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Overhead

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OVERHEAD

1. What do you mean by overhead?

Indirect costs refer to overhead costs. Such costs cannot be conveniently identified with a particular product, process or department. It consists of those costs, which the cost accountant is unable or unwilling to allocate to particular cost units. These are common costs like rent, repairs, and salaries, which are incurred for the benefit of a number of cost unit centres. The overhead is simply the total of all indirect expenditure.

I.C.M.A. London defines the overhead as follows:

“ an aggregate of indirect materials, indirect wages and indirect expenses ”

2. How will you classify overhead?

The method of classification is based on the major functions, elements, or behaviour.

i. Classification according to functions:

The main group of overheads based on this classification is:

- a. Production overhead
- b. Administration overhead
- c. Selling overhead
- d. Distribution overhead

a. Production overhead:

Factory overhead means indirect expenditure incurred concerning production operations. They are the expenses incurred in maintaining and operating a manufacturing division of an organisation. Unlike direct material and direct labour, production overhead is an invisible part of the finished product. Examples of the costs are: Lubricants, consumable stores, indirect wages, factory power and light, depreciation of plant and machinery etc.,

b. Administration overhead

The administration overhead consists of all expenses incurred in the direction, control and administration of a concern. Such costs are not related directly to production, selling and distribution function. Examples are office rent and rates, office staff salaries, office lighting, depreciation, and repairs to office building and equipment, telephone charges, auditor fees, legal charges etc.,

c. Selling overhead:

These include the costs incurred for creating demand for the product and getting orders. Advertising, bad debts, salaries and commission to salespersons, travelling expenses, and show room expenses are the examples of selling overheads.

d. Distribution overheads:

It comprises all expenditure incurred from the time product is completed in the factory until it reaches the customer. It includes packing cost, carriage outward, delivery van costs, warehousing costs etc.,

ii. Classification according to Elements:

According to elements, overhead is divided into:

- a. Indirect material
- b. Indirect labour
- c. Indirect expense

- a. **Indirect material:**
It is that material which does not form a part of the finished product. Examples are: coal, lubricating oil, grease, sand paper, etc., There are some items which may become a part of the finished products like nuts, screws, bolts etc., but these are still considered indirect materials
 - b. **Indirect labour:**
Indirect labour is not directly engaged in the production operations. They only assist in production operations. Examples are supervisors' wage, salary to clerk, salary to inspector, peon, watchman etc.,
 - c. **Indirect expenses:**
All indirect costs, other than indirect materials and indirect labour, are considered indirect expenses like rent, depreciation, lighting etc.
- iii. **Classification according to Behaviour:**
- a. Fixed overhead
 - b. Variable overhead
 - c. Semi-variable overhead
- a. **Fixed overhead:**
These overheads remain fixed by changes in the level of output. The total amount of overhead does not change with an increase or decrease in the production. Therefore, an increase in the volume of output will result in a decrease in the fixed cost per unit, due to spread over a large number of units and vice-versa. Some examples of fixed overhead are rent and rates, salaries, legal expenses, bank charges etc.,
 - b. **Variable overhead**
These overheads vary in direct proportion to changes in the volume of production. Variable overheads per unit remain fixed. Some examples of variable overheads are: indirect materials, fuel, power, stationery, etc.,
 - c. **Semi-variable overhead**
These expenses stand midway between fixed and variable overheads. They are partly fixed and partly variable. They vary with change in the volume of output but not in the same proportion as the change in the volume of output. Examples of such overhead are: telephone charges, depreciation, repair and maintenance, cost of supervision, etc.,
3. Write a short notes on steps involved in overhead accounting.
- The overhead cost cannot be allocated to cost units directly. The important steps involved in distribution of overhead are as follow:
- (a) Classification and collection of overhead
 - (b) Allocation and apportionment of overheads to production departments and service departments
 - (c) Re-apportionment of service department costs to production departments
 - (d) Absorption of overheads of each production department in cost units
4. What are the various sources from which overhead costs are collected?

The sources from which overhead costs are collected are as follows:

- a) **Invoice** - for collection of indirect expenses like rent, insurance etc
- b) **Stores Requisitions** - for collection of indirect materials
- c) **Wages Analysis Sheet** - for collection of indirect wages
- d) **Journal Entries** - for collection of information relating to non-cash items like depreciation, notional rent, accruals and payments in advance.
- e) **Subsidiary Records** - for collection of information relating to scrap, waste, spoiled goods, idle time and idle facilities for ascertaining their costs.

5. Explain the allocation and apportionment of overhead.

Allocation:

Some items of overhead costs can be directly identified with a particular cost centre. Allotment of such costs to cost centres is known as allocation. For example, if canteen is treated as a separate cost centre, salary paid to canteen manager can be allocated to canteen.

