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# **UNIT 16 PURCHASE SYSTEM AND PROCEDURE**

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## **Objectives**

After completion of this unit, you should be able to:

- appreciate the need of professionalism in purchase
- define the scope and objectives of the purchasing department of an organization
- prepare the appropriate formats of input forms to the purchase departments for an efficient processing
- identify the demand characteristics of materials and their specifications, management policies, legalities, etc. to identify the suitable purchase procedures
- decide on selection of suppliers, timing, price, quality and quantity
- decide on the forms, records and reports relevant to purchasing
- evaluate purchase department
- evolve the procedures for vendor evaluation
- design the organisational structure for the purchase activity in an organization
- introduce computerisation of purchasing activities.

## **Structure**

- 16.1 Introduction: Role of Purchasing Function
- 16.2 Inputs
- 16.3 Restraints and Factors
- 16.4 Purchasing Decisions
- 16.5 Purchasing Organisation
- 16.6 Procedures, Forms, Records and Reports
- 16.7 Evaluation of Departmental Procedures
- 16.8 Vendor Evaluation and Rating
- 16.9 Computerised Purchasing Systems
- 16.10 Purchasing in Government Organisations
- 16.11 Summary
- 16.12 Key Words
- 16.13 Self-assessment Exercises
- 16.14 Further Readings

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## **16.1 INTRODUCTION: ROLE OF PURCHASING FUNCTION**

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From our daily life we know that every one of us depends on commodities and services supplied by other individuals or organisations. Similarly, every organisation, big or small, to varying extents, depends on materials and services from other organisations. These materials and services are obtained through exchange of money. This process of exchange is known as purchasing. In the present context, we shall concentrate on the purchase of materials. Materials constitute an important ingredient of inputs to the activities of several types of organisations. Industries require raw materials, components and equipments for their production, service organisations require supplies, spare parts are required for maintenance operations, and so on.

Furthermore, in most of the organisations, the value of materials as compared to other inputs to the system is high. In an industry, on an average about 40 to 60 per cent of the total money is spent on materials and related services. Similar estimates about the large sums of money involved can be made for public works departments, electricity boards, developmental agencies, corporations etc.



With the increasing complexities in materials' characteristics and their usage vis-a-vis increasing competition, the purchasing function has emerged as a specialised organisational activity. In many organisations, it is regarded as a supportive functions. However, in order to attain the maximum contribution to the efficiency and effectiveness of an organisation, the purchasing should be treated as one of the functional areas.

### **Objectives**

Purchasing principles are usually epitomised as buying materials of right quality, in the right quantity, at the right time, at the right price, from a right source and also at the right place. The main objectives are:

- 1 To make the user departments of the organisation from time to time aware of the range of the quality of materials available in the market and to maintain the right quality of purchased materials based on standards, technical specifications and suitability as determined by the user departments.
- 2 To procure at the lowest possible cost consistent with quality and service requirements.
- 3 To ensure the minimum possible investment in service operations related to purchased materials, such as transportation, inspection, storing, record keeping etc.
- 4 To maintain continuity of the supply to ensure that scheduled activities are not interrupted.
- 5 To integrate the requirements of all departments of the organisation in order to take the advantage of economy of scale wherever possible and to also avoid duplications of purchases resulting in wastes and obsolescence.
- 6 To create goodwill for the organisation through healthy buyer-supplier relationship.

### **Purchasing Functions**

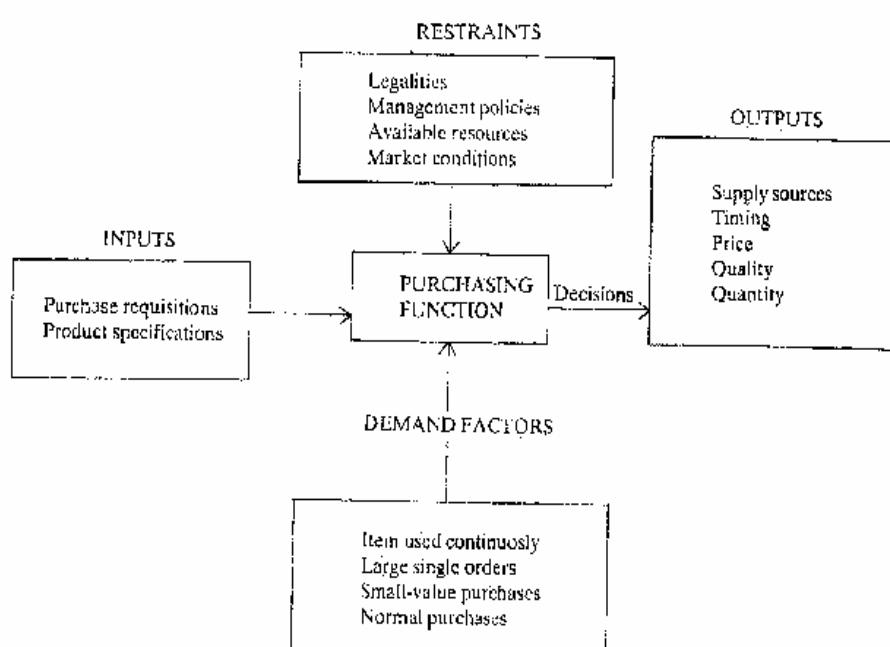
In order to meet the above objectives of the purchasing functions, the requisite inputs and possible restraints and factors must be identified. The purchasing function is responsible for a host of decisions. Figure I depicts the purchasing function.

In addition to the outputs shown in Figure I, responsibilities of the purchasing department include other related activities:

- (1) Vendor Rating and Development, (2) Make or Buy, (3) Value Analysis, (4) Surplus Disposal, (5) Control and Audit, Maintenance and Development of Procedures, Forms, Records and Reports.

We shall discuss the relevant points with reference to Figure I in subsequent sections.

Figure I: Purchasing Decision Function.



## **Activity A**



Prepare the list of all household items under the following heads: groceries, clothes, kitchenware, electronic and electrical appliances, and furniture. Then classify the items under: (i) used continuously, (ii) large single items, (iii) small value items.

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Review your actions and decisions for these items to meet the following objectives:

- a) to procure at lowest possible cost to ensure overall minimum investment, and
- b) to maintain continuity of the supply to ensure that scheduled activities are not interrupted.

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## **16.2 INPUTS**

The Preparation of inputs constitute pre-purchasing activities and decide to a great extent the success of the purchasing system. The inputs to purchasing come in the form of requisition or indent from various departments and units of the organisation. The success of purchasing department depends upon the quality of these inputs and also upon the ability of the purchasing department personnel to analyse the inputs to the fullest extent. The most important inputs are: purchase requisitions and their accompanying product specifications.

