

* There are two steps in the absorption of overheads :

(a) Computation of overheads absorption rate, and

(b) Application of these rates to cost units.

$$\text{Overhead absorbed} = \text{No. of units of base in the cost unit} \times \text{Overhead rate}$$

SIX METHODS

1. Direct material cost percentage rate
2. Direct labour cost percentage rate
3. Prime cost percentage rate
4. Direct labour hour rate
5. Machine hour rate (M.Hr.)
6. Rate per unit of output

① Direct material cost percentage rate

$$\text{Factory overhead rate} = \frac{\text{Factory overheads}}{\text{cost of Direct material}} \times 100$$

Example Factory overheads = 10,000

Direct material = 20,000

$$\text{Factory overhead rate} = \frac{10,000}{20,000} \times 100 = \boxed{50\%}$$

If Direct material cost is 20,000 then overheads are 50% of Direct material.

Usage : When Direct material cost is very high & overheads are related to Direct material cost

② Direct labour cost percentage rate

$$\text{Factory overhead rate} = \frac{\text{Factory overheads}}{\text{Cost of direct labour}} \times 100$$

Usage : When Direct labour is the major element or direct labour is high.

③ Prime cost percentage rate

$$\text{Factory overhead rate} = \frac{\text{Factory overheads}}{\text{Prime cost}} \times 100$$

* Prime cost = Direct material + Direct labour + Direct expenses

Usage : When direct material cost and direct labour cost along with direct expenses have equal importance.

④ Direct labour hour rate

$$\text{Factory overhead rate} = \frac{\text{Factory overheads}}{\text{Direct labour hours}}$$

Usage : In case of labour intensive work

⑤ Rate per unit of output

$$\text{Factory overhead rate} = \frac{\text{Factory overheads}}{\text{No. of units produced}}$$

Usage : when company is producing identical & single product

⑥ Machine hour rate (M.Imp.)

$$\text{Factory overhead rate} = \frac{\text{Factory overheads}}{\text{Machine hours (effective)}}$$

(Ist type of question)

Usage : In case of capital intensive / Machine intensive work.

$$\text{Effective machine hours} = \text{Machine hours} - \text{Normal idle time of machinery}$$

unproductive time on

↓

→ Servicing time
→ Setting up time
→ setting off time

(IInd type of question) : calculation of machine hour rate.

* Machine hour rate is to be calculated for each machine separately.

* Machine hour rate is the overhead cost of running a machine for one hour.

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Overheads related to machine
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Fixed or standing charges
(combined value)

Variable or machine expenses
(Individual value)

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Calculation of machine hour rate

Particulars	Amt.	
	Per Annum	Per hour
<u>Fixed or standing charges :</u>		
Rent	xxx	
lighting	xxx	
Insurance	xxx	
Salary	xxx	
Administrative expenses, etc.	xxx.	
	<u>xxx</u>	
TOTAL ↓ $\text{Standing charges per hour} \left(\frac{\text{Total}}{\text{effective machine hours}} \right)$		xxx
<u>Variable or machine expenses :</u>		
Depreciation		xxx
Repairs and maintenance		xxx
Power, etc.		xxx
<u>Total Machine hour rate</u>		<u>xxx</u>

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Solution :

(1) Direct materials cost percentage rate :

$$= \frac{\text{Overheads}}{\text{Direct material}} \times 100$$

$$= \frac{36000}{54000} \times 100 = 66.67 \%$$

$$\begin{aligned} \text{Overheads chargeable to the job} &= \text{Material used} * \text{overhead rate} \\ &= 6000 * 66.67 \% \\ &= 4000 \end{aligned}$$

(2) Labour hour rate :

$$= \frac{\text{overheads}}{\text{Labour hours}} = \frac{36000}{36000} = \text{Rs. 1}$$

$$\begin{aligned} \text{Overheads chargeable to the job} &= \text{labour hours worked} * \text{overhead rate} \\ &= 3200 * 1 \\ &= 3200 \end{aligned}$$

(3) Machine hour rate :

$$= \frac{\text{overheads}}{\text{machine hours}} = \frac{36000}{30000} = \text{Rs. 1.2}$$

$$\begin{aligned} \text{Overheads chargeable to the job} &= \text{Machine hours} * \text{overhead rate} \\ &= 2400 * 1.2 \\ &= 2880 \end{aligned}$$

* DISTRIBUTION OF OFFICE & ADMINISTRATION OVERHEADS

Steps :

① Classification and collection of overheads (same as in case of factory overheads)

② Departmentalisation of overheads (same as in case of factory overheads)

- Allocation
- Apportionment

③ Absorption of overheads

- overhead absorption rate
- overhead absorbed
↓
(same as factory overheads)

FIVE METHODS

- ✓ 1. As a percentage to factory cost
2. As a percentage to factory overheads
- ✓ 3. As a percentage to sales
4. As a percentage of conversion cost
5. As a percentage to gross profit

① As a percentage to factory cost

$$\text{Administration overhead rate} = \frac{\text{Administration overheads}}{\text{Factory cost}} \times 100$$

② As a percentage to factory overheads

$$\text{Administration overhead rate} = \frac{\text{Administration overheads}}{\text{Factory overheads}} \times 100$$

③ As a percentage to sales

$$\text{Administration overhead rate} = \frac{\text{Administration overheads}}{\text{Sales}} \times 100$$

④ As a percentage of conversion cost

$$\text{Administration overhead rate} = \frac{\text{Administration overheads}}{\text{Conversion cost}} \times 100$$

$$* \text{ Conversion cost} = \text{Direct labour} + \text{Direct expenses} + \text{Factory overheads}$$

⑤ As a percentage to gross profit

$$\text{Administration overhead rate} = \frac{\text{Administration overheads}}{\text{Gross Profit}} \times 100$$

$$* \text{ Gross profit} = \text{profit before charging administration \& selling \& distribution overheads.}$$