



COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF MANAGEMENT

AN ASSESSMENT OF INVENTORY MANAGEMENT PRACTICE (IN CASE OF WOLKITE UNIVERSITY MAIN CAMPUS)

A RESEARCH PAPER SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR BA DEGREE IN MANAGEMENT

ADVISOR :MR. TADESSE.G

BY: CHLOTAWA BEKELE

DECEMBER; 2020

WOLKITE, ETHIOPIA

Abstract

This research would be conducted in Wolkite University main campus mainly at inventory management department. The Major objective of the study is to assess the inventory management practice of Wolkite University main campus. The study also point out different problem, that hinder the achievement of inventory management practice involved in the universities and provide some recommendation to solve those problems and also enables the inventory management sections to achieve their goal. The study is categorized into descriptive types of research which can be either quantitative or qualitative in nature. The study would emphasize on the material (inventory) and purchasing department employees by taking exact number of employee available in the department, that means 42 employees and in order to provide adequate sample and to get more accurate data the researcher would use census method of techniques. The study would be used more of a primary data which collected through questionnaire, observation and additionally would be use secondary data such as the researcher prefer to refer different books and reports which documents available in the university . Then, after the data collected through those method it's would be analyzed by descriptive types of data analyzing system.

Acknowledgement

First of all, I would like to express My sincerely thanks to advisor Tadesse G (MBA) for this guidance, advise and insight full comments in preparing of this study. and then I would like to my gratitude goes to for all my friends for their good encouragement in preparing of this research paper. Last but not least, My likely gratitude goes to Wolkite University, specifically college of Business and Economics, for giving me this opportunity to prepare this study.

Acronyms/ Abbreviation

ICT= Information communication Technology

MRO= (Maintenance, Repairs and Operating), supplies.

MRP= Material requirement planning.

JIT= Just in time.

Table of Contents

Contents	Page
Abstract	I
Acknowledgement.....	II
Acronyms/Abbreviation	III
Table of Contents	IV
List of tables	VII
Chapter One: Introduction	
1. Background of the study	1
1.2 Background of the organization	2
1.3 Statement of the problem	3
1.3.1 Basic research question	3
1.4 Objective of the study	4
1.4.1 General objective	4
1.4.2 Specific objective	4
1.5 Significance of the study	4
1.6 Scope of study	5
1.7 Limitation of the study	5
1.8 Organization of the study	5
Chapter Two: Literature review	
2. Meaning and concepts of inventory management	6
2.1 Definition of inventory management	6
2.2.Objective of inventory management	7
2.2.1 Maximum sales	7
2.2.2 Protection of Assets	7
2.2.3 Administrative uses of inventory management records	8
2.3 Functions of inventories.....	8
2.4 Types of inventory	9
2.4.1 Production inventory	10
2.4.2 MRO Inventory	10
2.4.3 Work in process inventory	10

2.4.4 Finished goods inventory	10
2.5 Significance of inventory	10
2.6 Inventory analysis system	10
2.6.1 ABC classification	10
2.6.2 Dependent and independent demand system	11
2.6.3 Fast moving and slow moving inventory system	11
2.7 Inventory cost	11
2.7.1 Order cost	11
2.7.2 Carrying cost	11
2.7.3 Item cost	12
2.7.4 Stock out cost	12
2.8 Economic order quantity (EOQ) concepts	12
2.9 Types of inventory control	12
2.9.1 Cyclical or fixed order interval system	12
2.9.2 Inventory accounting system	13
2.9.3 Perpetual inventory system	13
2.9.4 Physical inventory system	13
2.9.5 Quantification of inventory system	13
2.9.6 Material requirement planning system (MRP)	14
2.9.7 Flow inventory control system	14
2.9.8 Two bin inventory system	14
2.9.9 Just in time (JIT) approach	15
2.10. Essential requirements of inventory control	15
2.11 Obsolete, surplus and scrap management	15
2.12 Inventory stores	16
2.13 Inventory management problem	16
2.14 Inventory decision	16
Chapter Three: Research methodology	
3.1 The study area	17
3.2 Target population	17
3.3 type of data	17

3.4 Method of data collection	17
3.5 Sample size	17
3.6 Sampling Techniques	18
3.7 Method of data analysis and presentation.....	18
Chapter FOUR: Data presentation, analysis and interpretation	
4.1 The respondents background information analysis	19
4.2 Basic questions analysis	22
CHAPTER FIVE : Summary, Conclusion and Recommendation	
5.1 Conclusion	32
5.2 Recommendation	33
Reference	35
Appendix I	36
Declaration	

List of tables

Content	Page
Table 1: The respondent background information	20
Table 2: Extent of proper utilization of purchased materials	22
Table 3: Materials using habit and handling system	23
Table 4: Convenience of storage place	25
Table 5: On time repair of materials	26
Table 6: Inventory classification techniques	27
Table 7: The cooperative work of store division and purchasing unit	28

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the study

The development of human being is directly correlated with the development of material functions all over the world to supply materials of the right quantity, the right quality at the right time. Material management includes all activity in the flow of materials from the supplier to customer. Such activity include physical supply, operation planning and control and physical distribution (N chapman and M .Clive 2003).

Inventory management is about the flow of materials from suppliers to a firms store to production center to finished products store to final end or users. The primary goal of inventory management is proper utilization and handling various of materials and also it aims at managing the materials of the organization to the extent which they are utilized and handled effectively and efficiently in order to give them more economic value and to contribute to organizations successes (N.K Nair, 1990).

The inventory control is the quantities and monitoring values of those item at a predetermined level or with in safe limits. Concerning to this, Business organization, however, big or small organization has to maintain inventory management and it constitutes an integral part of the working capital. It has been estimated that inventory management constitutes more than 60% of the current asset (Hall international inc, 1991).

Inadequate control of inventory can result both under and over stocking of item. Under-stocking result in missed deliveries, lost, dissatisfied customers and production bottlenecks; overstocking lead unnecessary tied up funds that might be more productive elsewhere. The overall objective of inventory management is to achieve satisfactory level of customer service while keeping inventory cost within a reasonable bound. Towards this end the decision maker tries to achieve a balance in size of order. That means when to order and how much to order (J. Stevenson, 1982).

However, the research would be conducted on the assessment of inventory management practice in Wolkite University main campus. The research provides academic knowledge of conducting research and to give solutions for the main campus on problem affecting inventory management

system. Inventory is the stock of any item or resource in campus where as inventory management is the process of reducing inventory cost, keeping inventory from under or over stocking and determining order and reorder points in order to achieve organizations goals. Most studies shows that in the main campus constitutes the major category of assets on the balance sheet. The main objective of this study to assess the inventory management practice of Woilkte University main campus.