I. C. M. A. London defines the term 'allocation' as:

“ the allotment of whole items of cost to cost centres or cost units”

It refers to charging to the cost centre those overheads that have been incurred for the cost centres.

A point to be noted is that allocation can be made only when exact amount of overhead incurred in a cost centre is definitely known. For example, rent is payable for the factory as a whole. Exact amount for each department cannot be known. Therefore, rent cannot easily be allocated. On the other hand, indirect materials can be easily allocated to various departments in which they are incurred. In brief, in order that an overhead can be allocated, it should meet both of the following conditions:

- a. The cost centre must have caused the overhead to be incurred; and
- b. The exact amount incurred in a cost centre must be known

Apportionment:

Some items of overhead costs cannot be directly identified with a particular cost centre. Such costs are common to a number of cost centres. They do not originate from any specific cost centre. Distribution of such overhead costs to various departments is known as apportionment.

I. C. M. A. London defines the term 'apportionment' as:

“ the allotment of proportions of items of cost to cost to cost centres or cost units”

For example, factory rent benefits all the departments. Hence, it should be apportioned to all the departments based on the floor area occupied by each department in the factory.

6. What are the principles of apportionment?

Apportionment of overheads to various departments and services departments is based on the following principles:

1. Actual benefit:

It is based on the principle that overheads are distributed over various departments on the basis of the actual benefit received. For example, rent can be apportioned to different departments based on the area occupied.

2. Potential benefit:

Measuring actual benefit may sometimes be impossible. Hence, it is advised that the apportionment may be done based on potential benefit. It is the benefit likely to be received. For example, cost of transport for workers can be apportioned based on the number of employees in each department.

3. Specific criteria:

This method is used for those overhead costs that are not closely related to departments. Such remoteness necessitates an arbitrary distribution. For example, salary of a General Manager of a Company may be apportioned based on the results of survey, which may reveal that 25% of this salary should be apportioned to sales. 10% should be apportioned to administration. 55% has to be apportioned to various producing departments. Therefore, this method is also called survey method.

4. Ability to pay:

This is based on the theory of taxation. It tells us that those who have the largest income should bear the highest proportion of the tax burden. Those departments, which have the largest income, may be charged the largest amount of overhead in overhead distribution. The method is generally considered inequitable because it penalises the efficient and the profitable units of the business.

7. Explain the some of the common bases of apportionment of overhead:

Table 4.1 Basis of Apportionment

<i>Expenses</i>	<i>Basis</i>
1. Rent, Rates, and taxes, insurance, depreciation and repairs of buildings	Floor area occupied
2. Canteen, welfare expenses, time keeping, personnel office	Number of employees
3. Depreciation, repairs and insurance to plant and machinery	Capital cost of plant and machinery
4. Power/Steam consumption, lighting	Technical estimates (i.e. HP hours, number of light points)
5. Store keeping expenses	Weight/value of Materials
6. Internal transport	Number of requisitions, weight/value of materials
7. Compensation to workers, E. S. I. and P. F. contribution	Direct wages

It should be noted that some overheads in the table 4.1 can be apportioned on more than one basis. The choice of an appropriate basis is really a matter of judgement. For example, welfare expenses may be apportioned based on the number of employees or total wages. Similarly lighting expenses may be apportioned based on the number of light points in each department.

Example 4.1

8. Johnson Limited has four departments A, B, C and D. A, B, and C are production departments and D is a service department. The actual costs for a period are as follows:

	<i>Rupees</i>
Rent	4,000
Repairs	2,400
Depreciation	1,350

Lighting	300
Insurance	1,500
Supervision	4,500
Employer's contribution	450
Power	2,700

The following data are also available in respect of the four departments:

	<i>Production Department</i>			<i>Service Department</i>
	A	B	C	D
Area (sq. ft.)	300	220	180	100
Number of workers	36	24	18	12
Total Wages (in Rs.)	16,000	12,000	8,000	4,000
Value of Plant (in Rs.)	24,000	18,000	12,000	6,000
Value of Stock (in Rs.)	22,500	13,500	9,000	----

Apportion the costs to the various departments on the most equitable method.
(B. Com., Bharathidasan, April 1994)

Solution 4.1

<i>Items</i>	Basis of apportionment	Total	Production Departments			Service Dept.
			Rs.	A	B	C
Wages	Direct	4,000	--	--	--	4,000
Rent	Area	4,000	1,500	1,100	900	500
Repairs	Value of Plant	2,400	960	720	480	240
Depreciation	Value of plant	1,350	540	405	270	135
Lighting	Area	300	113	82	67	38
Insurance	Value of Stock	1,500	750	450	300	00
Supervision	No. of workers	4500	1800	1200	900	600
E. S. I Contribution	Total wages	450	180	135	90	45
Power	Value of Plant	2,700	1,080	810	540	270
		<u>21,200</u>	<u>6,923</u>	<u>4,902</u>	<u>3547</u>	<u>5,828</u>

Example 4.2

9. What is secondary distribution? Give a list of common basis of secondary distribution.

The overheads are allocated and apportioned to production and service departments first. The next step in overhead distribution is to re-apportion the service department costs to production departments. As the ultimate object is to charge the overhead to cost units, and no cost units pass through service departments, it becomes necessary to apportion the service departments costs also to production departments on some equitable basis. This is known as secondary distribution.

