**Chapter 5**

**Indirect Cost Allocation**

One of the classiﬁcation of costs is on the basis of ‘Nature’ in which costs are classiﬁed as ‘Direct’ and ‘Indirect’. Direct costs are those which are identiﬁable with a cost object or a cost center while indirect costs are not traceable to cost object or cost center. In other word indirect costs cannot be linked with the product offered by the ﬁrm. If a ﬁrm manufactures only one product all costs are direct but if more than one product is offered the indirect costs incurred are not traceable with a particular product. So while direct costs are allocable to a job process service cost unit or a cost center indirect costs cannot be so allocated. These indirect costs are called as ‘Overhead’ costs. Overhead costs are deﬁned as ‘the total cost of indirect materials indirect labour and indirect expenses.’ Thus all indirect costs like indirect materials indirect labour and indirect expenses are called as ‘overheads’. Examples of overhead expenses are rent, taxes, depreciation, maintenance, repair, supervision, selling and distribution expenses, marketing expenses, factory lighting, printing, stationery etc.

**Q.1.** Indirect costs are called as ‘Overhead’ costs. **(True)**

**Q.2.** Give examples of overhead expenses.

**Ans.2.** Examples of overhead expenses are rent, taxes, depreciation, maintenance, repair, supervision, selling and distribution expenses, marketing expenses, factory lighting, printing, stationery etc.

**Overhead Accounting**

The ultimate aim of overhead accounting is to absorb them in the product units produced by the ﬁrm. Absorption of overhead means charging each unit of a product with an equitable share of overhead expenses. In other words as overheads are all indirect costs it becomes difﬁcult to charge them to the product units. In view of this it becomes necessary to charge them to the product units on some equitably basis which is called as ‘Absorption’ of overheads. The important steps involved in overhead accounting are as follows.

**A.** Collection, Classiﬁcation and Codiﬁcation of Overheads

**B.** Allocation, Apportionment and Reapportionment of overheads

**C.** Absorption of Overheads.

**Q.3.** What are the steps involved in overhead accounting?

**Ans.3.** The important steps involved in overhead accounting are as follows.

**A.** Collection, Classiﬁcation and Codiﬁcation of Overheads

**B.** Allocation, Apportionment and Reapportionment of overheads

**C.** Absorption of Overheads.

As mentioned above the ultimate of overhead accounting is ‘Absorption’ in the product units. This is extremely important as accurate absorption will help in arriving at accurate cost of production. Overheads are indirect costs and hence there are numerous difficulties in charging the overheads to the product units. In view of this lot of care is to be taken in the absorption of overheads. The steps in overhead accounting are discussed below.

**A. Collection, Classiﬁcation and Codiﬁcation of Overheads: -** These concepts are discussed below

**I. Collection of Overheads: -** Overheads collection is the process of recording each item of cost in the records maintained for the purpose of ascertainment of cost of each cost center or unit. The following are the source documents for collection of overheads.

i. Stores Requisition

ii. Wages Sheet

iii. Cash Book

iv. Purchase Orders and Invoices

v. Journal Entries

vi. Other Registers and Records

For the purpose of overhead accounting collection of overheads is very important. It is necessary to identify the indirect expenses and the above mentioned source documents are used for this.

**II. Classiﬁcation of Overheads: -** Classiﬁcation is deﬁned as ‘the arrangement of items in logical groups having regard to their nature (subjective classiﬁcation) or the purpose to be fulﬁlled (Objective classiﬁcation). In other words classiﬁcation is the process of arranging items into groups according to their degree of similarity. Accurate classiﬁcation of all items is actually a prerequisite to any form of cost analysis and control system. Classiﬁcation is made according to following basis.

**i. Classiﬁcation according to Elements: -** According to this classiﬁcation overheads are divided according to their elements. The classiﬁcation is done as per the following details.