1.2 Background of the organization

Wolkite University is a public higher educational institution and Ethiopians 2nd innovative community oriented education institution established in 2004 The University is located in gubere town around 10 km of Wolkite city which is found The vision of this University is one of the top ten university in south east Africa according to 2027 of Ethiopian calendar in order to speed up and improve quality of activities.

1.3 Statement of the problem

The main objective of any inventory management is to determine the right quality to be procured in order to release the capital more productive in use. An efficient material management system includes the means to ensure that the stock is maintained at optimum level and in the quantity that prevent interruption in the flow of needed resource. The aim is to avoid the negative effect of both excessive and insufficient which can be disrupted financially and operationally, (P. Gopala Krishnan, 1990).

Good inventory management is important for the successful operation of most business and their supply chain, poor inventory management hampers operation, diminish customer's satisfaction and increase operating costs, some organizations have excellent inventory management. Too many however, have unsatisfactory inventory management which some times is assign that management does not recognize the importance of inventories what is lacking is an understanding of what need to be done and how to do it. (J. Stevenson, 1982).

However, organization faces number of problem regarding mismanagement of inventory utilization, storage and handling system of materials that's leads to poor inventory management operation such as, diminishing customer's satisfaction and increase operating costs. Therefore, it

is vital and important to study in this area of problem. In order to this, the researcher motivated to study the prevailing inventory management practice of Wolikte University main campus and recommend the university about possible way of solving the existing problem and how the university utilized its resources to achieve its objective.

1.3.1 Basic research Questions

The study would be address the following issues or questions:-

1. What are the material handling system of university used?
2. Does the university effectively and efficiently utilize the purchased materials?
3. What are the main problem of inventory management practice in the university?
4. Where does the University makes storage place for surplus and defected materials?

1.4 Objective of the study

1.4.1 General objective

The general objective of this study is to assess the inventory management practice of Wolikte University main campus.

1.4.2 Specific objective

The study would have the following specific objectives:-

1. To examine materials handling system of university.
2. To evaluate the effective and efficient utilization of the materials available within the university.
3. To identify the problem that faces the university with regarding to inventory management.
4. To assess where storage place is proper for surplus as well as defected materials.

1.5 Significance of the study

The study used for the following significance:-

1. To provide a framework to proper inventory utilization for inventory management.
2. To improve the current inventory management problems and to provide possible solution to those problem occurred in the university.
3. To gives better and up to date information of inventory management system for purchasing department and inventory management department workers those who are found in the university.
4. It is important for the researcher to do this paper in the partial fulfillment or obtaining BA degree in management.
5. The study may be serving as a base for other researchers who wants to conduct further study on this topic.

1.6 Scope of the study

The study focused on inventory management practice of Wolkite University main campus. This includes material department and purchasing department units which are found in Wolkite University main campus. The study also emphasized on the receiving and issuing of plant asset such as furniture's, office equipment and fast moving materials used in teaching , learning activity and management purpose. For its accuracy and availability the researcher used the react of two years data especially encompasses to collect secondary data documented in the Wolkite university.

1.7 Limitation of the study

During undertaking this study the researcher encountered some limitations. In order to this, the major limitation of the study were time and budget constraints. Since time and finance are the necessities to conduct a research, so that their shortage affect the quality of data used in the study. Beside the above limitation, the other main limitation of the study was the absence of secondary data in related with inventory management system in Wolkite University. Other than this, with related to questionnaires response, some respondents are not answered an open- ended questions on the given space. Additionally, the complexity of inventory management system was make the study difficult to the researcher. Generally, all the above problem could create partial limitation on the information that the researcher needed to gain from the study.

1.8 Organization of the study

The study used have five chapters. The first chapter deals with introduction which includes background of the study, background of the organization, statement of the problem, objective of the study, significance of the study, scope and limitation of the study and the like. The second chapter contain literature reviews about the case study. The third chapter contains the research methodology that's includes, the study area, target population type of data, method of data collection, sample size, sampling technique, method of data analysis and presentation. The fourth chapter is about presentation, analysis and interpretation of collected data. Finally, the fifth chapter deals with Conclusion and Recommendation.

CHAPTER TWO

LITERATURE REVIEW

2 Meaning and concepts of inventory management

2.1 Definition of inventory management

Inventory management is among the most important preparations management responsibility because inventory required a great deal of capital and effect the delivery of good to customers. Good inventory management is important for successful operation of most business and their supply chains. Operation, marketing and finance have interests in good inventory management, poor inventory management hampers operation, diminish customer satisfaction, and increase operation costs.

In finance, inventory is defined as some of the value of raw materials, fuels, and lubricants, spare parts, consumable; semi finished materials and finished stock at a given point of time. Operational definition would be the amount of materials, fuels and lubricant, spare resources are idle when kept in store inventory defined as idle resources at any kind having economic value (Gapala krishnon and underson 2001).

Inventory management is really applicable in every walk of life whether organizational or personal. Farmer product at a raining season and have their own inventory of different crops to be used another coming season and to sell the extra to the market. People of rural used to fetch water on every Friday to be used on Saturday and Sunday. These shows that inventory is applicable in every organization. Inventory is one of the most expensive assets of many companies and often represent 40%-50% of the total investment or 80%-90% of the working capital (Nair, 1990).

Inventory if an idle resources that possesses economic value and kept for the purpose of future production or sale inventory are usually in the form of raw materials, semi finished goods or finished product ready for delivery to consumers. Inventory is usually associated with manufacturing and distribution activity service industries are often unable to inventory their final products, a though they must manage their raw materials and supplies inventory as any organization.

Inventory should not be high or small it should be optimal. Thus inventory management is a discipline concerned with the management of different inventory item for the smooth running of the organization some organization don't recognize the role that inventory plays or even if recognition is there what lacking is an understanding of what is needed to be done and how to do it (willion J. Stevenson 1999).

2.2 Objective of inventory management

According to Arnold chap man and clive (2008) a firm wishing to maximize profit will have at least the following objectives:-

- Maximum customer service
- Low cost plant operation
- Minimum inventory investment

In addition to this according to Broom et al (1983) there are some objective. Both purchasing and inventory control management have the same general objective. To have the right goods in the right quantity at the right time and place. This general objective requires other more specific sub goals of inventory control management.

2.2.1 Maximum sales

Assuming adequate demand, sales are greater if goods are always available for display and delivery to the customers. Most customers desire to choose from an assortment of merchandise customers who are faced by a narrow range of choice and a stock out to look elsewhere may be lost permanently. On the other hand, the small store might unwillingly to go the other extreme and carry to large all inventory. Management must work the chalk line, do speak, between over stocking and stocking in order to retain customers and maximize sales.