The common basis of secondary distribution is given below:

<i>Service Department</i>	<i>Basis</i>
1. Purchase department	Number of purchase orders or number of purchase requisitions or value of material purchased
2. Stores department	Number of material requisitions or value of materials issued
3. Time-keeping department, Pay-roll department	Number of employees or total labour or machine hours
4. Personnel department, canteen, welfare, medical recreation and security departments	Number of employees or total wages
5. Repairs and Maintenance	Number of hours worked in each department
6. Power House	Meter reading or H. P. Hour for powers Meter reading or floor space for lighting, heat consumed
7. Inspection	Inspection hours or value of items inspected
8. Drawing office	Number of drawings made or man-hours worked
9. Accounts department	Number of workers in each department
10. Tool room	Direct labour or Machine hours or wages

10. From the following information, prepare the departmental overhead distribution summary.

<i>Item</i>	<i>Production Departments</i>			<i>Service Departments</i>	
	A	B	C	X	Y
Direct wages (Rs.)	60,000	90,000	1,20,000	30,000	60,000
Direct material (Rs.)	30,000	60,000	60,000	44,000	45,000
Staff Number	3,000	4,500	4,500	1,600	1,400
Electricity KWh	12,000	9,000	6,000	3,000	3,000
Asset Value	1,20,000	80,000	60,000	20,000	20,000
Light points	20	32	8	12	8
Area (sq. yards)	300	500	100	100	100

	<i>Rupees</i>
Power	2,200
Lighting	400
Store	1,600
Welfare to staff	6,000
Depreciation	60,000
Repairs	12,000
General Overheads	24,000
Rent & Taxes	1,100

Apportion the expenses of service department Y according to direct wages and those of service department X in the ratio of 5:3:2 to the production departments.

Solution 4.2**Departmental Overhead distribution summary**

EXPENSES	BASIS	TOTAL	PRODUCTION DEPARTMENTS			SERVICE DEPARTMENTS	
		Rs.	A	B	C	X	Y
			Rs.	Rs.	Rs.	Rs.	Rs.
Power	kWh	2,200	800	600	400	200	200
Lighting	Light points	400	100	160	40	60	40
Stores Overhead	Direct Material	1,600	200	402	402	295	301
Welfare to the staff	Staff Number	6,000	1,200	1,800	1,800	640	560
Depreciation	Asset Value	60,000	24,000	16,000	12,000	4,000	4,000
Repairs	Asset value	12,000	4,800	3,200	2,400	800	800
General overhead	Direct Wages	24,000	4,000	6,000	8,000	2,000	4,000
Rent & taxes	Area	1,100	300	500	100	100	100
Wages	Allocated	90,000	00	00	00	30,000	60,000
Material	Allocated	89,000	00	00	00	44,000	45,000
Total as per primary distribution		286,300	35,400	28,662	25,142	82,095	115,001
Dept. Y wages			25,556	38,334	51,111		(115,001)
Service dept. X 5:3:2			41,048	24,648	16,419	(82,025)	
Total as per secondary distribution			1,01,990	81,626	92,684		

11. What are the various methods of segregating fixed and variable overhead?
 12. What is meant by absorption?

Allocation, apportionment and re-apportionment help one to ascertain the total overhead cost of various production departments. These costs, then, should be charged to the cost units. Since the ultimate objective is to find out the cost of production, it is necessary to distribute the overhead costs of production to the cost units. The task of charging the overhead of cost centres to the cost units is known as 'Absorption'.

13. List the components constituting the total overhead cost of a production cost centre.

The total overhead cost of a production cost centre consists of:

- its own indirect cost (allocation)
- a share in expenses common to different departments (apportionment)
- a share in the total cost of service departments (re-apportionment)

14. What are the steps involved in the absorption of overhead cost to cost units? Explain the steps with an example

- (a) Computation of overhead absorption rate; and
 (b) Application of the overhead absorption rate to cost units

Example 4.3

The overhead cost of a production department of a concern is Rs. 50,000. The total direct wages for different jobs completed in that department are Rs. 2,00,000. The hours worked in that department are 1,000 hours. What is the overhead cost of a job if wages incurred on it are Rs. 2,000?

