

## Question #1

## SECONDARY DISTRIBUTION

MQP J17/20, D17/23;  
PTP J19/24 D19/23

A factory has three production departments A, B and C and also two service departments 'X' and 'Y'. The primary distribution of the estimated overheads in the factory has just been completed. These details and the quantum of service rendered by the service departments, to the other departments are given below:

Particulars	A	B	C	X	Y
Primary distribution (₹)	2,40,000	2,10,000	2,50,000	1,40,000	96,000
Service rendered by					
Dept 'X'	30%	20%	35%	-	15%
Dept 'Y'	25%	40%	25%	10%	-

Prepare a statement showing the distribution of service dept. overheads to the production departments, by the simultaneous equation method.

## Question #2

## MACHINE HOUR RATE

MQP J18/J19/D23

The following particulars relate to a processing machine treating a typical material. You are required to calculate the machine hour rate.

The cost of the machine	₹ 1,00,000
Estimated life	10 years
Scrap value	₹ 10,000
Working time (50 weeks of 44 hrs. each)	2,200 hrs.
Machine maintenance per annum	200 hrs
Setting up time estimated	5% of total productive time
Electricity	16 units per hour @ 10 paise per unit.
Chemicals required weekly	₹ 20
Maintenance cost per year	₹ 1,200

Two attendants control the operations of the machine together with 6 other machines, their combined weekly wages are ₹ 140. Departmental overhead allocated to this machine per annum ₹ 2,000.

## Question #3

## PRIMARY &amp; SECONDARY DISTRIBUTION

MQP D19/J23  
PTP J17/J18

A company has two production departments and two service departments. The data relating to a period are as under:

	Production Departments		Service Departments	
	PD 1	PD 2	SD1	SD2

Direct Materials (₹)	80,000	40,000	20,000	30,000
Direct Wages (₹)	95,000	50,000	30,000	20,000
Overheads (₹)	80,000	50,000	40,000	30,000
Power Requirement at Normal capacity operations (Kwh)	25,000	30,000	15,000	10,000
Actual power consumption during the period (Kwh)	12,000	20,000	8,000	12,000

The power requirement of these departments is met by a power generation plant. The said plant incurred an expenditure, which is not included above, of ₹ 1,21,875 out of which a sum of ₹ 84,375 was variable and the rest fixed.

After apportionment of power generation plant costs to the four departments, the service department overheads are to be redistributed on the following bases:

	PD1	PD2	SD1	SD2
SD1	50%	40%	-	10%
SD2	60%	20%	20%	-

You are required to:

- Apportion the power generation plant costs to the four departments.
- Re-apportion services department cost to production departments.

**Question #4**
**SECONDARY DISTRIBUTION**

MQP J23

Ashima Manufacturing Ltd. have three departments which are regarded as production departments. Service departments' costs are distributed to these production departments using the 'Step Distribution Method' of distribution. Estimates of factory overhead costs to be incurred by each department in the forthcoming year as follows. Data required for distribution is also shown against each department.

Departments	Factory Overhead (₹)	Direct labour hours	No. of Employees	Area in sq. m.
Production – X	93,000	4,000	100	3,000
Production – Y	54,000	3,000	125	1,500
Production – Z	73,000	4,000	85	1,500
Service – P	45,000	1,000	10	500
Service – Q	75,000	5,000	50	1,500
Service – R	1,05,000	6,000	40	1,000
Service – S	30,000	3,000	50	1,000

The overhead costs of the four service departments are distributed in the same order, viz. P, Q, R and S respectively on the following basis.

Department	Basis
P	Number of employees
Q	Direct labour hours
R	Area in square metres
S	Direct labour hours

You are required to:

- Prepare a schedule showing the distribution of overhead costs of the four service departments to the three production departments; and
- Calculate the overhead recovery rate per direct labour hour for each of the three production departments

**Question #5****ABSORPTION OF OVERHEADS**

MQP J23

In a certain factory three products are made from different materials by similar process. For a typical period, production costs are as under:

	Product A (₹)	Product B (₹)	Product C (₹)
Material Used	1,600	2,000	800
Direct Labour Cost	1,200	1,000	400
Overhead (Actual)	800	650	350

Overhead is charged to cost of each product at the rate of 25% on prime cost. Do you see anything wrong in principle in this method of charging overheads? If so, suggest a preferable method.