• Indirect Materials: - Materials which cannot be identiﬁed with the given product unit of cost center is called as indirect materials. For example lubricants used in a machine is an indirect material similarly thread used to stitch clothes is also indirect material. Small nuts and bolts are also examples of indirect materials.

• Indirect Labour: - Wages and salaries paid to indirect workers i.e. workers who are not directly engaged on the production are examples of indirect wages.

• Indirect Expenses: - Expenses such as rent and taxes, printing and stationery, power, insurance, electricity, marketing and selling expenses etc. are the examples of indirect expenses.

**ii. Functional Classiﬁcation: -** Overheads can also be classiﬁed according to their functions. This classiﬁcation is done as given below.

• Manufacturing Overheads: - Indirect expenses incurred for manufacturing are called as manufacturing overheads. For example factory power, works manager’s salary, factory insurance, depreciation of factory machinery and other ﬁxed assets indirect materials used in production etc. It should be noted that such expenditure is incurred for manufacturing but cannot be identiﬁed with the product units.

• Administrative Overheads: - Indirect expenses incurred for running the administration are known as Administrative Overheads. Examples of such overheads are ofﬁce salaries, printing and stationery, ofﬁce telephone, ofﬁce rent, electricity used in the ofﬁce, salaries of administrative staff etc.

• Selling and Distribution Overheads: - Overheads incurred for getting orders from consumers are called as selling overheads. On the other hand overheads incurred for execution of order are called as distribution overheads. Examples of selling overheads are sales promotion expenses, marketing expenses, salesmen’s salaries and commission, advertising expenses etc. Examples of distribution overheads are warehouse charges, transportation of outgoing goods, packing, commission of middlemen etc.

• Research and Development Overheads: - In the modern days ﬁrms spend heavily on research and development. Expenses incurred on research and development is known as Research and Development overheads.

**iii. Classiﬁcation according to Behaviour: -** According to this classiﬁcation overheads are classiﬁed as ﬁxed variable and semi-variable. These concepts are discussed below.

• Fixed Overheads: - Fixed overheads are commonly described as those that do not vary in total amount with increase or decrease in production volume for a given period of time may be a year. Salaries, depreciation of ﬁxed assets, property taxes are some of the examples of ﬁxed costs. Total ﬁxed costs remain same irrespective of changes in volume of production but per unit of ﬁxed cost is variable. It increases if production decreases while if production increases it decreases.

• Variable Overheads: - Variable overheads are those which go on increasing if production volume increases and go on decreasing if the volume decreases. Such increase or decrease may or may not be in the same proportion. Variable overheads are generally considered to be controllable as they are directly connected with the production.

• Semi-variable Overheads: - These types of overheads remain constant over a relatively short range of variation in output and then are abruptly changed to a new level. In other words they remain same up to a certain level of output and after crossing that level they start increasing. For example supervisor’s salary is treated as ﬁxed but if a decision is taken to operate a second shift additional supervisor may have to be appointed which results into increase in the salary of the supervisor. This indicates that it is a semi-variable overhead. Similarly maintenance expenditure, ﬁre insurance is also semi-variable overheads.

**III. Codiﬁcation of Overheads: -** It is always advisable to codify the overhead expenses. Codiﬁcation helps in easy identiﬁcation of different items of overheads. There are numerous items of overheads and a code number to each one will facilitate identiﬁcation of these items easily. Codiﬁcation can be done by allotting numerical codes or alphabetical codes or a combination of both. Whatever system is followed it should be remembered that the system is simple for understanding and easy to implement without any unnecessary complications.

**B. Allocation, Apportionment and Reapportionment of Overheads: -** After the collection classiﬁcation and codiﬁcation of overheads the next step is allocation, apportionment wherever allocation is not possible and ﬁnally absorption of overheads into the product units. The following steps are required to complete this process.