Solution 4.3

The absorption rate is = $(50,000/2,00,000) \times 100 = 25\%$

- (i) If the wages incurred on a particular job are Rs. 2000, the overhead cost of that job will be **Rs. 500**. (25% on Rs. 2,000)
 (ii) If hours worked were to be the basis of charging overheads, the overhead absorption rate will be Rs. 50 per hour (Rs. 50,000/1000). If the job takes 12 hours to complete, the overhead of the job will be **Rs. 600** (Rs. 50 X 12)

15. Bring out the various methods of absorption of overhead?

There are various methods of absorption of factory overhead in use. They can be grouped under the following three heads:

1. *Production Unit or Cost unit method*
2. *Percentage methods*
 - a. *Percentage of Direct Material Cost*
 - b. *Percentage of Direct Wages*
 - c. *Percentage of Prime Cost*
3. *Production Time Rate or Hourly Rate Methods*
 - a. *Direct Labour Hour rate*
 - b. *Machine Hour Rate*

The various methods of absorption of overhead are as follows:

1. Production Units method

Absorption rate based on number of units produced is known as the cost unit rate. For example, there are two types of jobs taken in a firm. This method can easily be applied by an undertaking producing only one type of goods of the same grade. All the units are capable of being expressed by the same unit of measurement.

2. Percentage of Direct material cost

Manufacturing over-head is related to the value of material consumed. Therefore, the overhead absorption is computed as a percentage of direct material cost.

Example 4.4

The production overheads are Rs. 10,000 and the direct material cost is Rs. 20,000. If the direct material cost of a job or a cost unit is Rs. 500, estimate the overhead to be absorbed?

Solution 4.4

1. The overhead rate under this method is calculated as follows:

$$= (\text{Production overhead}/\text{Material cost}) \times 100$$

$$= (10,000/20,000) \times 100 = 50\%$$

2. The overhead cost to be absorbed is 50% on Rs. 500
= Rs. 250

Suitability of the Method

The method is suitable when

- i. the production units are uniform in size and make
- ii. require same type of material in equal quantities
- iii. where material cost constitutes a substantial proportion of prime cost and
- iv. where overhead contains a large proportion of costs related to materials like purchasing, receiving, storing etc.,

3. Percentage of Direct wages cost

Manufacturing overhead can also be related to direct wages. Therefore, the absorption rate is ascertained by considering direct wages as the base. The absorption rate is expressed in percentage.

Example 4.5

The total production overhead is Rs 32,000. The direct labour cost is Rs. 40,000. Estimate the rate of absorption of production overhead if the direct wages of a job are Rs. 800.

Solution 4.5

1. The overhead rate under this method is calculated as follows:
= (Production overhead/Direct wages) X 100
= (32,000/40,000) X 100 = **80%**
2. The overhead cost to be absorbed is 80% on Rs. 800
= **Rs. 640**

Suitability of the Method

This method is suitable if

- a. the rates of wages are the same,
- b. typical nature of work is done by the worker
- c. the workers are of equal efficiency
- d. the utilization of machine is negligible

4. Percentage of Prime cost

Direct material and direct wages form the prime cost. To reap the benefit of both methods, the prime cost is considered as the basis for the overhead absorption rate.

Example 4.6

Suppose the production overhead of an organisation is Rs. 1,00,000. The prime cost is Rs. 1,50,000. If the prime cost of a job is Rs. 1000, calculate the production overhead to be absorbed.

Solution 4.6

1. The overhead rate under this method is calculated as follows:
 = (Production overhead/Prime cost) X 100
 = (100,000/150,000) X 100 = **66.67%**
 2. The overhead cost to be absorbed is 66.67% on Rs. 1000
 = **Rs. 667**
5. **Direct Labour Hours:**
 The overhead absorption rate is calculated per hour under this method. It is estimated by dividing the total overheads in the production department by the number of hours worked by worker in that department. The overhead pertaining to a job is ascertained by multiplying the hourly rate with the number of labour hours spent for that job. This method is suitable where production is carried out manually.

Example 4.6

The production department of a factory furnishes the following information for the month of October.

Materials used	Rs. 54,000
Direct wages	Rs. 45,000
Labour hours worked	36,000 hours
Overheads chargeable to the department	Rs. 36,000

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

Materials used	Rs. 6,000
Direct wages	Rs. 3,200
Labour hours worked	3,200 hours

Calculate the overhead charges chargeable to the job by the following methods (i) labour hour rate; and (ii) Direct material cost percentage method.

B. Com., Calicut, May 1990.

Solution 4.6

1. Labour hour rate:	For 36,000 labour hours, the overhead chargeable is Rs. 36,000. Therefore, the labour rate per hour = (Rs. 36,000 / 36,000 Hours) = Re. 1
2. Overhead Chargeable:	3,200 hours X Re. 1 = Rs. 3,200
3. Direct material cost percentage:	For Rs. 54,000 material cost, the overhead chargeable is Rs. 36,000. Therefore, the direct material cost percentage is (36,000/54,000) X 100 = 66.67%
4. Overhead Chargeable to the job:	6,000 X (66.67/100) = Rs. 4,000

Alternatively,

Overhead chargeable can directly be found out without computing the above percentage.