**Question #6****ABSORPTION OF OVERHEADS**

MQP D23

A Company has three production cost centers A, B and C are two service cost centres X and Y. Cost allocated to service centres are required to be apportioned to the production centres to find out cost of production of different products.

It is found that benefit of service cost centres is also received by each other along with production cost centres.

Overhead cost as allocated to the five cost centres and estimates of benefit of service cost centres received by each of them are as under:

Cost Centres	Overhead costs as allocated	Estimates of benefits received from service centres (%)	
		X	Y
A	80,000	20	20
B	40,000	30	25
C	20,000	40	50
X	20,000	--	5
Y	10,000	10	-

Required: Compute the final overhead costs of each of the production department including reapportioned cost of service centres using –

- Continuous distribution method and
- Simultaneous equation method

**Question #7****SECONDARY DISTRIBUTION**

MQP D23; PTP D17

The summary as per primary distribution is as follows:

Production departments A - ₹ 2,500; B - ₹ 2,300 & C - ₹ 1,700  
 Service departments X - ₹ 700; Y - ₹ 900

Expenses of service departments are distributed in the ratios of:  
 X department: A - 20%, B - 40%, C - 30% and Y - 10%  
 Y department: A - 40%, B - 20%, C - 20% and X - 20%

Prepare and show the distribution of service costs among A, B and C under repeated distribution method.

**Question #8**
**SUPPLEMENTARY RATE**

 MQP D24; PTP  
 D19/D22/J23/D24

In a manufacturing unit, overhead was recovered at a predetermined rate of ₹ 25 per man-day. The total factory overhead incurred and the man-days actually worked were ₹ 41,50,000 and 1,50,000 respectively. Out of the 40,000 units produced during a period of 30,000 units were sold. There were also 30,000 uncompleted units which may be reckoned at 66.67% complete.

On analysing the reasons, it was found that 40% of the unabsorbed overheads were due to defective planning and the rest were attributable to increase overhead costs. Calculate the unabsorbed overhead and how would it be treated in Cost Accounts.

**Question #9**
**MACHINE HOUR RATE**

PTP J23

M/s PQR Engineering Ltd. is having 25 different types of automatic machines in its plant. It furnishes the following information in respect of Machine B for the year 22-23.

- |       |  |                 |
|-------|--|-----------------|
| (i)   | Cost of the machine  | ₹ 5,00,000      |
|       | Life of the machine  | 10 years        |
|       | Scrap value  | Nil             |
| (ii)  | <b>Overhead expenses:</b>  |                 |
|       | Factory rent   | ₹ 2,00,000 p.a. |
|       | Heating and lighting   | ₹ 1,60,000 p.a. |
|       | Supervision  | ₹ 6,00,000 p.a. |
|       | Reserve equipment of Machine B   | ₹ 20,000 p.a.   |
|       | Area of the factory  | 80,000 sq. ft.  |
|       | Area occupied by Machine B   | 3,000 sq. ft.   |
| (iii) | Wages of operator is ₹ 240 per day of 8 hours including all fringe benefits. He attends to one machine when it is under set up and two machines while under operation. |                 |
| (iv)  | Estimated production hours   | 3,600 p.a.      |
|       | Estimated set up time (hours)  | 400 p.a.        |
| (v)   | Power charges  | ₹ 2.50 per hour |

Required: Prepare a Schedule of comprehensive machine hour rate and find the cost of the following jobs:

	Job 1120	Job 1150
Set up time (hours)	80	40
Operation time (hours)	130	160

**Question #10****CAPACITY**

PTP D23

ACB Ltd. manufactures product "A", at the rate of 80 pieces per hour. The company has been producing and selling 1,60,000 units annually since last five years. However, during the current year, the company was able to produce 1,46,000 units only. The company's annual fixed overheads for the current year amounted to ₹ 5,84,000. The company works on single shift only at 8 hours per day and 6 days a week. The company had declared 13 holidays. The quarterly preventive maintenance and repairs work involved 77 hours.