### **Purchase Requisitions or Purchase Indents**

A purchase requisition is the primary and authorisation document describing de needed items. Most organisations have standard requisition from for the use of all its departments. The format, however, ma\l' change from organisation to organisation. The three most common types of the requisition forms ate:

- a) standard purchase requisition,
- b) travelling purchase requisition, and
- c) bills of materials.



**a) Standard Purchase Requisition Form:** This form is standard for a given organisation. Different organisations may use different formats. A standard purchase requisition form is used for non-recurring requirements of items and normally contains the following information:

- 1 Requisition number (for identification, may use blocked codes including a short code for the department, name of the requisitioner, year, serial no. etc.).
  - 2 Date of the requisition.
  - 3 Name of the department/section.
  - 4 Account to be charged (an appropriate head may be ticked out of standard account heads).
  - 5 Description and quantity of items.
  - 6 Purpose of the items.
  - 7 Date when items are needed.
  - 8 Approximate unit price and the total cost.
  - 9 Suggested suppliers' names and addresses.
  - 10 Signatures of the requisitioner, head of the department, approving authority (as appropriate).

A sample format of standard requisition form is shown in Figure II. Space may also be provided for the purchasing department to record:

- 1 Purchase order no.
  - 2 Shipping instructions
  - 3 Delivery date and quantity delivered.

**Figure II: Specimen of Standard Materials Requisition Form**

**STANDARD MATERIALS REQUISITION FORM**

Date ..... No.....  
Department/Section .....  
Account to be charged:

Sl. No.	Description of Items	Quantity	Purpose	Approx. unit price	Approx. Total cost
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**TOTAL COST**

**Suggested Suppliers**

(1) Name ..... (2) ..... (3) .....

(Requisitioner) \_\_\_\_\_ (Head of the Department) \_\_\_\_\_ (Administrator) \_\_\_\_\_

## Activity B

Suggest some suitable place and procedure to indicate (a) price discounts, (b) urgency of need on the standard materials requisition form shown in Figure II



**b) Travelling Purchase Requisition:** This type of form is used by stores for recurring requirements for materials and standard parts. The requisition form is in the format of a card for a single item containing the information about the item (name and brief description, brief or coded names of the user department, annual usage rate, re-order point, order quantity) potential suppliers, records of receipts and issues, and so forth. The card can be used for many requisitions. When the stock level drops to or below the re-order point, the card is sent to the purchasing department for placing the order with the supplier. Sometimes a separate requisition form which is a brief version of standard form, is also, used when it is not convenient to send the card. To identify that the item is requisitioned, a coloured signal clip is attached with the card until the order is received. The entire transaction can be handled with minimum delay and without much of clerical paper work.

A sample format of the travelling purchase requisition card is shown in Figure III.

**Figure III: Specimen of Travelling Requisition Form**

### Traveling Requisition Form

Material description: Order Quantity:  
Part number: Reorder Level:  
Annual usage: User Departments:  
Suppliers:

B	—	—	—	—	—
C	—	—	—	—	—
	Requisitioned		Received		REMARKS
Date	Quantity on hand	Quantity requested	Date	Quantity	

**c) Bill of Materials:** This is a list of all items for a finished product and is prepared at the time of engineering drawing of the product. The bill of materials and the production schedule are sent to the purchasing department which computes the total requirements of each part for each period of the production. This eliminates the necessity of typing numerous requisitions for usually a large number of items.

## Specifications

Specifications of an item intended to be purchased provide detailed description of the characteristics and features of the item. These must be provided by the requisitioning department by taking, if necessary, assistance from the purchasing department which has acquired specialisation in the related matter. The major objectives of the specifications are: (1) to let the purchasing department understand exactly the features required in the item, (2) to let the supplier know exactly what the buyer wants, and

(3) to permit the easier, quicker and accurate verification of items upon receipt.

Following are the common types of specifications used to describe and grade the items:

**a) Market Grade:** Market grades are used in case of items bought and sold in a market place. Grading is done by comparison with a standard generally and widely accepted. Trade associations, commodity exchanges and government agencies establish and regulate such grades. Market grades are limited to natural products such as wheat, cotton, rice, lumber, etc. The suitability and success of this system, however, depend on the accuracy of grading and ability to ascertain the difference by inspection.

**b) Commercial Standards:** These standards are used for the items above commodity level because of their widespread use. When a material or item is standardised with complete quality description and established by customs, and accepted by the government, its agencies and industry in general, the material or item is said to be commercially standardised. Standard specifications have been prepared for many items by the Bureau of Indian Standards. Commercial standards have proved to be of great assistance in interchangeability for the user, and simplification of design, purchase procedure, inventory control, and cost reduction. These play vital role in mass production.



**c) Trade or Brand Names:** Trade or brand names are used by some manufacturers to establish the identity of various models produced and to protect them from other substitute. Branded products are simplest to buy, procedurally. Specifying an item by brand name limits the scope of competition and indicates a reliance upon the integrity and reputation of the supplier to provide consistent quality. This system of specification can be very economical for low-cost lot purchases.

**d) Material Specifications:** These specifications define the physical or chemical properties desired in an item. Items such as metals (aluminium, steel, copper, etc.), drugs, oils and paints are examples of products with material specifications.

**e) Performance Specifications:** Rather than describing an item physically or chemically, performance specifications describe the requirements about the performance characteristics. The seller is free to choose the materials, methods of processing and other details. These specifications are commonly used in case of equipments, machines, tools etc. This method, however, requires proper selection of supplier. The items supplied are tested to see that stated performance features are met. Purchase of computer system is a good example of this technique.

**f) Samples:** In case of special items of non-repetitive nature or where quality requirement is not rigid or when the quantity of items is so low that it does not justify the formulation of specifications, specifications are established by specimens or samples. The supplier is supposed to match the sample. Difficulty arises if the samples are subject to change, physically or chemically. In case of mechanical parts for replacement where the identification marks are not easily read, this method of specifications by sample may be the only possible way of purchasing the item.

**g) Blueprints:** A blueprint or engineering drawing is recommended for accompanying a purchase requisition when close tolerance or a high degree of mechanical perfection is required. Blueprints are used for mechanical parts, and for construction and other projects.

**h) Combined Specifications:** Many products cannot be adequately described by a single type of specification. In such cases, a combination of two or more specifications may be used. Quite a few products for industrial uses are so complex that a combination becomes a practical necessity.

## Activity C

For the domestic items listed in Activity A, indicate the popular way(s) of specifications against each one of them.