For Rs. 54,000 material cost, the overhead chargeable is Rs. 36,000. For Rs. 6,000 material cost, the overhead chargeable is (36,000 / 54,000) X 100 = Rs. 4,000

6. Machine Hours

This method is similar to labour hour method. Machine hour, in the place of labour hour, forms the basis of calculating overhead rate. The absorption rate is calculated by dividing the factory overheads apportioned to a machine by the number of hours the machine has been worked out. Thus, we will get the rate per machine per hour. This is called machine hour rate. A separate rate is calculated for each machine.

The rate of overhead absorption based on machine hours is the most appropriate one in a mechanised cost centre.

The overheads will be apportioned here to the machines instead of departments. Each machine is considered a cost centre. The total overheads of the machine will be divided by the number of hours worked by it. Thus, we get the absorption rate per machine hour. The rate will be multiplied with the number of machine hours spent for a particular job to get the cost to be absorbed by that job.

Example 4.7

From the following particulars, compute the machine hour rate:

Cost of the machine	Rs. 11,000
Scrap value	Rs. 680
Repairs for the effective working life	Rs. 1,500
Standing charges for 4 weekly period	Rs. 40
Effective working life	10,000 hours
Power used: 6 units per hour at 5 paise per unit	120 hours

(B. Com., Bharathiar, Nov 1994)

Solution 4.7

Machine Hour Rate Computation

	Per month (Rs.)	Per hour (Rs.)
Standing Charges allocated:	40	
Hours worked in a four weekly period being 120, Rs. 40/120 hours		0.333
Variable Charges:		
Cost of the machine	11,000	
<u>Less: Scrap value</u>	<u>680</u>	
Depreciation for 10,000 hours	<u>10,320</u>	1.032
<u>Repairs: Rs. 1,500 for 10,000 Hrs</u>		<u>0.150</u>
<u>Power: 6 units per hour @ 5 paise per unit</u>		<u>0.300</u>
Hourly rate		<u>1.815</u>

16. List the characteristics of good method of absorption.

The following are the characteristics of good method of absorption:

- It should be easy to apply
- It should consider the time factor
- It should differentiate the manual labour from the work done by machine
- It should ensure an equitable basis for overhead absorption.
- It should minimise the clerical work and maximise the output.

17. What do you understand by under-absorption and over-absorption of overheads? How are they treated in cost accounts?

Over head absorption rate may be actual rate or pre-determined rate. When actual rates are used, the overheads absorbed must exactly be equal to the overheads incurred. If so, there is no problem of under or over-head absorption. However, when a pre-determined rate is employed, overheads absorbed may not be equal to the amount of actual overheads incurred.

Under-absorption:

When the amount of overheads absorbed is less than the amount of overhead incurred, it is called under-absorption. This has the effect of under-stating the cost of jobs.

Over-absorption:

When the amount of overhead absorbed is more than the amount of overhead incurred, it is known as over-absorption. It has the effect of over-stating the cost of jobs.

Example 4.8

Estimated annual overheads in department X were Rs. 8,000 fixed; Rs. 16,000 variable. Estimated machine hours were 25,000. Annual machine hours worked were 19,000 and actual overheads incurred were

Fixed	Rs. 9,000
Variable	Rs. 10,000

Find out under or over-absorption based on pre-determined rates.

Solution 4.8

Rates	Calculations
Predetermined rate	= (Estimated Overhead/Estimated working hours)
Fixed overhead	= (3500/10,000) = 0.32
Variable overhead	= (6500/10,000) = 0.64

	Actual	Overhead absorbed at pre-determined rate	Over-absorbed	Under-absorbed
	Rs.	Rs.	Rs.	Rs.
Fixed	9000	= (0.32 X 19,000) = 6,080	2920	-----
Variable	10000	= (0.64 X 19,000) = 12,160	-----	2160

Treatment of Under-absorption and over-absorption:

Some methods are used to treat under or over-absorption rates. They are

- Using supplementary rates
- Writing off to costing Profit and Loss Account
- Carrying it over to the next year

a. Using the supplementary rates:

The under or over-absorbed rate is significant sometimes. In such case, the difference between absorbed overheads and actual overheads will be adjusted by computing the supplementary rates.

Method:

Supplementary rates are arrived by dividing the difference between actual and absorbed overheads, by the actual base. Adjustment is done by adding the supplementary rate to the pre-determined rate in case of under-absorption. The supplementary rate is deducted from the pre-determined rate in case of over-absorption.