2.2.2 Protection of assets

One of the essential functions of inventory control management is to protect inventories against theft, shrinkage or deterioration. The efficiency or wastefulness of store keeping. Manufacturing and handling processes affect the quality and quantity of usable inventory. For example; the more often and article picked up and physically handled, the more chance there is for physical

damage. Inventory items that need special treatment can also spoil or deteriorate if improperly stored.

2.2.3 Administrative uses of inventory management records

The inventory management records provide data useful in various administrative uses. For example the records provide information for determining proper purchase quantities and ordering dates. They also provide information useful for evaluation managerial performance. For instance, a business with an inventory furniture ratio that is lower than normal may consider less efficient than the competition. Finally, the inventory management records may be used to audit clerical work. If the audits reveal too many clerical errors, remedial action or mechanization of inventory management record keeping should be implemented.

2.3 Functions of inventories

Generally speaking and inventory makes possible smooth and efficient operation of a manufacturing organization by developing individual segment of the total operation. Purchasing part inventories permits activities of purchasing and supply personal planned and conducted some what independently of shop operation. By the same taken those inventories allow additional flexibility for suppliers in planning, producing and delivering an order for a given part (Van Home, 1999.259).

Inventories are idle resources that have economic value, so that inventory serves a number of functions. Among the most important are following;

1. **To meet anticipated customer demand:** such inventories are carried to meet predictable change in demand. In this case seasonal variation are in the availability of some raw materials. It is convenient and economical to build stock conception pattern may reasonable, uniform and predictable, these inventories called anticipation inventory.
2. **To smooth production requirement:** firms that experience seasonal pattern in demand often build up inventory during pre-season period. This inventory named as seasonal inventory.
3. **To decouple operation:** after each production and distribution store inventory services to increase the rationality of the production and distribution system by decoupling its part. By

providing inventory at selected steps in the manufacturing distribution system, affirm obtain a certain degree of independence for steps following or “downstream” forms these inventories.

4. **Stabilizing employment:** inventory can effectively serve to mitigate the problem of minimizing the size of work force under condition of fluctuation demand. It used to avoid compensation cost during lay off and loss of employee skill and experience that will needed when product demands pick up.
5. **Taking advantage of quantity discount:** suppliers may give discount on large order.
6. **To protect against stock out:** The purpose of inventory is to protect against the uncertainty of supply and demand. Delayed deliveries and unexpected increase in demand increase the risk of shortage. The risk of shortage can be reduced by holding safety stock (buffer stock). Delay can be occur due to weather condition, supplier stock out, delivery of wrong materials, quantity problem and so on.
7. **To take advantage of order cycle:** to minimize purchasing and inventory cost a firm often buys in quantity that exceed immediate requirement. These necessitate storing some or all of purchased amount for later use.
8. **To hedge against price increase:** occasionally a firm suspect that substantial price is increase.

If inventories are to achieve the function and purpose mentioned above, some on most decide, “how much to order” and when an inventory is required or when to order”. The how much question is largely function of costs and our inquiry here were extend to the concept of an economic order quantity. The “when to order” question is a function of the firm forecast requirement. If the item is a finished product and has a demand that is independent of the demoed for other items, an order point of broader point technique help to answer the questions (Dobler etal, 1996).

2.4 Types of inventory

According to W.Dobler and N. Burt (1996). inventories are classified into four ways:-

These are:-

2.4.1 **Production inventory:** Raw materials, parts and components are entering the firm product in the production process. These may consist of two general types.

I, Special item manufactured to the company specification and

II. Standard industrial times purchased “ off the shelf”

2.4.2 **MRO inventory:** Maintenance repairs and operating supplies which are consumed in the production process but which do not become parts of the finished product for example lubricating oil, soap and machine repair parts.

2.4.3 **Work in process inventory :-** semi-finished products found at various stage of the production or operation.

2.4.4 **Finished goods inventory:-** these are completed products ready for shipment or sale in most manufacturing companies.

2.5 Significance of inventory

The word inventory refers to any stock on hand at a given time. If materials is held for future use in an idle or unproductive set waiting its intended purpose. The relative importance of inventory management to an organization can be arrange by the over all investment in inventory and the magnitude of materials costs for all products. Inventory so late one part of the system form the next to allow each work independently absorb the stock of for cost errors, and permit the effective utilization of inventory management to control the lot sizes to that the over all costs associated with the purchase or manufacture at a minimum. (Terisine, R.J 1994).

2.6 Inventory analysis system

2.6.1 ABC Classification

An ABC techniques is a system of giving attention to materials according a degree of their importance instead of giving equal attention to all materials. For these purpose the item will be divided in to three categories; A,B and C. “A” item will be high value, “B” item will be a

medium value and “C” item will be of low value. This segregation can be achieved on the basis of unit price or expenditure of the item and annual consumption value. In this technique special attention is given to critical items. Critical items are those which are not readily available in the market and which may not have substitute (NK. Nair 1960).

2.6.2 Dependent and independent demand system

To do the job well, an inventory manager needs one additional bit of information about each item. Inventory demand (usage) for the item is “dependent” or “independent”

An item said to exhibit dependent demand characteristics when its use is directly dependent on the scheduled production of larger component or parent product of which the item is a part. Hence, in a plant producing automobile engine the demand. Once the production schedule for a group of engine is established, the planners know with certainty that one block will be required for each engine. Conversely the demand for coating oil used by the machine on the line cannot be calculated accurately from the production schedule and bill of materials. Thus coating oil is said to have independent demand. Most of the time production inventory item will have a dependent demand while MRO item has independent demand (W.Dobler and N.Burt 1996).

2.6.3 Fast Moving and slow moving inventory system

Fast moving items are a type of good that is consumed every day by the average consumer. The goods that comprise this category are necessarily replaced frequently. But slow moving inventory items are those that have less than six months of demand in the year. The key question when seeking to reduce slow moving inventory depends on the nature of inventory item (Ibid).

2.7 Inventory cost

2.7.1 Order cost:- these are the cost of generating, processing and handling an order, along with its related paper work, such as, certain portion of wage and operating expense of receiving, inspection and stores; cost of envelopes, stationary, form of purchasing, computer time, telephone, fax machine and other related costs, (W.Dobler and N.Burt 1996).

The costs of acquisition increased as smaller quality are procured but, the decrease in inventory also decreases carrying cost (P. Gopala Krishnan 1990).

2.7.2 **Carrying cost**:- It includes all expenses incurred by a firm because of volume of inventory carried. These include opportunity cost of invested fund, insurance cost, property tax, storage space cost, obsolescence and deterioration costs. Carrying cost rises and falls proportionally with level of inventory (W.Dobler and N.Burt 1996).

2.7.3 **Item cost** :- It is the price paid for purchased item which consists of the item and any other direct costs associated with getting the items into the plant (Arnold, Chapman and Clive 2008).