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### **16.3 RESTRAINTS AND FACTORS**

Restraints limit the alternatives available to purchasing department for its decisions. Similarly, the type of purchasing procedure adopted will depend on the factors related to the demand for the item. In this section, we shall discuss some of these restraints and the demand factors.

Purchasing decisions are restrained by legal considerations, management policies, resource availability, market conditions and so forth.



## Legal Consideration

The purchasing department commits a good deal of finance when a purchase order is placed. It is, therefore, necessary to have sufficient understanding about the legal aspects of purchase. The Indian Sale of Goods Act, 1930 and the Indian Contract Act of 1872 cover some of important legal aspects. The important relevant laws are (1) Law of Agency, (2) Law of Contract, (3) Law pertaining to Sale of Goods, including Patent Laws, Warrantees, Trade marks, etc., and (4) Arbitration. Professional legal advice related to these laws is a must for major contracts involving large sums of money or extending over a long period of time like imports. Indian Chamber of Commerce and International Chamber of Commerce have codified general business terminology to minimise the friction between buyer and seller. In addition to the legal precautions, emphasis should be on mutual trust and confidence.

## Management Policies (Centralised vs. Decentralised Purchases)

Management may choose between centralised and decentralised organisation or a mixture of these two for purchases. Centralised purchasing has economic advantage due to specialisation and input standardisation and thus, is an attractive strategy for multi-plant and multi-location activities using related items. In addition it offers:

- 1 Development of specialised purchasing skills.
- 2 Consolidation of order quantities which can result in quantity and cash discounts.
- 3 Better control over inventory investment.
- 4 Less overlapping and duplication of effort.
- 5 Uniform quality and less variety of materials.

Centralised purchasing however, tends to be slow, rigid, and rule-bound, and may turn out to be very costly for low-value purchases. Also, if item required by various departments are unrelated and less frequently demanded, the advantages of centralisation may be lessened. In such cases, management may decide to decentralise the purchase.

## Resource Limitations

Finance is the major resource which can seriously influence the purchasing activities. The corporate finance is shared by all the departments of the organisation and purchase department must operate within the allocated budget. This may lead sometimes to purchasing decisions somewhat less optimal than what it would have been had the purchase department been able to get the finance as and when desired. Thus sometimes the advantages of quantity discounts might have to be foregone in favour of overall financial planning of the organisation. Other resources such as manpower, storage space, and handling equipments also place limitations on purchasing decisions.

## Market Conditions

The market conditions relate to short-term market situations which are influenced by supply and demand as well as overall national economy. Thus during shortage, the reliability of supply may be considerably more important than the price. The purchasing strategies should, therefore, change to cope up with these situations, and ability to anticipate these conditions measures, to a good extent, professionalism acquired by purchase personnel.

## Demand Factors

Based on the demand pattern, the items can be grouped into four basic categories:

**1 Items Used Continuously:** Items that are continuously used with a fairly predictable demand can be handled under blanket purchase orders (also known as open-end purchase orders). A contract is negotiated with supplier(s) for a fixed period of time (six months or one year) with quantities, delivery dates, discounts etc. The price may be fixed, or kept open in which case the market price at the time of delivery will be applicable. Blanket orders conserve the time and effort of the purchasing department,

**2 Large Single Orders:** The situation of large single orders usually occurs in case of special machinery or other special goods, such as computers, vehicles, buildings etc. Considerable planning and evaluation are involved..1 he suppliers submit their bids



with all relevant details and purchases are negotiated by comparison and evaluation of the bids.

**3 Small-value Purchases:** The low-cost infrequently used items are purchased usually by the concerned departments using petty cash or by identifying some small local supplier. For the value involved, it is not worth going through the complete cycle of purchase process.

**4 Normal Purchases:** Items other than mentioned above fall in this category and are handled by the normal procedure, i.e., following the complete cycle of the purchase process discussed above.

## Activity D

For each group of items discussed above suggest suitable input forms as discussed in Section 16.2.

## 16.4 PURCHASING DECISIONS

With the purchase requisitions and specifications as inputs from the departments and sections of the organisations, the restraints from the external environment and the factors about the demand pattern, the purchasing department has to make several decisions. Some are purely operational while some relate to policy formulation having far-reaching impact on the long-term success of the organisation. In this section we shall discuss the operational decisions. Policy related decisions will be covered in later sections.

From purchase requisitions, the purchasing department generates purchase orders which is a legal document. Purchase order forms vary in their format and their routing through the organisation. A purchase order should contain at least the following:

- 1 Purchase order number (for identification).
  - 2 Date of issue.
  - 3 Name and address of supplier receiving the order.
  - 4 Quantity and description of item(s).
  - 5 Required delivery date.
  - 6 Shipping instructions.
  - 7 Price and payment terms.
  - 8 Other conditions governing the order.

A sample of the purchase order is shown in Figure IV

Purchase System and Procedure



Figure IV: Specimen of Purchase Order

PURCHASE ORDER

No. ....  
To

Date: .....

REF: Quotation No. .... Dated .....

S. No.	Description	Quantity required	Unit	Rate Rs. P.	Amount Rs. P.
Total Value					

Payment Terms:

Delivery Terms:

Terms related to Sales Tax:

Other Information:

Purchase Officer

Copy to: All concerned departments

We shall now discuss some of the decision function leading to preparation of the purchase order.

### Supplier Selection

Information on external sources of supply can be obtained from numerous references: (a) industrial advertisements of the supplier appearing in newspapers and periodicals, (b) supplier catalogues, (c) supplier salesmen, (d) trade journals, (e) yellow pages of telephone directory, (f) trade directories prepared by government agencies and trade associations, (g) list of suppliers approved by the government agencies, (h) enquiries through advertisements or individual communications, and (i) records of the organisations past purchases.

After compiling the information about suppliers for the needed item, relative proficiency of each potential supplier must be assessed on the basis of comparative quotations of price, quality, quantity, delivery, and other services. Other relevant variables are the supplier's management capability, technical ability, production capacity, depth of service, and financial stability. The purchase order is then issued to the most promising supplier. The information about other suppliers can be stored for future references.

### Timing of Purchases

An organisation is primarily interested in an adequate supply of material at the best price consistent with quality requirements. Timing is not a critical concern when the purchases are made in price stable market but it becomes critical in unstable price market situation. Following approaches may be adopted while trying to time the purchases in response to market conditions:

**a) Speculative Buying:** It involves purchasing in excess of foreseeable requirements in order to make profit (or imputed profit) from rising prices. Opportunities arise for such a purchase when price falls temporarily and the organisation has sufficient working capital to finance such speculative purchases.

