the audit, it is helpful for the audit team to prepare Issues Documentation. All unresolved matters are brought together from the various sections and presented in this document to aid the partner's decisions on the final wording of the opinion. The engagement partner may evidence clearance of the opinion on the financial statements by signing off the issues documentation.

(c) **Debriefing**

This is a meeting held in the auditor's office, among the audit team, to share and discuss information on the success or failure of the audit just completed.

The objectives of debriefing at the end of the audit are:

- i. To ensure that all matters that may be used in the report to the board and to management are identified and included.
- ii. To assist in the assignment, training and development of the audit team.
- iii. To improve the efficiency and effectiveness of future audits.
- iv. To allow key players to obtain important information that will lead to improvement in future performance.

(d) **Qualified Opinion**

A qualified opinion should be expressed when the auditor concludes that an unqualified opinion cannot be expressed, but that the effect of any disagreement with management, or limitation on scope is not so material and pervasive as to require an adverse opinion or a disclaimer of opinion. A

qualified opinion should be expressed as being “except for” the effects of the matter to which the qualification relates.

(e) **Audit Completion Checklist**

This is a checklist prepared to help ensure that all relevant matters are attended to before the audit report is signed. It could be a manual or electronic record. The audit manager should go through the checklist and ensure that various aspects of the work have been completed before presenting the Issues Documentation (with the checklist) for final clearance.

## **QUESTION 5**

(a) **Roles of Public Account Committee in the audit process**

**i. Power to Conduct Investigation**

The committee has the vested power to direct or causes to be directed an investigation into:

- a) Any matter or thing with respect to which it has power to make laws and
- b) The conduct of affairs of any person, authority, ministry or government department charged, with the duty of or responsibility for:
  - Executing or administering laws enacted by the National Assembly and
  - Disbursing or administering moneys appropriated or to be appropriated by the National Assembly.

The committee also has the power to make laws with respect to any matter within its legislative competence and correct any defects in existing laws and to expose corruption, inefficiency or wastes in the execution and administration of laws within its legislative competence and in the disbursement or administration of funds appropriated by it.

**ii. Power as to Matters of Evidence**

The composition of PAC is geared towards functioning like a court or enquiry empowered to look into civil and criminal cases as regards allocation and disbursement and use of public funds by public officers who have been entrusted with the responsibility of judiciously using the funds, carrying out government programmes and recommending appropriate actions against officers found wanting in carrying out their duties.

Public Accounts Committee appointed in accordance with section 62 of the 1999 Constitution shall have power to:

- a) Produce all such evidence, written or oral, direct or circumstantial, as it may think necessary or desirable, and examine all persons as witnesses whose evidence may be material or relevant to the subject matter, and
- b) Require such evidence to be given on oath.

The purpose of the provision of the constitution and establishment of the PAC is to expose corruption, inefficiency or waste in the execution or disbursement of administration of funds appropriated by it.

The Public Accounts Committee is empowered to:

- i. Examine such audited accounts of the federation and of all offices and courts of the Federation and the Auditor-General report thereon as may be referred to it.
- ii. Examine the accounts and reports of ministries and Departments of the Government of the Federation; the Audited-Accounts of statutory corporations, boards and such other government bodies and the causes which led to, or might have led to, any excess over approved appropriations.
- iii. In the performance of its functions, the PAC is further empowered to procure all such evidence, oral or written and examine such persons as it may deem necessary or desirable and require any person to produce any books, documents or records, as it may deem necessary and desirable.

**(b) Problems of Public Account Committee are:**

- i. Political instability leading to continuous changes in the composition of the committee.
- ii. Financial statements to be examined are often in arrears.
- iii. Members are not knowledgeable in accounting and financial reporting.
- iv. Lack of co-operation and information from the expected facilitators and
- v. Resolutions are not always implemented amongst others.

**(c) Five types of Audit carried out by the Internal Auditor in the public sector**

- i. **Operational Audit:** This focuses on a particular activity within the establishment e.g. audit of agricultural and Rural Development in a local government.
- ii. **Functional Audit:** This focuses on a particular function e.g. audit of salary preparation.
- iii. **Organizational Audit:** This focuses on all activities with establishment globally viewed. It includes both operational and functional audit.
- iv. **Investigation:** This focuses on ad-hoc assignments and

- v. **Management Audit:** This focuses on advising on policies introduced from time to time by the establishment.

## QUESTION 6

(a) **Database Management Systems (DBMS)**

DBMS are normally designed for use in real-time environments. They enable elements of data to be accessed by different programs. This avoids the duplication of data which inevitably occurs in a traditional system.