2.7.4 **Stock out cost**:- It is demand during the lead time exceeds forecast, we can expect stock out. Stock out can be reduced by carrying extra inventory (Arnold, Chapman and Clive 2008).

2.8 Economic order quantity (EOQ) concepts

EOQ is the amount of order that minimizes total variable costs required to order and hold inventory. The EOQ model can be determined based on the following assumption (Stevenson 2005).

- ✓ Annual demand is assumed to be constant
- ✓ Carrying cost per unit per year is fixed
- ✓ Stock is replaced instantaneously
- ✓ Order size is uniform.

2.9 Types of inventory control

According to Dobler and N.Burt (1996), there are many types of inventory control system. The following are some of them.

2.9.1 Cyclical or Fixed order interval system

The cyclical system or fixed order interval system, as it is sometimes called the oldest and simplest of systems now found in use.

It is a time based operation which involves scheduled periodic reviews of the stock level of all inventory items. The frequency of reviews is determined judgmentally and varies with the degree of control desired by management. A, items might be reviewed weekly (more often), B, items monthly or bimonthly and C, items quarterly or semi annually. Stock level can be determined

(monitored) by physical inspection, by visual review of perpetual inventory record cards, or by visual review of perpetual inventory record cards, or by automatic computer surveillance. Physical stock account are required once or twice a year to reconcile actual value with book values in all systems utilizing perpetual inventory record. The system work most efficiently in an organization that has continuous operation functions in which demand is fairly stable and can predicated with reasonable accuracy (Dobler etal 1996).

2.9.2 Inventory accounting system

A small business need a system for keeping tabs on inventories. The bigger the small business, the greater is the need. Also since manufactures are concerned with three broad categories of inventories (row materials and supplies, work in process and finished goods) their accounting for inventory is more complex than that for whole sellers and retailers (Dobler etal 1996).

2.9.3 Perpetual inventory system

A perpetual inventory system provides current record of inventory items. It does not require a physical count of inventory. Periodically, a physical count can be made to assure the accuracy of a perpetual system and to make adjustments for such factors (Dobler etal 1996).

2.9.4 Physical inventory system

The traditional system of taking physical inventory is for two people to form item to item, with one calling off the kind of the item and the number of units on hand while the other records this information.

Other have improved on this system by using only one clerk, who counts off the items in to dictating machine. The investor data sheets can then typed directly from this recording. Making a single employee responsible for inventory may enhance the efficiency of inventory control. Although manual control systems are customarily adequate, the use of computer aid system should be adopted by small firms if all possible (Dobler etal 1996).

2.9.5 Quantification of inventory system

Mathematical computation is an aid to effective inventory management they help provide the answer to such questions a show much to purchase, how much should long merchandise stay the

shelves, and what is the value of the merchandise at the selling price we should examine some simple methods of answering these question (H.N Broom etal 1983).

2.9.6 Material requirement planning system (MRP)

It is a technique used to determine the quantity and timing requirement of dependent demand materials used in manufacturing operation. One of the essential requirements of MRP is that all records should be absolutely accurate and up to date MRP system is software based while, it is possible to conduct MRP by hand as well MRP system meets the following three objectives:-

- i. Insure material available for production and products are available for delivery to customers.
- ii. Maintain the lowest possible materials and product level in store.
- iii. Plan manufacturing activities, delivery schedules and purchasing activities (W.Dobler and N.Burt 1990).

2.9.7 Flow inventory control system

It is a special variation of cyclical system. It is applicable for continuous manufacturing operations that produce the same basic product in large quantity day after day. Most materials used in such an operation are purchased on term contract and scheduled for daily or weekly delivery through the term. In such an operation or open store system used for most production materials and individual items are stored on the line near the point of use. Change in production schedule must be relayed immediately to buyer. So that delivery schedule can be revised accordingly (W.Dobler and N.Burt 1990).

2.9.8 Two bin inventory system

In this system the stock is physically separated into two containers or bins. The lower bin contains a quantity of stock equal to the order point figure. This typically is just enough stock (slightly more) to cost from the date a new order is placed until the incoming materials are received in inventory. The upper bin contains quantity of stock equal to the difference between the maximum the upper bin, when this supply is depleted, its signals the clerk that the order point has been reached. At this point an order is placed and materials are used from the lower bin until the new stock is received. Upon receipt of new orders, the proper quantities of materials are

again placed in the two bins. The two bin method is widely used in all types of operations in handling low value hard ware and supplies, whose usage is not recorded on a perpetual record. The main advantage of this method is it reduce clerical work. The possible disadvantage in some case is the requirement difficulty in keeping the two stocks properly separated (W.Dobler and N.Burt 1990).

2.9.9 Just in time (JIT) Approach

These inventory management approaches seek to balance the cost of ordering against cost of storing inventory. Under JIT philosophy, the goal is to keep all inventories as much as possible. More over under JIT; purchasing, ordering costs minimized by reducing the number of vendor, negotiating long term supply agreement, and make less frequent payment in eliminating inspection.

The JIT philosophy argues that holding costs tends to be higher that may be apparent because of efficiency and waste of storing inventory. Thus, the inventory should be minimized. (W.Dobler and N.Burt 1990).

2.10 Essential Requirements of inventory control

According to Arora (2004), as cited by Baharu Mohammed (2011), material control must innumeros the following requirements:-

- ✓ There should be proper cooperation and co-ordination among department
- ✓ There should be centralized purchasing departments.
- ✓ There should be proper classification and codification of materials.
- ✓ Proper material requirement planning
- ✓ Perpetual inventory system should be operated.

2.11. Obsolete, surplus and scrap management

Obsolete item are those materials and equipment which are not damage and which have economic worth but which are not longer useful for the company operation because of change in product line, process, materials and so on. Surplus items are those materials and equipments which have no immediate use but have accumulated due to faulty planning, forecasting and

purchasing. However, they have usage value in the future scrap is defined as process wastage. Such as; pruces and flashes. They have an end use within the plant. In any case they have a market value (P. Gopalakrishnan and M. Sudaresan 2001).

2.12 Inventory stores

The words inventory and stores are some times confused these must therefore, be clearly understood stores means all those articles which are kept in stores while inventory comprise stores as well as materials in transit materials in products finished products and stocking company's shows rooms and distribution centers which have not been sold out. (S.C Sharma, 1999).

2.13 Inventory management problem

An operation system's performance of firms is affects by the size of inventories hold there is generally associated with having either too much inventory or too little because they "coat to much" having too much inventory represent capital tied up that could be invested in more profitably where. In addition, there is reason for concern with other costs related to storage insurance, depreciation and etc. if the above situation is reveres and instead of over estimating demand management has underestimate it, there were equally serious penalties for failure to maintain adequate inventory. (Wilber etal, 1962).