• Departmentalization: - Before the allocation and apportionment process starts the ﬁrst step in this direction is ‘Departmentalization’ of overhead expenses. Departmentalization means creating departments in the ﬁrm so that the overhead expenses can be conveniently allocated or apportioned to these departments. For efﬁcient working and to facilitate the process of allocation, apportionment and reapportionment process an organization is divided into number of departments like machining, personnel, fabrication, assembling, maintenance, power, tool room, stores accounts costing etc. and the overheads are collected allocated or apportioned to these departments. This process is known as ‘departmentalization’ of overheads which will help in ascertainment of cost of each department and control of expenses. Thus departmentalization is the ﬁrst step in allocation and apportionment process.

**Q.4.** What do you mean by departmentalization of overhead expenses?

**Ans.4.**Departmentalization means creating departments in the ﬁrm so that the overhead expenses can be conveniently allocated or apportioned to these departments.

• Allocation: - cost allocation is ‘the charging of discrete identiﬁable items of cost to cost centers or cost units. Where a cost can be clearly identiﬁed with a cost center or cost unit then it can be allocated to that particular cost center or unit. In other words allocation is the process by which cost items are charged directly to a cost unit or cost center. For example electricity charges can be allocated to various departments if separate meters are installed, depreciation of machinery can be allocated to various departments as the machines can be identiﬁed, salary of stores clerk can be allocated to stores department and cost of coal used in boiler can be directly allocated to boiler house division. Thus allocation is a direct process of identifying overheads to the cost units or cost center.

**Q.5.** Cost allocation is ‘the charging of discrete identiﬁable items of cost to cost centers or cost units. **(True)**

• Apportionment: - Wherever possible the overheads are to be allocated. However if it is not possible to charge the overheads to a particular cost center or cost unit they are to be apportioned to various departments on some suitable basis. This process is called as ‘Apportionment’ of overheads. For example if separate meters are provided in each department the electricity expenses can be allocated to various departments. However if separate meters are not provided electricity expenses will have to be apportioned to the departments on some suitable basis like number of light points. Similarly rent will have to be apportioned to various departments on the basis of ﬂoor space, insurance of machinery on the basis of value of machinery, power on the basis of horse power etc. A statement showing the apportionment of overheads is called as ‘Primary Distribution Summary’ of overheads.

**Q.6.** Explain ‘Apportionment’ of overheads.

**Ans.6.** if it is not possible to charge the overheads to a particular cost center or cost unit they are to be apportioned to various departments on some suitable basis. This process is called as ‘Apportionment’ of overheads.

**Q.7.** A statement showing the apportionment of overheads is called as ‘\_\_\_\_\_\_\_\_\_\_\_\_Distribution Summary’ of overheads.

**Ans.7.** Primary

• Reapportionment of Overheads: - As discussed above one of the important step in overhead accounting is ‘Departmentalization’ of overheads. The departments are broadly divided into Production Departments and Service Departments. Production Departments are the departments where actual production takes place while Service Departments are the departments which render services to the Production Departments. Stores Department, Maintenance Department, Human Resource Department, after Sales Service Departments are some of the examples of Service Departments. In Primary Distribution Summary the overheads are apportioned to all the Departments i.e. Production and Service. For the purpose of absorption it is necessary that the overheads of the service departments are reapportioned to the production departments. This process is called as preparation of ‘Secondary Distribution Summary’ of overheads. The following example will clarify this point.

Suppose there are ﬁve departments in a manufacturing ﬁrm P1, P2 and P3 are the production departments and S1 and S2 are the service departments. The following results are available from the Primary Distribution Summary.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Particulars | Dept. P1 | Dept. P2 | Dept. P3 | Dept. S1 | Dept. S2 |
| From Primary Distribution Summary | 150000 | 175000 | 125000 | 75000 | 50000 |

In the secondary distribution summary the overheads of S1 and S2 will have to be charged to Production Departments P1, P2 and P3. This will have to be done on some suitable basis. The matter becomes complicated if S1 and S2 are rendering services to each other in addition to the services rendered to the production departments. The methods of reapportionment are divided into two types.