Example 4.9

The predetermined overhead rate is estimated as Rs. 5 per machine hour. The actual machine hours spent in the job are 1,500. The actual overhead is arrived as Rs. 9000. Calculate under or over-absorption of overheads using predetermined rates and find the supplementary rate.

Solution 4.9

1. Predetermined overhead rate	= Rs. 6 per machine hour
2. Actual Machine hours	= 15,000
3. Actual overheads	= Rs.115,000
4. Over-head absorbed	= 15,000 X Rs. 6 = Rs. 90000
5. Under-absorption	= Rs. 115000 - Rs. 90,000 = Rs. 25,000
6. Supplementary Rate	= Rs. 25,000 / 15,000 units = Rs.1.67

b. Writing off to costing Profit and Loss Account

The insignificant under or over absorption rate is attributed to factors like idle capacity, defective planning etc., The under or over absorbed amount is transferred to Costing Profit and Loss account in such cases. The defect of this method is that the cost of production will be under or overstated. It affects the valuation of stocks of work in process as well as final goods.

c. Carrying over to the next year:

The under or over absorbed amount of overhead is transferred to Suspense or Overhead Reserve account and carried forward to the next years. This is contrary to the costing principle that the overhead of a particular year should be absorbed during the year in which it is incurred. This method is suitable for seasonal factories in case of business where normal business cycle extends over and the overheads are determined on long-term basis. It is also suitable during the initial years of a new project.

18. What are the causes of under or over absorption?

Under or over absorption of overheads may be the result of any one or more of the following:

- Error in estimating overhead cost
- Error in estimating the base i.e., quantity of output or labour hour or machine hours
- Unexpected changes in production capacity
- Unexpected changes in the method of production resulting in change in the amount of overhead
- Seasonal fluctuation for overheads from period to period in certain concerns.

19. Describe about the administrative overhead.

Administration overhead may be defined as the indirect expenditure incurred in formulating the policy, directing the organisation and controlling the operations of an undertaking.

The overhead is of general character and is incurred for the business as a whole. It has little or no direct connection with production or sales activities. The examples of such expenses are salaries of office staff, legal charges, audit fees, depreciation of office machines and building, office rent, stationery, postage, typing charges, etc.

The classification and collection of administration overheads is done in the same way as production overheads. For the purpose of control, such costs are allocated and apportioned to various administrative departments like general office, law department, accounts department, executive department, secretarial department etc.

20. Explain the methods of absorption of administrative overheads.

There are various methods of absorption of administrative overheads.

These are

- a. Production Units Methods
- b. Percentage of conversion Method
- c. Percentage of Sales and
- d. Percentage of Works Cost

21. How would you treat administration overhead in cost accounts?

Administration overhead may be treated in cost account in some popular methods

Method 1:

Overheads are simply transferred to Costing Profit and Loss account under the method. This transfer may be justified on the premises that administration expenses are of fixed in character. There is no relation between the administrative functions on the one hand and production, sales and distribution functions on the other, can be determined. Therefore, the administration expenses are treated as 'period cost' and it is written off to the Costing profit and loss account.

Method 2:

The administration expenses are apportioned to production functions and sales and distribution functions of an undertaking under this method. The method holds well if an undertaking makes an assumption that there are only two functions prevailing. They are (a) Production and (b) Sales and distribution. As administration overheads are incurred for production and sales, these are partly charged to production and partly to selling and distribution. Therefore, the administration overheads are included in cost, though not as a separate item.

The main problem in applying the method lies in selecting appropriate bases for apportionment of the various items of administration expenses to other two overheads. For this purpose, each item of administrative overheads should be analyzed. Some items can be directly allocated according to the amount spent for each function. Other expenses can be apportioned based on services rendered. The bases are similar to apportionment of production overheads.

Examples are:

<i>Expenses</i>	<i>Basis for apportionment</i>
Expenses met for a division	Direct allocation
Typing	Number of letters typed
Building expenses	Floor space
Correspondence	Number of letters drafted
Invoicing expenses	Number of invoices
Legal expenses	Number of law suits
Personnel department expenses	Number of employees
Audit fees	Value of accounts

The expenses so apportioned to production or sales are treated in the same way as other items of production overhead. That is,

- (a) allocation and apportionment to production and service departments

- (b) reapportionment of service department costs
- (c) absorption by cost units

Method 3:

Administration overhead is treated as separate function. The administration overhead is added to the cost of jobs as a separate item. It is shown as such in all cost statements. The administration overhead is mostly absorbed as a percentage of works cost. The rate is calculated as follows:

$$\text{Overhead Rate} = (\text{Administration Overhead/Works Cost}) \times 100$$

The question comes as to how the administration expenses are absorbed in total cost. There are various bases adopted, each having its own merits and demerits. Administration overhead may be absorbed based on any of the following:

- a. Works cost
- b. Number of units or quantity produced
- c. Sales value or Sales
- d. Gross profit on sales, and
- e. Conversion cost etc

Addition of administrative overheads as a separate item is not very suitable when the amount of administrative overheads is small. In such a case any of the first two methods may be more conveniently adopted.