2.14 Inventory decision

In the inventory management decision encompasses the principles procures and techniques for deciding, what to order, how much to order, when it is needed and how and where to store. If there decisions at each of these levels should be consistent with decision at the other level and should support the organizational objective by achieving desired level of customer service and achieving in venture inventory objective (Black store Hoffman 1991).

CHAPTER THREE

3 RESEARCH METHODOLOGY

3.1 The study Area

The research is targeted to study inventory management practice of Wolkite University main campus mainly at inventory management sections and purchasing departments.

3.2 Target Population

The study would emphasize on the material (inventory) and purchasing department employees and take them as respondent to collect some favorable data concerning about the general inventory management practice of the university.

3.3 Type of Data

Two types of data would be used for this study:-

1. Primary data is the data collected mainly from employees of inventory management and purchasing departments of the main campus.
2. Secondary data is the data that would be gathered from written materials of the main campus and also collected from books, magazines, reports at university, internet and other related research.

3.4 Method of data Collection

To collect primary data (from primary sources) the researcher is going to use, questionnaires and observation(Narrative observation that Judgmentally decided by researcher). To get secondary data, the researcher would refer different documents from concerned bodies of the main campus and in addition other secondary sources such as books, internet, magazines, reports at the university and other related research would be used.

3.5 Sample Size

Almost all employees in the main campus uses materials to perform their responsibility, so that the sample would be used all employees of inventory management sections and purchasing

department of the main campus. Currently, the inventory management section and purchasing department employees in Wolkite University main campus are exactly 42 employees, but mainly working on the inventory management sections. From population available in each department, the researcher would be take all 42 employees as representative of sample size, because it have enormous advantage to gather accurate and reliable data.

3.6 Sampling Techniques

For providing adequate sample and to get more precise estimate of population characteristics, the researcher would used all needed number of employees as a respondent for stated questionnaires by using census method. So that, in order to get an accurate and detail measurable data census method is preferable techniques mostly in case of small population.

3.7 Method of data Analysis and Presentation

After collecting data through, questionnaires, observation and from other secondary sources the collected data would be processed and it would be further described by using table (tabulation percentage) as the main tool of analysis. So that the finding would be easy to be understood by everyone. Finally, the outcome of the research would be presented on written material and detail description and interpretation is given under each of table and also described by detailed oral presentation. In order to this above data analysis the researcher would use descriptive types of data analysis in such away the research would be simply understood and visual to identify on the presented table's briefly.

CHAPTER FOUR

4. DATA PRESENTATION ANALYSIS AND INTERPRETATION

In this section empirical data are gathered from inventory management and purchasing departments of Wolkite University main campus. It is the researcher believe that it would be suffice to investigate the overall performance on assessment of inventory management practice by using pure location i.e. inventory management and purchasing sections that studied critically and mainly concentrate on the main campus of Wolkite University.

In order to this the data was collected from questionnaire which have closed ended and open ended questions that distributed to the respondent and also used the researcher observation or judgmentally decided by observing the working condition of the targeted area that connected with inventory management system of the university and the developmental level of university.

The respondents who are employees in inventory and purchasing department in number currently 42employees, so that 42 questionnaire were correctly computed and returned. According to the stated questionnaires that responded by employees, the researcher would be tries to analyze by tabular presentation in such depicted that respondent background information, respondents opinion about the overall inventory management practice of the campus, respondents view about the factor affecting the inventory system and also the respondents suggestions in other related topic of inventory management system which is mainly favorable activities in the main campus of Wolkite University.

4.1 The respondents background information analysis

Primarily, this part deal with tabular presentation, analyzing, and interpretations of respondent background information which contain sex, age, education level, marital status and work experience.

Table 1. The respondent background information

No	Variables item	Respondent background information		
		Evaluation criteria	Number of respondent	Percentage (%)
1	Sex	Male	23	74.19
		Female	8	25.8
	Total	Total	31	100
2	Age	18-35	16	51.61
		36-50	14	45.16
		Above 50	1	3.22
	Total		31	100
3	Education level	Certificate	4	12.9
		Diploma	8	25.8
		Degree	14	45.16
		Masters and above	5	16.12
	Total		31	100
4	Marital status	Married	20	64.51
		Widow	-	-
		Single	11	35.48
		Divorce	-	-
	Total		31	100
5	Work experience	Below 1 year	2	6.45
		1-5 years	8	25.8
		6-10 years	5	16.12
		Above 10 years	16	51.61
	Total		31	100

Source: Questionnaires 2013

As shown on the above table one, 23 (73.19%) of the respondents are male, and 8(25.8%) of the respondents are females from this brief description of data, the number of male respondents are highly dominate the numbers of females respondents so that the researcher simply implies that it is an inequality of gender on the distributed employees in the job within department. With regard to age, 16 (51.61%) of the respondents are found in the age between 18-35. 14(45.16%) of the respondents are found in the age between 36-50. Finally, the respondents those who are found above 50 age are only 1(3.22%). From this data, it is visible to the researcher can implies that the majority of employees are young and productive and also there are middle aged group of respondents who have a good experience on their activities. So that when compare the young age and middle age group in the department it is comparable in number.

With concerning to educational level, 4 (12.9%) of respondents are Certificate. 8(25.8%) of respondents are Diploma, 14(45.16%) of respondents are undermined in first Degree level. 5(16.12%) of respondents are Masters and above (those who have second Degree and above). From this analytical data expression, the researcher would be implies that as some of employees categorized under first degree educational level, so that thus employees could have a good educational background, but it must be need some incremental development on this concerning education issue.

As indicted in the table, the marital status of respondents depicted that 20 (64-51%) of respondents are married. Where as 11(35.48%) of respondents are single, and no one says widowed and divorced. From this brief data explanation the researcher can implies that as the majority of employees are in relationship, hence the marital status of employees are engaged in favorable manners.

As related with concerning to service level or work experience of employees depicted that whose service year is below 1 year are 2(6.45%). The respondents those who have work experience years between 1-6 years are 8(25.8%). The respondents those who have service years between 6-10 years are 5 (16.12%). And those respondents who have high work experience such above 10 years are 16(51.61%). From this quantitatively analyzed data the researcher would be implied that the majority employees of the departments are mostly dominated by workers who experience above 10 years services. Therefore, this is indicate that, the departments employees are in good work experience positions.

4.2 Basic question analysis

Secondly. This section mainly deal with presentation, analyzing and interpretation of basic questions of the study that conducted to assess the inventory management practice of Wolkite Universality main campus. With accordingly, those data gathered are primarily its stated in tabular percentage forms and then its should be explained in statement of paragraph which have brief descriptions to audience.

Due to the complexity of managing inventory effectively, it's need continuous close control and follow up evaluation in order to make the inventory management system effective and efficient in utilization of the resource wisely. This responsibility is achieved by the proper coordination between employees and management (concerned bodies).