**b) Forward Buying:** It involves purchasing in economical quantities exceeding current requirements, but not beyond actual, foreseeable requirements. This



approach is often used when prices are stable over time. It is adopted to obtain a favourable price, to get quantity discounts, to secure items when they are available, and to protect against prospective shortages. It, however, assumes the risk of increased inventory holding cost which ties up working capital.

**c) Hand-to-mouth Buying:** This practice is resorted to satisfy only immediate current requirements and may be uneconomical. This may be suitable in case of high-value items. It is not recommended for normal operations.

There are inherent risks in all these approaches in the environment of fluctuating market and price instability. Two techniques may be used to reduce the financial risk.

**a) Time-budgeting Purchases:** Using time-budgeting purchases, an organisation can frequently purchase an item over a long periodic cyclic fluctuation at an average price very close to average market price. This is accomplished by purchasing small quantities over short operating periods of equal length.

**b) Hedging:** The organisation purchases the required quantity on the spot or open market and at the same time sells the same quantity in the future market contracting to deliver at a future date in order to mitigate the risk associated with fluctuating prices. This approach, however, can be used in case of those items for which organised commodity markets or exchanges exist.

### Price Determination

Price per unit of an item comprises the unit purchase price, transportation cost, handling cost, inspection, insurance and the administrative variable cost. The right price simply means the lowest possible total price for the organisation.

The typical approaches for price determination are published price lists, competitive bidding, and negotiation. Price lists published by the suppliers give initial indication of the price. In competitive bidding, the requests for bids are sent to several suppliers. Usually the lowest bidder gets the order. Normal practice requires at least three competitive quotations wherever possible. Generally competitive bidding is most applicable to standardised products that are widely used and are produced to stock. Bids are normally secured when the size of an order exceeds some minimum amount.

Negotiation is the approach resorted to when time is too short, the number of bidders is too small, value of purchase is high, willingness to compete is lacking, or the specifications are too vague. In such circumstances, the buyer contacts the potential supplier and negotiates for the fair price and prompt delivery. An advance planning and analysis are expected to bring satisfactory results out of negotiation.

While determining the price, shipping terms should also be clarified. The shipping terms established (1) who will pay the freight charges, (2) when does the buyer take the legal title to the goods, and (3) who will prosecute loss and damage claims against carriers. There are numerous terms of shipment, but the most common ones are:

**a) F.O.B. (Free on Board) Buyer's Plant:** The buyer takes the title to the goods when the goods are delivered at his plant and supplier pays all transportation charges and processes all claims against the carrier for damages or loss of goods.

**b) F.O.B. Seller's Plant:** The buyer takes the title when goods are loaded onto the carrier and he pays all transportation charges as well as negotiates all freight damage claims with the carrier.

**c) F.O.B. Seller's Plant-Freight Allowed:** Legal responsibilities same as in F.O.B. seller's plant, but the supplier pays the freight charges.

**d) C.I.F. Contracts:** The price includes cost of materials, insurance and freight.

**e) F.A.S. (Free Alongside Ship):** Used in shipping by sea where supplier is responsible for getting goods to the ship, and the buyer takes title as well as all responsibilities thereafter.

Further, purchase contracts can be of fixed price (quite common), cost plus contract (no definite limit to costs) or blanket order (for six months or one year) type.

**Discounts:** An important aspect of price determination involves discounts that can be secured. Following types of discounts are common:



- 1 **Trade Discount:** To protect certain distribution channel when it is economical to buy from the distributor than the manufacturer,
  - 2 **Quantity Discount:** For purchasing worth beyond certain amount of money.
  - 3 **Seasonal Discount:** For purchasing in off-season.
  - 4 **Cash Discount:** For prompt and full payment.

Quality and Quantity

The process of determining right quality in purchasing implies striking a balance between technical specifications and economic considerations. The right quality has no absolute meaning but is specified in relation to a purpose. As mentioned above most of the technical specifications are decided by the requisitioning department. The purchasing department should be instrumental in making the quality decisions by making, to the requisitioning departments, available various market grades, trade names, commercial standards etc. and corresponding prices and sources of supply to enable them to specify quality of items. Once the quality standards are specified, the purchasing department makes arrangement in collaboration with the requisitioning department for the inspection of the items after delivery. Sometimes, inspection is performed by an organisational representative in the vendor's plant. On-site inspection can save time and money while minimising operational delays from the inferior quality. For normal items supplied in lots, inspection for acceptance is carried out by sampling.

Procedures should be established for handling inferior quality. Should the shipment be returned to the supplier and contract cancelled? Should the buyer rework the item to an acceptable quality and bill the supplier? Should only rejected items be returned for replacement and acceptable items retained? Such issues must be resolved in advance to maintain a long-term relationship.

After determining the quality, the next important step is to determine how much quantity to buy and when. For items continuously used, the purchasing department can collect the projected demands from various departments and then can incorporate these details into the blanket purchase order. For large single orders, there is not much to decide about the quantity. Small-value purchases are made as and when need arises. For normal purchases usually two quantities govern the ordering decision: reorder-point an order quantity. When the stock goes to or below reorder-point an order for quantity equal to order quantity is placed.

$$\text{Order quantity} = \sqrt{\frac{2AD}{h}}$$

where,

A = fixed cost of ordering (Rs. /order)

D = average annual demand (unit/year)

$h$  = holding cost (Rs./unit/year)

Safety stock depends on the variation of demand and can be taken as 3 times the standard deviation.

In case of production components, the determination of right quantity can be linked with the concept of Materials Requirement Planning (MRP).

## Activity E

Analyse the formula for quantity determination when items are not demanded throughout the year but are demanded in a seasonal manner.



## **16.5 PURCHASING ORGANISATION**

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Purchasing department is usually under the General Manager at par with other functional departments such as engineering, finance, accounts, manufacturing, marketing etc. Some times it is kept along with other related departments like stores, inventory and materials control, under materials manager who in turn is under General Manager. Choice of an organisational structure depends on the volume of work and value of the purchase. A good structure encourages the assignment of specific responsibilities, specific authorities and smooth chains of command of delegation. It should lead to the development of policies that permit routine decisions to be made by subordinates.

Within purchase department, the structure may be worked out using following approaches:

**Organisation by Function:** It is based on the principle that job should be organised so as to promote maximum possible specialisation of skills. Total purchasing job is broken up on the basis of specialisation, such as (1) processing of purchase requisitions, (2) floating enquiries, (3) selection of suppliers, (4) preparation of purchase orders, (5) receipt inspection and storing, (6) liaison with accounts section, (7) records maintenance etc. Each job, or a group of jobs, is assigned to individual or group of individuals who specialise in that work. This approach has obvious advantages but suffers from the disadvantage of people getting bored doing the same kind of jobs for a long time, and sometimes it leads to bureaucratisation.