(b) **Three Controls that might be incorporated into Database Management Systems (DBMS) are:**

- 1) Controls to Prevent Unauthorized Changes to Programs:  
These include:
  - i no access to live program files by any personnel except for the operations personnel at the central computer;
  - ii password protection of programs;
  - iii restricted access to the central computer and terminal;
  - iv maintenance of a console log and scrutiny by the data processing manager and by an independent party such as the internal auditors;
  - v periodic comparison of live production programs to control copies and supporting documentation.
- 2) Controls to Prevent or Detect Errors during Operation:  
These include:
  - i restrictions of access to terminals by use of password and restrictions of programs themselves to certain fields;
  - ii satisfactory application controls over input, processing and master files and their contents;
  - iii use of operations manuals and training of all users;
  - iv maintenance of logs showing unauthorised attempts to access and regular scrutiny by the data processing manager and internal auditors;
  - v physical protection of data files;
  - vi training in emergency procedures.
- 3) Controls to Ensure Integrity of the Database System:  
These include:
  - i restriction of access to the data dictionary. This contains standard descriptions, including definitions, characteristics and inter-relationship of data;
  - ii segregation of duties between the data processing manager, the database administration function and systems development personnel;

- iii liaison between the database administration function and systems development personnel to ensure integrity of systems specifications;
- iv preparation and update (as necessary) of user manuals in conjunction with the data dictionary.

(c) **Control Problems Associated With Small Computer Systems**

These include:

- 1) Lack of planning over the acquisition and use of PCs;
- 2) Lack of documentary evidence; and
- 3) Lack of security and confidentiality.

**Explanations:**

1) **Lack of Planning Over the Acquisition and Use of PCs**

When an organization sets out to acquire a computer system, a series of steps should be under taken before making the decision to purchase.

- **Authorization**

A feasibility study should be carried out, examining the requirements, the costs and the benefits, to ensure that the expense is justified. Suppliers should be invited to tender, and responses from the suppliers should be evaluated and compared. All interested parties within the organization should be identified and involved throughout the whole procedure. If possible, other users of the system should be contacted and asked for their opinion.

- **Suitability**

There is a risk that the client will not have the expertise to evaluate the relative merits of systems. This could give rise to compatibility and/or capacity problems thereby restricting future developments, unless in the last resort, the entire system is replaced. Many first time users tend to purchase standard software packages which create an even greater risk as regards suitability, for such systems may not fit precisely the company's trading methods. Moreover, the first time user is unlikely to have the expertise required to tailor such packages.

- **Support Facilities**

The support facilities offered by the supplier and/or software house should be ascertained and a maintenance contract entered. The client should ensure that:

- i. In the event of machine breakdown, prompt service and, if necessary, backup facilities are available;
- ii. any bugs in the programme can be sorted out;
- iii. minor modifications to the program can be carried out;

- iv. adequate systems documentation and operator manuals have been provided, such documentation falling into three generally accepted categories:
  - program documentation: which states in detail how each program within each part of the system operates, what files are being opened and accessed, and what functions are being performed;
  - operator instructions: which are designed to be “desk-top” instructions enabling the PC user to access and use the system as required;
  - user manual: which is the “layman’s guide” to the operation of the whole system and would usually include the operator instruction
- v. Operators have received adequate instruction.

- **Standards**

In a formal data processing environment there will normally be standards covering controls and accounting principles to which all procedures regarding hardware and software should conform.

Strict disciplines must be imposed to ensure that recognized systems development controls are applied and sufficient administration procedures are implemented.

## 2) **Lack of Documentary Evidence**

Many PCs operate in real time via VDUs, which allows users to have direct access to the computer thus enabling them to input data, update files and make one-off enquiries on data held on files. The necessity for edit programs and hard copy is avoided.

## 3) **Lack of Security and Confidentiality**

This includes:

- a. ***Lack of segregation of duties***

Poor segregation of duties all too easily occurs since frequently the same person prepares the data, feeds it into the computer, supervises the processing and acts as end user. This lack of division of duties enhanced opportunities for fraud, the user having access to assets and the recording and disposal of assets. The auditors may well have to perform extensive substantive verification work to compensate for this serious lack of control.

b. ***Lack of Control Over Users***

Because PCs do not require a protected environment the terminals are readily available to any user. In order to safeguard the records, control to prevent unauthorized users from using the computer are necessary (use of locks, passwords and so on).

c. ***Lack of Control Over Alterations to Programs***

When in the wrong hands, there is a danger that programs might be altered without detection or that program are written at the time data is being processed without adequate testing.

Stringent supervisory arrangements are required to prevent unauthorized personnel from having access to the programs together with programmed controls preventing unauthorized running.