Table 2. Extent of proper utilization of purchased materials

No	Item	Respondents		
		Evaluation criteria	Number of respondents	Percentage (%)
1	To what extent the purchased materials are properly utilized	Very low	-	-
		Low	-	-
		Medium	14	45.16
		High	12	38.7
		Very high	5	16.12
	Total		31	100
2	How do you rate proper utilization of materials in this year as compared to the previous two years	Lower	3	9.67
		The same	13	41.93
		Higher	15	48.38
	Total		31	100

Source: Questionnaires 2013

According to the response in table -2, question number 1- depicted that 5(16.12%) of respondent responded that there is a very high extent of proper utilization of material in the university. 12(38.7%) of respondents responded that the university extent of utilization purchased material is high. The remaining 14(45.16%) of employees responded that the manner of proper utilization of materials is medium. But no one responded that the university level of utilization of purchased materials are low and very low. In addition to this, the observation that the researcher

makes on the selected departments that means inventory and purchasing units, it would be identify and decide that the university level of utilization in purchased materials is good. From this analytical expression the researcher can implies that the purchased materials are properly utilized in university. But in some extent of comment it's also needs an improvement.

As presented on the above table -2, question number 2- depicted that 15(48.38%) of employees responded that the proper utilization of material relative to the previous two years is higher 13(41.93%) of respondent responded as utilization of material in current and previous two years is similar. But only 3(9.67%) of employee says the current year utilization of material is lower than the previous two years. Additionally, according to the researcher observation result shows that there is an improvement in utilization of materials, because depend on the continuous observation which the researcher makes its could identify and decide that the current year level of utilization is greater when compared to the previous two years utilization of materials in the university. Therefore, based on the above information the researcher should indicate that there is an improvement time to time in proper utilization of materials thus available in the university,

Table 3. Material using habit and handling system

No	Item	Respondent		
		Evaluation criteria	Number of respondent	Percentage (%)
	The user of materials are engage in good material using habit in the university	Strongly disagree	2	6.45
		Disagree	10	32.25
		Agree	13	41.93
		Strongly agree	6	19.35
	Total		31	100
2	How do you evaluate materials handling system of the university	Very poor	2	6.45
		Poor	5	16.12
		Average	15	48.38
		Good	8	25.8
		Very good	1	3.22
	Total		31	100
3	How does feel the society of the university to keep and protect the university materials as their own private property	Very low	3	9.67
		Low	4	12.9
		Medium	12	38.7
		High	12	38.7
		Very high	-	-
	Total		31	100

Source: Questionnaires 2013

As shown in table 3, question one- depicted that 6(19.35%) of respondents are strongly agree on the ability of users engage in the right material using habit. In addition to this 13(41.93%) of respondents are agree on the university users of materials as engaged in good materials using habits. While 10(32.25%) of employees are disagree on the ability of users engage in the favorable materials using habit. Additionally, also 2(6.45%) of respondents are strongly disagree on this issue. But according to the researcher continuous observation results show that the university users of materials are engaged as good materials using habits. Therefore, the logical implication from the above explanation is that the majority users of materials have good or right material using habits while some users of materials have some problem to handle materials that they are used in the university.

As shown in- table 3, question two, depicted that 2(6.45%) of respondents responded that the university materials handling system is very poor. With related to this, 5(16.12%) of respondents also responded as the materials handling system of the university is poor 15 (48.38%) of respondent give average mark for this issue. In contrary 8(25.8%) of employees responded as the university has good materials handling system and only 1 (3.22%) of respondents responded as the university has very good materials handling system. In addition to this the researcher observation results shows that the university has good materials handling system. So that, from the above description the researcher can understand and implied that the university has more or less average materials handling system. But some of the university materials are put on modernize and good materials handling system.

As indicated in- table 3, question three, clearly shows that, 3 (9.67%) and 4(12.9%) of employees responded that the attitude of society towards keep and protect the property of university as their own private property is very low and low respectively. 12 (38.7%) of respondents says that the attitude of society toward property of the university is medium. Finally, 12 (38.7%) of the respondents responded as the society to keep the property is high and no one among respondents response very high, on this issue. In addition to this the researcher observation could identify and judgmentally decide that the society have a good attitude toward keeping and protecting the university materials as their own private property. Therefore, from the above data expression and judgmental decision, the researcher can indicate that the majority of the university society's are considers the university materials as their own private property and its give good

care or attitude toward keeping and protecting the university materials as a well moderate level. While some of the society couldn't view the university materials as their own private property and also haven't good care or attitude toward keeping and protecting the university materials properly.

Table 4. Convenience of storage place

No	Item	Respondents		
		Evaluation criteria	Number of respondent	Percentage (%)
1	How is the convince storage place for surplus materials	Very poor	1	3.22
		Poor	4	12.9
		Average	18	58.06
		Good	8	25.8
		Very good	-	-
	Total		31	100

Source: Questionnaires 2013

As presented in table 4, question number one with regard to the convenience of storage place 1(3.22%) of employees responded that the convinces of storage place is very poor. With related to this 4(12.9%) of employees responded the university storage place convenience is poor and 18(58.06%) of employees responded as the convenience of storage place is average. In contrary 8(25.8%) of the respondents responded that the convinces of storage place is good and no one response that the university storage place is very good. In addition to this, according to the researcher observation shows that the storage place is us a medium level of convenience because, in order to this the storage place are limited or not that much enough and also there is not separate store for the item depend on the nature of the materials; such as surplus, spoiled and defective materials are stored together. By considering this above analytical data explanation the researcher can implies that the existing university storage place as it's average convenience to the material purchased and stored as well as for surplus and defected materials. While not that much fully equipped and also have an internal problems of storage place in the university. Therefore, it must be need high improvement.

Table 5. On time repair of material

No	Item	Respondents		
		Evaluation	Number of	Percentage (%)
		criteria	respondent	
1	How is the timely repair of damaged (broken) materials by concerned body.	Very slow	4	12.9
		Slow	16	51.61
		Fast	10	32.25
		Very fast	1	3.22
		Immediately	-	-
	Total		31	100
2	How do you evaluate concerned body effort in preventing destruction and giving solution	Less satisfactory	14	45.16
		Satisfactory	13	41.93
		Very satisfactory	4	12.9
	Total		31	100

Source: Questionnaires 2013

As shown in the table 5, question one -4 (12.9%) of employees responded that the on time repair of materials is very slow and also the respondents, 16(51.61%) are reviled that timely repaired of materials by concerned body is slow. Whereas 10(32.25%) of employees respond timely repair is fast and only 1(3.22%)of respondent responded that the on time repair of materials is very fast. But no one respond immediately. In addition to this, the researcher observation indicates that especially electronic materials like copy machine, printers, computer and other related electronic materials timely repairer is slow due to obedience of skilled labor force in the market and even suppliers have not good capacity to repair those materials immediately. Therefore, by taking this data description the researcher can implies that the university on time repair of broken or defective materials is found as a medium level.