**Q.8.** For the purpose of absorption it is necessary that the overheads of the service departments are reapportioned to the production departments. This process is called as ‘\_\_\_\_\_\_\_\_\_\_\_Distribution Summary’ of overheads.

**Ans.8.** Secondary

• Non Reciprocal Methods: - Under this method the assumption is that while service departments render services to the production departments they do not render services to each other. Hence their overheads are not apportioned to each other. The following methods are used under non reciprocal methods.

• Services Rendered: - The principle followed in this method is quite simple. A production department which receives maximum services from service departments should be charged with the largest share of the overheads. Accordingly the overheads of service departments are charged to the production departments.

• Ability to Pay: - This method suggests that a large share of service department’s overhead costs should be assigned to those producing departments whose product contribute the most to the income of the business ﬁrm. However the practical difﬁculty in this method is that it is difﬁcult to decide the most paying department and hence difﬁcult to operate.

• Survey or analysis Method: - This method is used where a suitable base is difﬁcult to ﬁnd or it would be too costly to select a method which is considered suitable. For example the postage cost could be apportioned on a survey of postage used during a year.

• Reciprocal Method: - Under this method the assumption is that the service departments do render services to the production departments they also render services to other service departments. In other words the service department S1 and S2 render services to each other besides rendering services to the production departments. Hence share of overhead expenses of S1 and S2 should be charged to each other along with the production departments. The following method are used under Reciprocal Methods.

• Repeated Distribution Method: - Under this method services rendered by services departments to the production departments and other services departments are quantiﬁed in the form of percentages. The services departments’ costs are reapportioned to the production departments on the basis of these percentages. The process is repeated again and again till a negligible ﬁgure is reached. This method becomes complicated for calculation if the ﬁgures are too large.

• Simultaneous Equation Method: - This is an algebraic method in which simultaneous equations are formed and amount of overhead expenses of each service department are found out by solving the equations. The total expenses thus obtained are then directly transferred to the production departments.

**Q.9.** Under non reciprocal method the assumption is that while service departments render services to the production departments they do not render services to each other. **(True)**

**Q.10.** Under reciprocal method the assumption is that the service departments do render services to the production departments they also render services to other service departments. **(True)**

**C.** **Absorption of Overheads: -** The most important step in the overhead accounting is ‘Absorption’ of overheads. Absorption is ‘the process of absorbing all overhead costs allocated or apportioned over a particular cost center or production department by the units produced.’ In simple words absorption means charging equitable share of overhead expenses to the products. As the overhead expenses are indirect expenses the absorption is to be made on some suitable basis. The basis is the ‘absorption rate’ which is calculated by dividing the overhead expenses by the base selected. A base selected may be any one of the basis given below. The formula used for deciding the rate is as follows

Overhead Absorption Rate = Overhead Expenses/ Units of the base selected.

The methods used for absorption are as follows.

• Direct Material Cost: - Under this method the overheads are absorbed on the basis of percentage of direct material cost. The following formula is used for working out the overhead absorption percentage.

Budgeted or Actual Overhead Cost/ Direct Material Cost \* 100

Thus if the overhead expenses are SR 200000 and Direct Material Cost is SR 400000 the percentage of overheads to direct material cost will be 200000/400000 X 100 = 50%. Overheads will be thus absorbed on the basis of percentage of 50% to material costs.

**Q.11.** What do you mean by ‘Absorption of Overheads’?

**Ans.11.** Absorption means charging equitable share of overhead expenses to the products.

**Illustration: -** A ﬁrm produces two products A and B. Direct material costs for A are SR 250000 and for B SR 150000. The overheads will be charged to these products as shown in the following statement assuming the rate of absorption as 50% as shown above.

|  |  |  |
| --- | --- | --- |
| **Particulars** | **Product A** | **Product B** |
| Direct Materials | 250000 | 150000 |
| Overheads 50% of Direct Materials | 125000 | 75000 |
| Total Materials + Overheads | 375000 | 225000 |

This method is suitable in those organizations where material is a dominant factor in the total cost structure. Simplicity to understand and operate is also one of the positive points of this method. However it has been observed that the material prices are ﬂuctuating and hence overhead absorption may become difﬁcult.