**Organisation by Product:** The items purchased are classified into groups and each group is assigned to a team of personnel who specialise in purchase of that particular type of the materials. For example, a team may be specialist in buying raw materials, while other in components and sub-assemblies, and so forth.

**Organisation by Location:** This is applicable for the organisations which are large and have several plants. Each plant may have a purchasing department under the overall supervision of the central purchasing department.

**Organisation by Stage of Manufacturing:** In case of manufacturing, sometimes it is advisable to organise the purchase activities according to the stage of manufacturing, e.g. raw materials, parts, sub-assemblies etc.

### **Activity F**

Discuss the suitability of centralised and decentralised purchasing systems in view of the purchasing organisation discussed in Section 16.5.

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## **16.6 PROCEDURES, FORMS, RECORDS AND REPORTS**

### **Procedure**

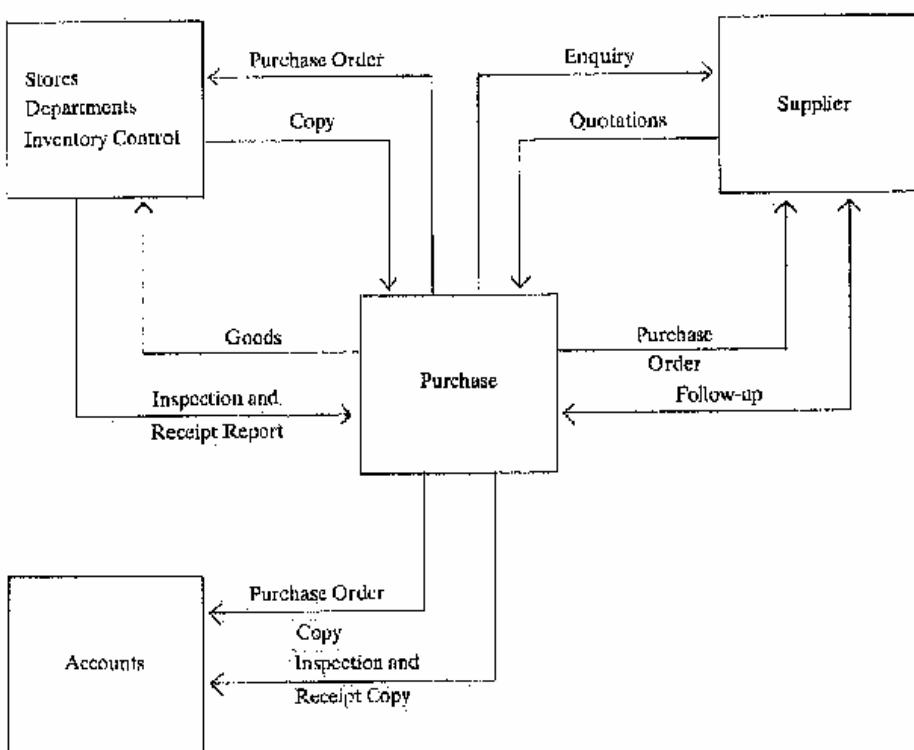
By procedure we mean the entire set of steps in which a purchase transaction is carried through from its inception to its conclusion. These steps together form the purchase policy of an organisation. Since there are wide variations among industries, companies, organisations, products and personnel, it would not be feasible to

establish a single set of procedures which would apply to all cases. The following basic steps, however, must be taken in one way or another:

- 1 Receipt and analysis of requisition to assess the need and description of requirement.
- 2 Selection of possible sources of supply.
- 3 Determining the time, price, quality and quantity.
- 4 Placing the order.
- 5 Following up and expediting of the order.
- 6 Checking the invoice and receiving the order.
- 7 Processing discrepancies and rejections after inspection.
- 8 Communicating with accounts' section for payment.
- 9 Closing completed records.
- 10 Maintenance of records and files.

A schematic purchase procedure involving some of these steps is shown in Figure V.

Figure V: A Schematic Diagram of Purchase Procedure



## Purchase Forms

Forms are very important tools for purchasing department to standardise the communication with internal departments of the organisation and external agencies such as supplier, local government bodies, etc. The number of forms required depends on the size of the organisation, the purchasing system employed in the organisation, and the accounting and internal control methods in effect. Normally there should not be too many forms as they create confusion and red tapeism. Certain links of communication can be sent copies of some forms (as shown in Figure V) instead of individual forms. The forms should incorporate the principles of good design to facilitate data entry and data retrieval, to minimise the possibility of errors, and finally, to be just economically sufficient in size and number of entries required.

Purchase forms for the following functions are usually employed (some of which have already been exhibited).

- 1 Purchase requisition –
- 2 Request for quotation
- 3 Purchase order
- 4 Follow-up
- 5 Receiving and Inspection.





In addition, some other forms are also used by some large organisations. Among such forms are: acknowledgement for quotation received, change of order notice, purchase contract, sample test report etc.

### Purchase Records

Since purchasing is a repetitive process, accurate records are a necessity for efficient operation. These records provide a history of what has been done in the past (supplier, price, discounts, quality delivery etc.) and provide a wealth of information upon which to base future decisions. Maintaining a good-record system will increase operating costs but expectedly it should bring some handsome savings in the long run.

Most purchasing departments maintain the following basic records:

- 1 Purchase Order Log:** It contains a numerical brief record of all purchase orders issued. It contains purchase order number, supplier's name, brief description of purchase, total value of the order etc. The log makes it possible to summarise several administrative data.
- 2 Open Order File:** Contains the status of all outstanding orders. It contains purchase requisition, purchase order, follow-up data.
- 3 Close Order File:** Contains a historical data of all completed purchases.
- 4 Vendor Record:** Contains the names and addresses of suppliers, materials that a supplier can supply, delivery and quality records.
- 5 Commodity Record:** Such record is maintained on each major material or service that is purchased repetitively. It shows the list of suppliers, annual usage rate, price, orders placed, orders received and disbursements to the departments.
- 6 Contract File:** Contains the purchase records of items under a term contract. It is specially important when the contract is an open one, against which orders may be placed.

### Purchase Reports

Since the purchasing department handles a sizeable proportion of corporate finance, it is desirable to have some summary reports periodically (quarterly, half-yearly or annually) available to the management. Some of the important reports are:

- 1 Total value of purchase.
- 2 Allocation of purchase value against major items.
- 3 Allocation of purchase value against each requisitioning department.
- 4 Budget for purchase for the next year.
- 5 Proposals for revisions of budget in current year.