**Required:**

- (i) Calculate the Maximum, Practical, Normal and Actual Capacities for the current year in terms of hours.
  - (ii) Calculate Idle Capacity Hours.
  - (iii) Compute Hourly Rate for Recovery of Overhead Rates for each of the capacities computed at (i) above.
- (Assume 365 days and 52 Sundays during the current year)

**Question #11****CAPACITY**

MQP J25

DOZIN Ltd. manufactures a single product. It recovers factory overheads at a pre determined rate of ₹ 20 per man day.

During the year 2024 25, the total factory overheads incurred and the man days actually worked were ₹ 35.50 lakhs and 1.50 lakh days respectively. Out of the amount of ₹ 35.50 lakhs, ₹ 2.00 lakhs were in respect of wages for strike period and ₹ 1.00 lakh was in respect of expenses of previous year booked in this current year. During the period, 50000 units were sold. At the end of the period, 12000 completed units were held in stock but there was no opening stock of finished goods. Similarly, there was no stock of uncompleted units at the beginning of the period but at the end of the period there were 20000 uncompleted units which may be treated as 65% complete in all respects.

On investigation, it was found that 40% of the unabsorbed overheads were due to factory inefficiency and the rest were attributable to increase in the cost of indirect materials and indirect labour.

**Required:**

- (i) Calculate the amount of unabsorbed overheads during the year 2024 25.
- (ii) Analyze the accounting treatment of unabsorbed overheads in cost Accounts.

In a machine department of a factory there are five identical machines.

Space of the department	10,000 Sq. mts.
Space occupied by the machine	2,000 Sq. mts.
Cost of the machine	₹ 20,000
Scrap value of the machine	₹ 300
Estimated life of the machine	13 years
Depreciation charged at	7 1/2% p.a.
Normal running of the machine	2,000 hours
Power consumed by the machine as shown by the meter	₹ 3,000 p.a.

Estimated repairs and maintenance throughout the working life of the machine ₹ 5,200. Sundry supplies including oil, waste etc. charged direct to the machine amount to ₹ 600 p.a.

Other expenses of the department are:

	Amount (₹)
Rent and Rates	9,000
Lighting (to be apportioned according to workers employed)	400
Supervision	1,250
Other charges	5,000

It is ascertained that the degree of supervision required by the machine is 2/5th and 3/5th being devoted to other machines.

There are 16 workers in the department of whom 4 attended to the machine and the remaining to the other machines.

Prepare the machine hour rate for one of the machines.

Following details are taken from the books of ABC Ltd. for the month of October, 2024:

**Indirect Materials:** Production Departments: X ₹19,000; Y ₹24,000; Z ₹4,000;  
 Service Departments: Maintenance ₹30,000; Stores ₹8,000.

**Indirect Wages:** Production Departments: X ₹18,000; Y ₹22,000; Z ₹6,000;  
 Service Departments: Maintenance ₹20,000; Stores ₹13,000.

**Other Expenses:** Power and Light ₹1,20,000; Rent and Rates ₹56,000; Insurance of Assets ₹20,000;

Meal Charges ₹60,000; Depreciation @ 6% p.a. on capital value of assets.

Departmental Data

Items	Production Departments			Service Departments	
	X	Y	Z	Maintenance	Stores
Area (Sq. Ft.)	4,000	4,000	3,000	2,000	1,000
Capital Value of Assets (₹)	20,00,000	24,00,000	16,00,000	12,00,000	8,00,000

Kilowatt Hours	2,000	2,200	800	750	250
Number of Employees	180	240	60	80	40

Service rendered by Maintenance Department to Production Departments:  
X: 50%; Y: 30%; Z: 20%

Service rendered by Stores Department to Production Departments:  
X: 40%; Y: 40%; Z: 20%.

You are required to:

Prepare a Departmental Distribution Summary showing apportion of costs of Service Departments to the Production Departments and the Total Overheads of the Production Departments.