• Direct Labour Cost Method: - This method is used in those organizations where labour is a dominant factor in the total cost. Under this method the following formula is used for calculating the overhead absorption rate.

Budgeted or Actual Overheads/ Direct Labour Cost \* 100

Thus if the overheads are SR 300000 and Direct Labour Cost is SR 400000 the % of absorption will be 300000/400000 \* 100 = 75%. Overheads will be charged to each product as 75% of labour cost.

This method is also simple to understand and easy to operate. However it ignores the time taken by each worker for completion of the job. Similarly it ignores the work performed by machine where a labour is a mere attendant.

• Prime Cost Method: - This method is an improvement over the ﬁrst two methods. Under this method the Prime Cost is taken as the base for calculating the percentage of absorption of overheads by using the following formula.

Budgeted or Actual Overheads/ Prime Cost \* 100

**Illustration: -** A manufacturing ﬁrm produces two products A and B. The direct material cost for A is SR 500000 and for B SR 300000 direct labour cost is SR 300000 and SR 200000 respectively for A and B direct expenses are SR 100000 and SR 200000 respectively for A and B. The overhead expenses are SR 960000. The statement of cost will appear as follows.

|  |  |  |  |
| --- | --- | --- | --- |
| **Particulars** | **Product A** | **Product B** | **Total** |
| Direct Materials | 500000 | 300000 | 800000 |
| Direct Labour | 300000 | 200000 | 500000 |
| Direct Expenses | 100000 | 200000 | 300000 |
| Prime Cost [D.M. + D.L. + D.E.] | 900000 | 700000 | 1600000 |
| Overheads – 60% of Prime Cost | 540000 | 420000 | 960000 |
| Works Cost | 1440000 | 1120000 | 2560000 |

Note: - Overhead absorption rate is calculated as – 960000/1600000 \* 100 = 60%

• Production Unit Method: - This method is used when all production units are similar to each other in all respects. Total overhead expenses are divided by total production units for computing the rate per unit of overheads and overheads are absorbed in the product units. If a ﬁrm produces more than one products and if they are not uniform to each other equivalent units are calculated to ﬁnd out the rate of overheads per unit. The formula of absorption of overheads is as follows.

Overhead absorption rate = Budgeted or Actual Overheads/Production Units

• Direct Labour Hour Method: - Under this method the rate of absorption is calculated by dividing the overhead expenses by the direct labour hours. The formula is as follows -

Budgeted or Actual Overhead Expenses/Direct Labour Hours

This method takes into account the time spent by the labour in production of each unit where the production units are not uniform or identical. However it is not suitable if the ﬁrm is capital intensive and highly mechanized.

• Machine Hour Rate: - Where machines are more dominant than labour machine hour rate method is used. Machine hour rate is ‘actual or predetermined rate of cost apportionment or overhead absorption which is calculated by dividing the cost to be appropriated or absorbed by a number of hours for which a machine or machines are operated or expected to be operated’. In other words machine hour rate is the cost of operating a machine on per hour basis. The formula for calculating the machine hour rate is -

Budgeted or Actual Overhead Expenses/ Machine Hours – Actual or Budgeted

• Selling Price Method: - In this method selling price of the products is used as a basis for absorbing the overheads. The logic used is that if the selling price is high the product should bear higher overhead cost. Ratio of selling price is worked out and the overheads are absorbed.

**Example.1.**

**Primary and Secondary Distribution Summary**

A company has three production departments A, B and C and two service departments, X and Y.