In addition, the purchasing department brings out the report for its own use. They are:

- 1 Vendor Performance Report
- 2 Pattern of Consumption of materials.
- 3 Pattern of market prices.

### Activity G

Design a suitable form for preparing the annual budget for the purchasing department.

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## **16.7 EVALUTION OF DEPARTMENTAL PROCEDURES AND VENDORS**

Evaluation of the purchasing department is essential for the economic health of the organisation. At the same time, a good proportion of the efforts in purchasing activities are not immediately visible and so the evaluation becomes rather difficult. In any case, a consistent effort towards this aspect must be kept on with the following objectives of evaluation:

- 1 Performance improvement of the department.
- 2 Aid to Organisation.
- 3 Easy coordination amongst departments.

Establishing evaluation criteria is also very difficult. Following criteria can be combined for an overall picture of purchasing performance:

- 1 Cost-Purchase Comparison (annual cost of purchasing department divided by the total value of purchases).
- 2 Cost per Order (total purchasing department cost divided by the number of orders).
- 3 Return on Investment (net savings per rupee spent on purchasing).
- 4 Quality Criteria (measured by number of rejects).
- 5 Quantity Criteria (measured by downtime).
- 6 Price Criteria (comparison with other organisation or standard price indexes).

The evaluation standards can be based on past performance, budgeted performance, or performance of departments in other organisation to judge what is being done as compared to what should have been done.

## **16.8 VENDOR EVALUATION AND RATING**

It is not always easy to identify good suppliers. Records maintained or procured from some other, sources about the vendors help in their evaluation and rating. Usually a combination of price, quality, quantity, delivery time, service etc. giving relevant weightages to these factors is used to rate the vendors. In addition, a checklist can be used to facilitate rating from department standpoints. Some of the points are mentioned below:

### **Reliability**

- 1 Is the supplier reputable, stable and financially strong? ,
- 2 Are the supplier's integrity and ability above doubt?
- 3 Is the supplier going along with product improvement?
- 4 Is the supplier's competitive strength as to price, quality, etc. proved by past experience?

### **Technical Capabilities**

- 1 Can the supplier provide assistance as to application engineering?
- 2 Can the supplier provide assistance as to analytical engineering?
- 3 Can the supplier provide design assistance?
- 4 Can the supplier handle special needs and contribute to improve product efficiency/basic processes?

### **Convenience**

- 1 Can the supplier help reducing acquisition costs through personal visits, telephone calls, incoming inspections, rejection of defects, spoilage, etc?
- 2 Can he offer other related products?
- 3 Is he qualified to help in solving difficult problems?
- 4 Does the supplier package his product conveniently?

### **Availability**

- 1 Does the supplier assure delivery in time?
- 2 Are his stocks locally available, and or at short notice?
- 3 Is the supplier's location advantageous?
- 4 Can he plan his supply to minimise inventory?
- 5 Can he be depended on for a steady flow of materials?



### After-sales Service

- 1 Does the supplier have a service organisation?
- 2 Is an emergency service available?
- 3 Are parts available, when needed

### Sales Assistance

- 1 Can the supplier help building mutual markets?
- 2 Will he recommend our products?
- 3 Does the use of supplier's product enhance appearance of our products?

### Vendor Evaluation

Recognising that there is a need for having good vendor, it is essential that supplies are obtained from vendors after an evaluation of his capabilities. The buyer, who has to do the evaluation, is faced with two different situations;

- 1 Evaluating the performance before the vendor has delivered anything.
- 2 Evaluating the performance of vendor after the deliveries have been made.

The latter one is normally called Vendor Monitoring and the former Vendor Evaluation.

In case of Vendor Evaluation the buyer lacks the direct evidence on the results achieved by the vendor and must get his information in other ways. This includes (1) general reputation of vendor, (2) data from other buyers, (3) vendor surveys.

### Vendor Rating

Product quality submitted by vendors has always been evaluated and used as a factor in making purchasing decisions. Recently, the evaluation has been formalised by the use of vendor rating formulas which provide a quantitative measure of vendor quality. These ratings are primarily meant to provide an overall quality rating of a vendor for use in reviewing, comparing, and selecting vendors. Vendor rating is not a tool for making decisions on submitted lots.

To create a single numerical quality score is difficult because there are several inputs, each involving its own unit of measure:

- 1 The lot quality, expressed as lots rejected versus lots inspected.
- 2 The parts qualities, expressed as per cent defective.
- 3 The characteristic qualities, expressed in numerous natural units, e.g., rupees per square cm., per cent active ingredient, MTBF, etc.
- 4 The economic consequences of bad quality, expressed in rupees.

The National Association of Purchasing Agents, New York, has published three alternative vendor rating plans:

- 1 Categorical Plan:** This is a non-quantitative system in which buyers hold a monthly meeting to discuss vendors and rate each as plus, minus, or neutral.
- 2 Weighted-point Plan:** Each vendor is scored on various factors like quality, price, service etc. These factors are weighted and a composite rating is then calculated for each vendor. The details of this performance evaluation scheme areas follows:

#### i) Quality Rating: Quality Rating for a consignment

$$R_Q = \frac{Q_1 + Q_2 X_1 + Q_3 X_2}{Q} \times 100$$

where,

$Q$  = Quantity supplied

$Q_1$  = Quantity accepted

$Q_2$  = Quantity accepted with concession

$Q_3$  = Quantity accepted with rectification

$Q_4$  = Quantity rejected

and

$$Q = Q_1 + Q_2 + Q_3 + Q_4$$

$X_1$  and  $X_2$  are weightage factors each less than 1.



**ii) Price Rating:** Price rating for a consignment:

$$R_p = \frac{P_L \times 100}{p}$$

where,

$P_L$  = Lowest price quoted

$P$  = Price agreed by supplier

**iii) Delivery Rating:** Delivery rating for a consignment:

$$R_D = \frac{\text{Promised delivery time (days)} \times 100}{\text{Actual delivery time (days) of the full consignment}}$$

Rating in excess of 100 shall be equated to 100.

**iv) Quantity Rating:** Quantity Rating for a consignment:

$$R_{Qty} = \frac{(\text{Qty. supplied within stipulated delivery time})}{\text{Quantity promised}} \times 100$$

$$= \frac{Q}{Q_p} \times 100$$

**Service Rating:** Service Rating, RS, is to be assigned by Purchase Department as per the following table for each consignment.