As presented on the above table 5, question two -14 (45.16%) of respondent responded that the concerned body effort in preventing materials destruction and giving solution is not satisfactory.

In contrary 13(41.93%) of employees responded that the effort of concerned body is satisfactory. With related to this, 4(12.9%) of respondent responded that the effort of concerned body in preventing materials destruction and giving solution is very satisfactory. Additionally, the researcher observation results shows that the effort of concerned body is not as much as satisfactory. Hence, from this implied or analytical data and judgmental expression the researcher can enables to understand and indicate that most of the time the concerned body does not exert much effort in preventing materials destruction and giving immediate solution.

Table -6. Inventory classification techniques

No	Item	Respondents		
		Evaluation criteria	Number of respondent	Percentage (%)
1	Is there any inventory classification techniques	Yes	27	87.09
		No	4	12.9
	Total		31	100
2	In question number one, if your answer is yes, how the university classify the inventory	Based on price/value	6	22.22
		Based on demand	2	7.4
		Based on similar characteristics	11	40.74
		Based on usage rate	5	18.51
		Other way or method of classification	3	11.12
	Total		27	100

Source: Questionnaires 2013

As shows in the table 6, question one, 27(87.09%) of respondents responded the existence of inventory classification techniques. Unlike to these only 4(12.9%) of respondents responded there is no inventory classification method existence in the university at all. In addition to this, the researcher observation makes in two departments working condition shows that there is an available or presences of inventory classification system in the university. So that, by showing the above information the researcher can implies that its mostly the existence of inventory classification techniques in the university. But not in the manner of effective way of classification.

As described in the above table -6, question two, 6(22.22%) of respondents responded that the inventory classification techniques is based on price or value of the product, and 2(7.4%) of respondent says classification is made based on demand. Mainly the employees of 11(40.74%) responded that the practicable inventory classification used by university is based on similar characteristics of the products, and 5(18.51%) of respondents responded classification is made based on usage rate (i.e fast moving and slow moving inventory). Other than thus above inventory classification techniques, 3 (11.12%) of employees responds as the university classify inventory as consumable items and capital items. Additionally, according to the researcher deep observation makes on available target area of university inventory sections shows that most of the time inventories are classified based on the nature of products and also classify based on similarity of products. Therefore, based on the above information the researcher can indicate that mostly the university classify inventory based on similar characteristics of products, price value of products, usage- rate (fast moving and slow moving inventories) of products major to least one respectively, and also different inventory classifications techniques are sometimes applicable in practice with related to working situation.

Table 7. The cooperative work of store division and purchasing unit

No	Item	Respondents		
		Evaluation criteria	Number of respondent	Percentage (%)
1	Does the store division and purchasing department work co-operative	Yes	31	100
		No	-	-
	Total		31	100
2	If your answer is yes in question one how do you evaluate their cooperative work.	Very poor	-	-
		Poor	-	-
		Average	25	80.64
		High	5	16.12
		Very high	1	3.22
	Total		31	100

Source: Questionnaires 2013

As indicated in table 7, question one depicted that the whole 31(100%) of respondents responded that the store division and purchasing units worked cooperatively. In addition to this, the researcher judgmental decision or visibility shows that purchasing and store division are they work together as a one units or departments particularly in the area of materials management aspects for the seek of purchase materials and store the purchased materials. In order to this, whole analytical data explanation and observation, the researcher exactly implies that the store division and purchasing departments are usually working together or worked cooperatively.

As shown in table 7, question two-described that 1(3.22%) of respondent responded there is very high coordination between store division and purchasing units to reduce some extravagant inventory cost. In related to this 5(16.12%) of respondents responded there is high coordination between purchasing and store division units. In against partially, 25(80.64%) of the respondent responded as the cooperation of those two units of organization in order to reduce unnecessarily inventory level (costs) is moderate or average. But no one respondents says the level of coordination between those organizations units is poor and very poor. In addition to this expression of data the researcher observation results shows that the level of coordination or working together between this two units of organization is good. Therefore, by depending on the above expansion of data and judgmental opinion the researcher can justify and indicate that as the store division and purchasing units are work cooperatively and the level of cooperator is relatively good. But still its need some improvements on this working condition of organization units.

According to question 13-if you observe some main problem in inventory management system of the university used. In order to this, the respondents raise many problems. The main problem are stated as follows:-

- Poor attention to the employees of inventory management.
- Unqualified employees in charge of inventory management system
- Unlike technology, the inventory management system of university is still in the traditional ways of working conditions or less moderate improvement.

- Inadequate store space.
- Lack of skilled man power in store and inventory recording sections.
- Lack of adequate financial capacity or some financial problem.
- Lack of proper follow-up and expediting in inventory and store division.
- Administration (management) give low concern for inventory management.
- Poor awareness of employees for material handling system.
- Some users are not responsible for materials which are received from store room.
- In adequate number of worker in the store division.
- Unplanned purchasing that's leads to unnecessarily purchasing of some materials.
- Some materials have not code, this leads to create problem in proper control of inventory.

As presented in question-14 depicted that “Do the university effective and proper control to inventory in store”, 15(48.38%) of employees responded that “yes” the university could be practice effective and efficient control to the inventory in store. Where as, 11(35.48%) of respondents responded that “No” the university couldn't have effective and efficient to control inventory in store. And also 5(16.12%) of respondents have no give answer to those questions. By depending on the above analytical data explanation the researcher can indicate that the inventory control mechanism was obviously made but it is not as much as effectively and efficiently done hence, it must be need an improvement.

As indicated in question 15 stated that “In question number 14, if you answer is “yes” how the control is made?” based on the respondents response in the given space the following basic reason is understated below in such how the inventory control is made:-

- By cooperative work of employees through properly use of control mechanism.
- By properly organizing system of manager in inventory control techniques in accordingly free from anything corrupted.
- By creating awareness to employees about how to handle and control inventory.
- By making employees alert to tell (report) for concerned body, when there is some destruction or removal of materials in the store.
- By allocating the resource and utilizing the materials properly.
- By using a favorable store house (storage place) which free from any destruction.

- By counting materials physically and balance card to with physical material equally.
- By planning inventory receipts and outdated (planning dynamically)
- By reducing carrying and ordering costs.
- By improving stock turnover rate.
- By close control to inventory counting sections and store divisions ...etc.