The following data are extracted from the records of the company for a particular period.

|  |  |  |
| --- | --- | --- |
| **Sr. No.** | **Particulars** | **Amount (SR)** |
| 1 | Rent and Taxes | 25,000 |
| 2 | General lighting | 3,000 |
| 3 | Indirect Wages | 7,500 |
| 4 | Power | 7,500 |
| 5 | Depreciation of Machinery | 50,000 |
| 6 | Sundries | 50,000 |

**Additional Data**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Particulars** | **Total** | **Dept. A** | **Dept. B** | **Dept. C** | **Dept. X** | **Dept. Y** |
| Direct Wages (SR) | 50,000 | 15,000 | 10,000 | 15,000 | 7,500 | 2,500 |
| Horsepower of Machines | 150 | 60 | 30 | 50 | 10 | — |
| Cost of Machinery (SR) | 12,50,000 | 3,00,000 | 4,00,000 | 5,00,000 | 25,000 | 25,000 |
| Production hrs worked | — | 6226 | 4028 | 4066 | — | — |
| Floor space (sq.mtrs) | 10,000 | 2,000 | 2,500 | 3,000 | 2,000 | 500 |
| Lighting points  (Nos.) | 60 | 10 | 15 | 20 | 10 | 05 |

**Service Departments’ Expenses Allocation:-**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Department** | **A** | **B** | **C** | **X** | **Y** |
| X (%) | 20 | 30 | 40 | - | 10 |
| Y (%) | 40 | 20 | 30 | 10 | - |

You are required to,

A. Prepare primary and secondary distribution summary according to repeated distribution System.

**Solution:**

**Primary Distribution Summary**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Items** | **Basis of**  **Apportionment** | **Total** | **Dept A** | **Dept B** | **Dept C** | **Dept X** | **Dept Y** |
| Direct Wages | Actual ( Only for  service depts. | 10,000 |  |  |  | 7,500 | 2,500 |
| Rent and Taxes | Floor Space | 25,000 | 5,000 | 6,250 | 7,500 | 5,000 | 1,250 |
| General Lighting | Light Points | 3,000 | 500 | 750 | 1000 | 500 | 250 |
| Indirect Wages | Direct Wages | 7,500 | 2,250 | 1,500 | 2,250 | 1,125 | 375 |
| Power | Horse Power | 7,500 | 3,000 | 1,500 | 2,500 | 500 | - |
| Depreciation  on Machinery | Cost of Machinery | 50,000 | 12,000 | 16,000 | 20,000 | 1,000 | 1,000 |
| Sundries | Direct Wages | 50,000 | 15,000 | 10,000 | 15,000 | 7,500 | 2,500 |
|  | **Total** | **1,53,000** | **37,750** | **36,000** | **48,250** | **23,125** | **7,875** |

**Secondary Distribution Summary**

**Repeated Distribution Method**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Dept** | **Total** | **Dept A** | **Dept B** | **Dept C** | **Dept X** | **Dept Y** |
| From Primary Distribution | 1,53,000 | 37,750 | 36,000 | 48,250 | 23,125 | 7,875 |
| Dept X |  | 4,625 | 6,937 | 9,250 | (23,125) | 2,313 |
| Dept Y |  | 4,075 | 2,038 | 3,056 | 1,019 | (10,188) |
| Dept X |  | 204 | 306 | 407 | (1019) | 102 |
| Dept Y |  | 41 | 20 | 31 | 10 | (102) |
| Dept X |  | 2 | 3 | 5 | (10) |  |
| **Total** | **1,53,000** | **46,697** | **45,304** | **60,999** |  |  |

**Example.2.**

A company has three production departments, A, B and C and two service departments, P and Q. The following ﬁgures are available from the primary distribution summary.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Department** | **Dept A** | **Dept B** | **Dept C** | **Dept P** | **Dept Q** |
| From Primary Distribution ( SR ) | 3,150 | 3,700 | 1,400 | 2,250 | 1,000 |

The expenses of the service departments are to be apportioned on a percentage basis as follows.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Department** | **Dept A** | **Dept B** | **Dept C** | **Dept P** | **Dept Q** |
| P (%) | 40 | 30 | 20 | - | 10 |
| Q (%) | 30 | 30 | 20 | 20 | - |

Prepare Secondary Distribution Summary as per the Simultaneous Equations Method.