SL.No.	Service Factor	Max. Score
1	Cooperativeness and readiness to help in emergencies	$a_1$
2	Readiness to replace rejected material	$a_2$
3	Providing support documents in time	$a_3$
4	Promptness in reply	$a_4$
5	Acceptance of terms without complaints	$a_5$

where  $a_1 + a_2 + a_3 + a_4 + a_5 = 100$

**vi) Composite Vendor Performance Rating:**

$$VPR = f_1 R_Q + f_2 R_P + f_3 R_D + f_4 R_{Qty} + f_5 R_S$$

Where,  $f_1 + f_2 + f_3 + f_4 + f_5 = 1$

**Fixing of Weightage Factors:** In order to implement this scheme, it is necessary to fix the weightage factors  $X_1, X_2, a_1, a_2, a_3, a_4, a_5, f_1, f_2, f_3, f_4$  and  $f_5$  as suited to the organisation.

**3 Cost-ratio Plan:** This plan compares vendors on the total rupee cost for a specific purchase. Total cost includes price quotation, quality costs, delivery costs, and service costs. The final rating is in rupees of net value cost. The net value cost is the product of the adjusted unit price and the number of units. The adjusted unit price incorporates three cost ratios.

- i) The quality cost ratio reflects the relative cost of quality.
- ii) The delivery cost ratio reflects the relative cost of placing and receiving an order. It also includes a promises-kept penalty based on a ranking of past performance of vendors.
- iii) The service cost-ratio reflects the technical, managerial, and field service competence of the vendor.

All three of these plans recognise quality in the rating of vendors but the rating is not restricted to product quality.

### Vendor Relations

The ultimate objective in vendor quality assurance is the production of materials which so adequately conform to the buyers' requirements that there is no need for extensive acceptance or corrective procedures by the buyer. The activities needed to achieve this objective include:

- 1 Communication of essential and helpful information, design, specifications, standards, practices etc.



- 2 Communication of engineering changes, changes in specifications etc.
- 3 Developing methods for detecting deviations from standards promptly.
- 4 Helping the vendor in resolving quality problems. In case of vendors like sub-contractors and ancillaries, rendering necessary technical assistance as well.
- 5 Providing for use of vendor quality data in lieu of incoming inspection.
- 6 Using multiple vendors for major procurements of items.
- 7 Developing methods for identifying the qualified vendors, and for eliminating those who are unable to meet the quality requirements.
- 8 Reviewing the performance of the vendor through vendor rating or other plans and following up on the chronically poor vendors.

The guiding principle in vendor relations is the spirit of what is best for the partnership. The supplier must be made to realise that it is not sufficient to accept the returns willingly or to negotiate the disposition of materials not delivered to the specifications. The supplier should view such instances objectively and work constructively with the buyer to correct the conditions that brought about the delivery of unsatisfactory material or service.

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### **16.9 COMPUTERISED PURCHASING SYSTEM**

The attractive characteristics of computers such as high speed, huge storage, quick retrieval accuracy, versatility and diligence on the one hand and increasing complexities in purchasing on the other make an excellent match for computerisation of purchasing system. The declining cost of computer system is an additive factor. Although there are no complex arithmetic computations involved in purchasing, the requirements of quick processing of requisition, follow up, payment etc. find a computer of immense help. In this section, we shall discuss broad outline of computerisation of the system (not the computer technology).

Let us visualise that the computer has the following files:

- 1 Inventory file for each item.
- 2 List of the suppliers (alongwith their performance history).
- 3 Budget allocation for each department.
- 4 Master purchase file condensing the previous purchases (item-wise, department-wise, supplier-wise, price, quality etc.)

In addition, the computer has facilities to print and (may do so on a preprinted stationary) the quotation request, purchase order, follow up, inspection report etc.

When a requisition is received, the relevant data are entered through the appropriate programme. Now a days, the screen and template designs are proving much more convenient and fool proof. The computer checks the inventory status of the items and if in-stock items are issued and inventory record is updated. If not in the stock, a programme finds the classification of the item, that is , whether it is a continuously used item or a special item. From the suppliers list, it finds the suppliers who can supply the items and prints quotation requests. If it is a special item, then human intervention will of course be needed to float the enquiries. The programme also checks the budget of the department and account head to which the sum is to be debited. The data from quotations are entered and the computer displays the comparative statement. It will select the supplier and print the purchase order. Upon receipt, it will update the inventory of the item. In addition, computers are very useful for monitoring the status of the purchase order to assist in follow-up actions.

So we see that computer performs all the actions displayed in Figure V and generates the reports as desired above. In addition it is very useful in processing exceptional reports, such as budget is over, orders not supplied in time, payments not made in time etc.

It may be mentioned that most of the computers, specially small and mini-computers, offer a host of utilities which are very useful for computerisation of tasks like purchase.

Computerisation of purchase (such as receiving, issuing, instruction, stores, inventory, handling etc.) can easily bring the desire coordination among other



functions of materials management as well as among other departments of the organisation such as production, design, engineering, finance and accounting, marketing etc. through suitable design of database and information systems.

## **16.10 PURCHASING IN GOVERNMENT ORGANISATIONS**

With the aim of providing the best possible service to the society out of the limited resources and following its policy of mixed economy, the Government of India has itself entered into manufacturing and other types of commercial and trading activities. To gain the advantages of centralised purchase all Governmental purchase operations are controlled by a central agency, the Directorate General of Supplies and Disposal (DGS & D), New Delhi headed by its Director General (Supplies and Disposal) under the Ministry of Supply, Government of India. The DGS & D is responsible for all purchase of materials of all kinds and functions as a purchasing and inspection agency on behalf of:

- 1 All Ministries, attaché's and subordinate offices of Government of India.
- 2 All State Governments and their departments.
- 3 All local bodies, such as, Municipal Corporations, District Boards, etc.
- 4 All Quasi-public Institutions, Statutory Corporations and Public Sector industrial undertakings may also avail of the services of the DGS & D.

It also makes purchases from foreign countries through its subsidiaries like the Indian Supply Mission in London and Washington. It also purchases from East European and South-Eastern countries on trade agreements and has a full-fledged Inspection Directorate in Japan.

### **Organisation Set-up of DGS & D**

The role of the DGS & D is very wide and, for smooth and efficient functioning, it is divided into following wings:

- a) Supply
- b) Inspection
- c) Progress
- d) Disposal.

The organisation has regional offices located at Calcutta, Bombay, Kanpur and Madras. Besides, there is a regional-office at Bombay exclusively for textiles. The regional offices are empowered to purchase a large number of items provided the individual demand for them does not exceed Rs. 6 lakhs. All items financed through foreign loans are purchased by the HQ irrespective of thier nature and value.

In addition to the activities carried through its wings, the DGS & D performs following functions and has directorates and offices all over the country.