22. Explain about selling and distribution overheads

Selling and distribution overheads are non-production costs. These expenses are incurred after the production of products or services are rendered. Therefore, it is called 'after production cost'.

Selling expenses are incurred to create and stimulate demand. It is also incurred to increase the sales to existing customers. Examples are advertisement, gifts, salespersons' commission, benefits etc.,

Distribution expenses are incurred to take finished goods from the place of production to the place of consumption. Examples are carriage outwards, insurance, etc.

23. How would you classify the selling and distribution overheads:

Selling and distribution overheads are classified into the following sections:

1. Direct Selling expenses:

- i. Remuneration of salesmen
- ii. Remuneration of technical staff
- iii. Expenses of show rooms, sales departments, branches etc.
- iv. Expenses on sales quotations, tenders, estimating etc
- v. After sales service costs

2. Advertising and Sales Promotion:

These expenses cover costs of advertising, pamphlets, gifts, samples, display etc.

3. Transportation Expenses:

The expenses relate to transportation, which include upkeep of delivery vans, salaries of running and maintenance staff of delivery vans, and insurance of goods in transit.

4. Warehousing and Storage:

It covers the cost of storage of finished goods like warehouse rent, salaries of warehouse staff, packing costs for storage purpose, and insurance of finished stock in warehouse.

5. Credit and collection:

Bad debts and debt collection expenses, legal expenses about debt realisation. Generally, these expenses are treated as selling overheads.

6. Financial and general administration:

It covers the costs of royalty on sales, invoicing, accounts maintenance for selling and distribution, etc,

24. What are various bases for apportionment overheads?

Administrative overheads include the following items of cost:

Printing and stationery, other office supplies

Employees cost - salaries of administrative staff

Establishment expenses - Office rent & rates, insurance, depreciation of office building and other assets, legal expenses, audit fees, bank charges etc.

Administrative overheads are to be collected in different cost pools such as :

- General Office
- Personnel department
- Accounts department
- Legal department
- Secretarial department etc

Administrative overheads are to be further analysed into two - one for production activities and other for sales and distribution activities. Costs collected under the cost pools indicated in 6.2 above are to be distributed to administrative overheads relating to production activities and administrative overheads relating to selling and distribution activities on rational basis for each cost pool.

Administrative overheads relating to production activities are to be apportioned to different production cost centres on the basis conversion costs of production cost centres. The apportioned overheads are absorbed to products on the basis of the normal capacity or actual capacity, whichever is higher.

In case of under-absorption or over-absorption of administrative overheads relating to production, the same shall also be adjusted with Costing Profit & Loss Account.

The selling overheads and distribution overheads are collected under different cost pools such as:

Selling Overheads:

- (i) Sales Employees cost
- (ii) Rent
- (iii) Traveling expenses
- (iv) Warranty claim
- (v) Brokerage & Commission
- (vi) Advertisement relating to sales and sales promotion
- (vii) Sales incentive
- (viii) Bad debt etc

Distribution Overheads:

- a. Secondary Packaging
- b. Freight & forwarding
- c. Warehousing & storage
- d. Insurance etc.

Some items of selling overheads and distribution overheads are directly identified and absorbed to products or services and remaining part of selling and distribution overhead along with the with share of administration overheads relating to selling and distribution activities are to be apportioned to various products or jobs or services on the basis of net actual sales value (i.e. Gross sales value less excise duty, sales tax and other government levies).

25. Computation of overhead rates.

Once the basis of collection, allocation, apportionment and absorption for different production cost centres are selected, the same shall be followed consistently and uniformly

Change in basis for collection, allocation, apportionment and absorption can be adopted only when it is compelled by the change in circumstances like change in technology, refinement and improvement in the basis etc and the change would provide more scientific approach. In case of such changes, proper disclosure in cost records is essential.

Any change in basis for collection, allocation, apportionment and absorption which has a material effect on the cost of the product should be disclosed in the cost statements. Where the effect of such change is not ascertainable wholly or partly, the fact should be indicated in the cost statement.