**Solution:**

Let X = total overhead of department P

Let Y = total overhead of department Q

Therefore, X = 2,250 + 20/100 Y.................. (1)

Y = 1,000 + 10/100 X...................... (2)

Thus, 10X = 22,500 + 2Y...................................... (3)

10 Y = 10,000 + 1X......................... (4)

Solving the above equations, we get values of X SR 2,500 and Y SR 1,250

Now, the secondary distribution summary will be prepared in the following manner.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Department** | **TOTAL** | **Dept A** | **Dept B** | **Dept C** | **Dept P** | **Dept Q** |
| From Primary Distribution ( SR ) | 11,500 | 3,150 | 3,700 | 1,400 | 2,250 | 1,000 |
| Service Dept P |  | 1,000 | 750 | 500 | (2,250) | 250 |
| Service Dept Q |  | 375 | 375 | 250 | 250 | (1250) |
| **TOTAL** | 11,500 | 4,525 | 4,825 | 2,150 |  |  |

**Example.3.**

X, Y and Z have two production departments and three service departments. Expenses incurred for these departments and other available information is given below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Particulars** | **Prod. Dept. A** | **Prod. Dept. B** | **Service Dept.**  **Maintenance** | **Service**  **Dept. Power** | **Service Dept.**  **Personnel** |
| As per Primary  Distribution | 1,20,000 | 1,50,000 | 20,000 | 48,000 | 40,000 |
| **Allocation Basis** |  |  |  |  |  |
| Maintenance Hours | 80 | 20 | — | 40 | 20 |
| KWH Consumed | 4 | 16 | 2 | — | 2 |
| Number of  Employees | 60 | 30 | 30 | 18 |  |

Allocate the cost of service departments to the production departments.

**Solution:**

Statement showing the allocation of service department’s cost to production departments.

**Direct Method:-**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Particulars** | **Prod. Dept. A** | **Prod. Dept. B** | **Service Dept.**  **Maintenance** | **Service Dept. Power** | **Service Dept.**  **Personnel** | **Total** |
| As per Primary  Distribution | 1,20,000 | 1,50,000 | 20,000 | 48,000 | 40,000 | 3,78,000 |
| Maintenance (Maintenance Hrs ) | 16,000 | 4,000 | (20,000) |  |  |  |
| Power ( Kwh Consumed) | 9,600 | 38,400 |  | (48,000) |  |  |
| Personnel (No. of employees) | 26,667 | 13,333 |  |  | (40,000) |  |
| Total Costs Allocated | 1,72,267 | 2,05,733 |  |  |  | 3,78,000 |

**Example.4.**

The production department of a factory furnishes the following information for the month of March, 2012.

Materials used SR 54,000

Direct Wages SR 45,000

Overheads SR 36,000

Labour hours worked - 36,000

Hours of machine operation - 30,000

For an order executed by the department during the period, the relevant information was as under.

Materials used SR 600000

Direct Wages SR 320000

Labour hours worked - 3,200

Machine hours worked - 2,400

Calculate the overhead charges chargeable to the job by the following methods;

1. Direct materials cost percentage rate
2. Labour hour rate and
3. Machine hour rate.

**Solution:-**

1. Direct Material cost percentage rate:-

(Overhead/Direct materials) \* 100

= (SR 36,000/SR 54,000) \* 100 = 66.67%

Materials used on the order SR 600000, so overheads will be @66.67% = SR 400000

**ii.** Labour Hour Rate: - Overheads/ Direct Labour Hours = 36,000/36,000 = SR.1

Overheads will be @ SR. 1 = 3200 hrs \* 1 = SR 3,200

**iii.** Machine Hour Rate: - Overhead/ Machine Hours = SR 36,000/30,000 =SR 1.2

Overheads will be SR1.2 per hour \* 2,400 hours = SR 2,880