- 1 Public Relations and Publications.
- 2 Standardisation and Quality Control.
- 3 Development of Indigenous Sources of Supplies.
- 4 Purchases from Cottage and Small Scale Industries.
- 5 Registration of Suppliers.
- 6 Termination, Suspension and Black-listing of Suppliers.
- 7 Rate and Running Contracts.
- 8 Payment Procedure.
- 9 Indent Processing.

## **16.11 SUMMARY**

Purchasing, in ordinary sense, is the procurement of materials, components, machines, equipments, supplies etc. on payment. In the present environment of frequently varying price conditions and increasing material variety and competition, the purchasing function needs professionalism to reduce the total investment in



purchase while making the required materials of right quality available on time. The purpose of this unit is to present and discuss various aspects of purchasing to achieve this professionalism. Major topics discussed include: scope and objectives of purchasing, inputs, environmental and management, factors influencing the purchasing decisions, purchasing decisions, procedures, forms, records and reports, procedure evaluation, vendor evaluation, and organisation for purchasing. The presentation and discussions are aimed at an efficient information flow amenable for computerisation.

An efficiently designed purchase system, with appropriate procedure, forms; and information flow, can generate the reports with required contents intended for specified destinations at various levels of management in the organisation. Such a system would enable the organisation to carry out efficient overall financial and materials planning and monitoring. The system, in effect, would enable the purchase department itself to plan and monitor its own activities to achieve the objectives of an integrated purchasing system.

## 16.12 KEY WORDS

**Average Down Buying:** Policy of purchasing items at a moment when the market dips sharply in the course of gradual price change.

**Bill of Materials:** A list of all items incorporated into a finished product produced by the organisation. It is prepared on the basis of engineering drawing.

**Bill of Lading:** A document signed by the shipping agency acknowledging the receipt of certain specified goods for carriage and embodying an undertaking that goods will be delivered to the consignee.

**Blanket (or Open-end) Purchase Order:** A purchase order in the form of a contract for continuously used items for a fixed period (usually a year) with delivery dates and quantities. The prices may be negotiated for the whole period or kept open in which case the prevailing market price applies.

**Cash Discounts:** Price concessions offered for prompt and full payment of bills.

**Commercial Invoice:** Statement showing the details of items and their prices. It is a preliminary document sent by supplier to buyer and is used by the buyer to check the goods received.

**Competitive Bidding:** Several vendors responding to supply certain items and final selection of the successful bidder is made on the basis of price, quality and other consideration.

**DGS and D (Directorate General of Supplies and Disposal):** The central purchasing organisation of Government of India for public buying.

**Forward Buying:** Policy of purchasing items in economical quantities exceeding current requirements, but not beyond actual foreseeable requirements.

**Hand-to-mouth Buying:** Policy of purchasing items only to meet immediate shortterm requirements.

**Hedging:** Practice of entering simultaneously into two transactions of a like amount-a cash transaction and a futures transaction. The cash transaction involves the current exchange of the buyer's cash for the physical goods and the futures transaction involves the buyer's sale of a futures contract on the item with promised delivery at a specified date in future.

**Letter of Credit:** An arrangement by which the obligation to pay an exporter is undertaken by a bank.

**Negotiation:** Purchaser approaches the suppliers for price determination. It is used when the number of bidders is small, value of purchase is too high and time is too short for competitive bidding or willingness to bid is lacking.

**Product Specifications:** Detailed description of the characteristics and features of an item. Some common types are: blue-prints market grades, commercial standards material specifications, performance specifications etc.



**Quantity Discount:** Price concessions given to a buyer for purchasing larger quantities Purchase System and Procedure or for larger values of money.

**Reciprocal Buying (or Reciprocity):** Practice of giving preference in buying in those suppliers who are customers of the buying organisation.

**Seasonal Discount:** Price concessions offered for purchases made in the off-season.

**Speculative Buying:** Policy of purchasing items in excess of foreseeable requirements in order to make a profit from rising prices.

**Standard Purchase Requisition:** A requisition form used by internal departments of an organisation to raise the indents for non-recurring materials. The completed form is submitted to the purchase department.

**Trade Discount:** Price concessions given to a buyer on the basis of his classification- Wholesaler, retailer etc.

**Travelling Purchase Requisition:** A requisition card maintained continuously for each item and used to procure recurrently needed materials and parts. It originates from stores or inventory control section.

## 16.13 SELF-ASSESSMENT EXERCISES

### I Review Questions

- 1 What are the common objectives of the purchasing function?
- 2 What are the common forms used to authorise a purchase and what are the governing factors to decide the suitability of these forms?
- 3 What are the major purposes of product specification and what are the common methods of product specifications?
- 4 What are the activities in the purchasing function which require high consideration for legal aspects?
- 5 What are demand factors and how do they influence the purchase decisions?
- 6 What are the common approaches for price determination?
- 7 What are different types of discounts offered by the suppliers?
- 8 What are the approaches for price determination.
- 9 What are the common shipping criteria?
- 10 When and how are the various purchasing approaches beneficial to decide the timing of purchases?
- 11 What are the various purchase forms and records usually employed by a purchasing department?
- 12 What are the basic types of purchase contracts and when should they be used?
- 13 What are the criteria commonly employed for the evaluation of purchasing system?
- 14 How are vendors evaluated?
- 15 Sketch the information flow between purchasing and various other departments of an organisation and list the responsibilities of each to meet the objectives of an integrated purchasing system.

### II Design Exercises

- 1 Design a suitable form to be used for preparing the comparative statements to enable the purchasing manager to take the decision about the best supplier.
- 2 Design an inspection report form to enable the purchasing department to release various instalments of the payment and to enter the appropriate data in the supplier's file.

### III Problems

- 1 An item is demanded at the rate of 20,800 units per year and the lead time is 2 weeks. The unit price is Rs. 50 and the holding cost is Rs. 10 per unit per year (i.e. 20 per cent of the unit price). It costs Rs. 20 for each lot of procurement. The



standard deviation of the demand over the lead time is 10. Calculate the order quantity, reorder point and safety stock and prepare the purchase plan and the budget for the whole year.

- 2 Consider a problem of comparing suppliers by weight point plan. A total of 100 points are allocated among those factors considered important by an organisation. The supplier with the largest number of weight points is the most desirable. The following weights are used to compare the suppliers: quality (40 points), price (35 points), and service (25 points). Based on the data given below, rank the four suppliers:

Supplier	Shipment received	Shipments accepted	Unit price	Fraction of commitments fulfilled
A	500	480	10.00	0.94
B	600	560	9.60	0.90
C	80	78	1.20	1.00
D	200	192	8.90	0.98

## 16.14 FURTHER READINGS

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