Table 1
Reciprocal Overheads Apportionment: Repeated Method

	Production Department			Service Department	
	Machin e	Assembl y	Finishi ng	Stores	Repair
Ratio of apportionment from Stores	50%	20%	15%		15%
Ratio apportionment from Repair	40%	35%	15%	10%	
Distribution from Primary Distribution	35500.00	31900.00	14800.00	5000.00	6000.00
Stores Dept.	2500.00	1000.00	750.00	-	750.00
Total	38000.00	32900.00	15550.00	5000.00	6750.00
Repairs & Maintenance Dept	2700.00	2362.50	1012.50	675.00	-6750.00
Total	40700.00	35262.50	16562.50	675.00	0.00
Stores Dept.	337.50	135.00	101.25	-675.00	101.25
Total	41037.50	35397.50	16663.75	0.00	101.25
Repairs & Maintenance Dept	40.50	35.44	15.19	10.13	-101.25
Total	41078.00	35432.94	16678.94	10.13	0.00
Stores Dept.	5.06	2.03	1.52	-10.13	1.52
Total	41083.06	35434.96	16680.46	0.00	1.52
Repairs & Maintenance Dept	0.61	0.53	0.23	0.15	-1.52
Total	41083.67	35435.49	16680.68	0.15	0.00
Stores Dept.	0.10	0.03	0.02	-0.15	0.00
Total	41083.77	35435.52	16680.71	0.00	0.00

Table 2
Reciprocal Overhead Apportionment: Trial & Error Method

	Production Department			Service Department	
	Machin e	Assembl y	Finishi ng	Stores	Repair
Ratio of apportionment from Stores	50%	20%	15%		15%
Ratio of apportionment from Repair	40%	35%	15%	10%	
Distribution from Primary Distribution	35500.00	31900.00	14800.00	5000.00	6000.00
Distribution between service centres					
Stores Dept.				0.00	750.00
Total				5000.00	6750.00
Repairs & Maintenance To stores				675.00	0
Stores Dept. to Repair & Maint				0.00	101.25
Repairs & Maintenance To stores				10.13	0.00
Stores Dept. to Repair & Maint				0.00	1.52
Repairs & Maintenance To stores				0.15	0.00
Stores Dept. to Repair & Maint				0.00	0.02
Gross cost of service cost centres				5685.28	6852.79
Stores to Production cost centres	2842.63	1137.06	852.79	5685.28	-
Repairs & Maint to Production centres	2741.14	2398.46	1027.92		-6852.79
Total	41083.77	35435.52	16680.71	0	0

Table 3
Reciprocal Overhead Apportionment: Simultaneous Equation Method

	Production Departments			Service Departments	
	Machine	Assembly	Finishing	Stores	Repair
Ratio of apportionment from Stores	50%	20%	15%		15%
Ratio of apportionment from Repair	40%	35%	15%	10%	
Distribution from Primary Distribution	35500.00	31900.00	14800.00	5000.00	6000.00

Let x, y be Store Dept and Repair & Maintenance Dept expenses respectively.

$$x - 0.10y = 5000$$

$$-0.15x + y = 6000$$

Solving $x = 5685.28, \quad y = 6852.79$

Now, distribution of expenses will be as follows:

	Production Departments			Service Departments	
	Machine	Assembly	Finishing	Stores	Repair
Ratio of apportionment from Stores	50%	20%	15%		15%
Ratio of apportionment from	40%	35%	15%	10%	

Repair					
Amounts from Primary Distribution	35500.00	31900.00	14800.00	5685.28	6852.79
Stores to Production cost centres	2842.63	1137.06	852.79	-5685.28	
Repairs & Maint to Production centres	2741.14	2398.46	1027.92		-
					6852.79
Total	41083.77	35435.52	16680.71	0	0

Table 4

Non-Reciprocal Overheads Apportionment

Primary Distribution

Expenses	Basis of allocation / apportionment	Total (Rs.)	Production Departments			Service Departments	
			Machine Shop	Assembly Shop	Finishing Dept	Stores	Repairs & Maint.
Consumable stores	Direct Materials	15,400	5,200	6,000	2,000	600	1,600
Supervision	Direct Wages	22,800	7,900	5,100	6,100	2,200	1,500
Rent & Rates	Area	10,000	3,000	2,000	2,500	1,000	1,500
Insurance	Asset Value	2,000	800	900	200	50	50
Depreciation	Asset Value	30,000	12,000	13,500	3,000	750	750
Power	$H.P \times Hr \times LF$	9,000	5,400	3,600	-	-	-
Light & Heat	Area	4,000	1,200	800	1,000	400	600
Total		93,200	35,500	31,900	14,800	5,000	6,000

Secondary Distribution

Expenses	Basis of allocation / apportionment	Total (Rs.)	Production Departments			Service Departments	
			Machine Shop	Assembly Shop	Finishing Dept	Stores	Repairs & Maint.
Primary dist. (earlier Table)		93,200	35,500	31,900	14,800	5,000	6,000
Stores	Direct Material (9 : 6 : 5)		2,250	1,500	1,250	- 5,000	
Repairs & Maint	Direct (2 : 3 : 1)		2,000	3,000	1,000		- 6,000
		93,200	39,750	36,400	17,050	0	0