As shown in question 16 depicted that “in question number 14, if your answer is “No” why the inventory control is not made?” according to the respondents responded that, why the reason the inventory control is not made is stated as follow:-

- Because there were a lot of materials in store for a number of periods without properly use.
- Some materials simply dumped in store.
- Due to some inventory and storage place problem, the over all materials control of the university is not satisfactory.
- The absences (non existent) of well established materials procedure system.
- Because of poor materials classification and controlling system in the store division.
- Due to lack of arrangement to storage place, they stored different product together in different place as well as not that much care to materials.
- Because of the employees lack of deep knowledge or attention to the recording and counting of inventory and the concerned body also careless to coordinate the employees of those area... etc.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

The study was conducted to assess the inventory management system of Wolkite University main campus and also it's better for showing some possible ways of improving the overall performance of inventory management practice of Wolkite University main campus. Therefore, based on the previous data analysis and interpretation the researcher would be concluding the following understated statement of paragraph as a main conclusion.

- ❖ The university would have a medium (average) material handling system, but some of the university materials are put on modernize ways of material handling system.
- ❖ Even though, the purchased materials are properly utilized in the university, while still extravagance of purchased materials (unwisely utilizing of materials) are practiced in the university.
- ❖ The university faced some main problems mainly in related with inventory management system. The problems are occurred due to many reasons. Those main problems and the reason for occurrence of problems are stated or listed in the analyzaiton parts (unit).
- ❖ The university has an average (medium) convenience of storage place for purchased and stored materials as well as for surplus and defected materials.
- ❖ In the university there is an existence of inventory classification techniques. In accord the university classify inventory based on similar characteristics, price/value, usage rate (fast-moving and slow-moving inventories) respectively. And also other ways of classification techniques, such as consumable items and capital items are sometimes applicable in the university in related to working condition.
- ❖ The store division and purchasing departments are work cooperatively. The level of coordination (level of cooperation) between is department was relatively good.

5.2 Recommendation

To build good as well as modern inventory management system and to cope up the existing problem faced the university particularly in related to inventory management department; the university is suggested to take the following possible recommendation have been forwarded by the researcher into consideration.

- Purchasing department of the university is suggested to purchase the required amount of materials based on necessary plan by doing need assessment from colleges, schools and user departments of the university. The need assessment might have contained the time; specification and amount of inventory the user a department is going to demand for use.
- Once materials are issued for sue, it's advisable to make a trend of supervision by the inventory management department and identify the need of maintenance.
- The inventory management of the university is suggested to enhance a sense of responsibility and giving good concentration to the employees of inventory management section, by using different techniques like giving awards, establishing club which protect materials etc.
- The inventory management is advisable to improve the skill of workers in the store and inventory management department by giving them the detail necessary training in relation to the basic concept that utilizing the inventory system effectively.
- Currently, due to the expansion of the university it's obvious that the shortage of man power is exist, specifically in store and inventory recording section, so to solve this inadequacy, the university try to hire adequate workers immediately to thus sections.
- As it is known the organization success and failure is depends on the existence of efficient and effective management. In order to make inventory management efficient and effective the management of university is advisable to give great emphasis to inventory management department by ensuring immediate repair of materials, by maintaining proper utilization of purchased materials, by making and using modern material handling system, by building convenience and adequate number of storage place, by creating good awareness for employees of inventory management etc.

- The store division and purchasing department level of coordination is appreciated, so it's better to keeping it up in order to develop highly sophisticate and well modernize ways of team work situation.
- In order to make good inventory management system, the inventory classification techniques are the major direction to standardize the level of material using and material storing and also in allocating the purchased materials in the ways of wisely uses, therefore in addition to those stated inventory classification techniques the university inventory management department used, it's advisable to use "ABC" classification techniques, in order to make appropriate arrangement (classification) for inventories which are not of equal importance in-terms of cost invested and usage value.
- Finally, Good materials handling system is essential to create good as well as modern inventory management system. This can be achieved through:
 - Standardization of materials handling equipment.
 - Elimination unnecessary movement of materials.
 - Locating store room nearest to the users etc.

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APPENDIX- I

Wolkite University

College of Business and Economics

Department Management

This questioner is designed to assist in preparing senior essay research paper for partial fulfillment of BA degree at Wolkite University. It is used to gather overview, idea insights on **“inventory management system of Wolkite University main campus”**

Dear respondent first of all I would like to express my gratitude and great appreciation for devoting your precious time and your honest, accurate and clear response to these questions. Any of this response to questions will not create any harm and will be treated confidentially and will be used for this intended particular research paper only.

Instruction

1. Enclosing of your name is not necessary
2. You are kindly requested to make tick mark “√” in the box provide for closed ended question.
3. You are kindly requested to give clear description for open-ended questions.

A. Respondents background information

1. Sex A. Male B. Female
2. Age A. 18-35 B 36-50 C. Above 50
3. Education level
 A. Certificate C. Degree
 B. Diploma D. Masters and above
4. Marital status
 A. Married C. Single
 B. Widow D. Divorce

5. Work experience

- A. Below 1 Year C. 6-10 Years
B. 1-5 Years D. Above 10 years

B. Basic Question

1. To what extent the purchased material are properly utilized?
A. Very low C. Medium E. Very high
B. Low D. High
2. How do rate proper utilization of materials in this year as compared to the previous two year?
A. Lower B. The same C. Higher
3. The users of materials are engage in good materials using habit in the university.
A. Strongly disagree C. Agree
B. Disagree D. Strongly agree
4. How do you evaluate materials handling system of the university?
A. Very poor C. Average
B. Poor D. Good E. Very good
5. How does feel the society of the university to keep and protect the university materials as their own private property?
A. Very low C. Medium D. High E. Very high
B. Low
6. How is the convince storage place for surplus materials?
A. Very poor C. Average
B. Poor D. Good E. Very good
7. How is timely repair of damaged (broken) materials by concerned body?
A. Very slow C. Fast
B. Slow D. Very fast E. Immediately
8. How do you evaluate concerned body effort in preventing destruction and giving solution?
A. Less satisfactory C. Very satisfactory
B. Satisfactory
9. Is there any inventory classification technique?
A. Yes No
10. In question number 9 if your answer is yes, how the university classify the inventory?

- A. Based on price/ value C. Based on similar characteristics
B. Based on demand D. Based on usage rate

E. other than those above please write the method _____

11. Does the store division and the purchasing department work Co-operatively?

- A. Yes No

12. In the question 11, if your answer is “yes” how do you evaluate their Co-operative work?

- A. Very poor C. Average
B. Poor D. High E. Very high

13. If you observe some main problem in inventory management system of the university used please write them

14. Do the university effective and proper control to inventory in store?

- A. Yes B. No

15. In question number 14, if your answer is “yes” how the control is made? Please write _____

16. In question number 14, if you answer is “No” why the inventory control is not made? Please write your reason
