

PYQ RTP COMPILER

Chp4 Overheads

Costing CA Intermediate Regular Batch May / Sep 2025



Past Year Questions (PYQs)

May 2018 to Jan 2025

PYQ Analysis

Exam	Q No.	Marks	Requirement	Special Points
PYQ - Jan 2025	4b	6m	i) Overheads Recovery Rates for 2023 ii) Cost Statement for Order and SP	Packaging and transportation is taken as direct as it is related to order
PYQ - Jan 2025	6c	4m	Methods to control S&D OH	Theory
PYQ - Jan 2025	6c	4m	Basis of Reapportionments	Theory
PYQ - Sep 2024	5a	7m	Comprehensive MH Rate for each machine	Direct Labour Expenses are traceable to machines not products, hours calculation is special
PYQ - May 2024	4b	6m	Amount of unabsorbed overheads, treatment in cost accounts	Easy Basic
PYQ - Nov 2023	3a	10m	Primary Distribution, Reapportionment using step method, absorption rate	Apportionment of Security Expenses and Supervisor Expenses, Rest is Easy
PYQ - May 2023	6b	5m	Practical Capacity and Normal Capacity	Theory
PYQ - May 2023	6d	5m	Basis of Reapportionment	Theory
PYQ - Nov 2022	2a	10m	Machine hour rate with and without robot	Similar to Study Material Problem
PYQ - May 2022	2a	10m	% recovery rates for Factory OH and Admin OH, Profit of Jobs, SP of new JOB	Reverse calculation from Factory Cost, Similar to Module

PYQ Analysis

Exam	Q No.	Marks	Requirement	Special Points
PYQ - Dec 2021	5b	10m	i. Amount of unabsorbed OH ii. Accounting Treatment of unabsorbed overheads in cost accounts and pass journal entry	Passing Journal Entry was a new part rest is regular question
PYQ - July 2021	1b	5m	Redistribution by Step Ladder Method, Cal of Recovery Rate based on hours	Sequence of redistribution not mentioned in step method, so we took assumption
PYQ - Jan 2021	1b	5m	Comprehensive Machine Hour Rate	Similar to Study Material Problem
PYQ - Jan 2021	6c	5m	What is Blanket and Departmental Rate	Theory
PYQ - Nov 2020	2b	10m	Primary Distribution, Recovery Rate after Redistribution, Total Cost of Product A	Exhaustive Problem - Similar to Study Mat Problem
PYQ - Nov 2019	2b	10m	Amount of unabsorbed overheads, treatment in cost accounts, apportion into cost accounts	Basic Regular
PYQ - May 2019	5b	5m	Comprehensive Machine Hour Rate	Easy Basic
PYQ - Nov 2018	5b (ii)	5m	Overheads Distribution Sheet, Recovery Rate	Variable Overheads apportioned on the basis of actual capacity and Fixed Overheads are apportioned on the basis of Budgeted Capacity
PYQ - Nov 2018	6c	5m	Bases of Apportionments	Theory
PYQ - May 2018	NA	NA	No Question	No Question

PYQ Jan 2025 – Q4b

(b) LMN Foods is a manufacturer of organic snacks. For the year ending 2023, the company compiled the following financial data :

Item	Amount (in ₹)
Opening inventory of raw materials	2,00,000
Closing inventory of raw materials	2,50,000
Raw material purchases	12,00,000
Labour costs	5,00,000
Production overheads	2,50,000
Marketing and distribution expenses	1,52,000

PYQ Jan 2025 – Q4b

In 2024, LMN Foods accepted a request for a bulk supply of their best-selling snacks. The estimated costs for fulfilling this order are as follows :

- Estimated raw material cost : ₹ 3,00,000
- Estimated labour cost : ₹ 1,50,000
- Packaging and transportation costs : ₹ 49,400

LMN Foods allocates production overhead based on direct labour costs and marketing and distribution expenses as a percentage of the total production cost based on the previous year's data.

Required :

- (i) Calculate the overhead recovery rates for 2023 based on actual costs. 2
- (ii) Prepare a comprehensive cost statement for the bulk order and determine the Sales required for achieving a profit margin of 20% on the final sales amount. 4

PYQ Jan 2025 – Q4b

Part (i)

Direct material consumed (200,000 + 12,00,000 – 250,000)	1150,000
Direct labour	500,000
Prod. overheads	250,000
Cost of production	1900,000

Overhead Recovery Rates:

$$\text{Prod. overheads rate} = \frac{250,000}{500,000} \times 100 = 50\% \text{ of direct labour costs}$$

$$\text{Marketing and distribution cost rate} = \frac{152,000}{1900,000} \times 100 = 8\% \text{ of production cost}$$

PYQ Jan 2025 – Q4b

Part(ii) comprehensive cost statement for the bulk order

Estimate raw material costs	300,000
Estimated labour cost	150,000
Packaging and transportation costs	49,400
Production overheads (50% of 150,000)	75,000
Production cost	574,400
Marketing and distribution cost (8% of prod. cost)	45,952
Total cost	620,352
Profit (25% of cost)	155,088
Total sales required	775,440

PYQ Sep 2024 – Q5a

- (a) This data pertains to the three machines operating in the manufacturing division of PQR Corp for the financial year 2023-2024:

Particulars	Estimated Expenses			
	TOTAL (₹)	Machines		
		X (₹)	Y (₹)	Z (₹)
Direct Labour Expenses (per quarter)	2,50,000			
Oil Expenses (per quarter)	1,03,125	37,500	37,500	28,125
Machine Insurance Expenses (per quarter)	60,000			
Depreciation (per annum)	6,00,000	1,00,000	2,00,000	3,00,000
Building Maintenance Expenses (per quarter)	1,00,000			

PYQ Sep 2024 – Q5a

<i>Wages of Operator (per quarter)</i>	<i>2,25,000</i>			
<i>Electricity Expenses (per quarter)</i>	<i>3,00,000</i>			
<i>Rent and Rates (per month)</i>	<i>80,000</i>			
<i>Salary of Technician (per month)</i>	<i>62,500</i>			

(The Technician works only on machines X and Y and the Operator controls all three machines and both spend equal time on each of the machines worked upon by them.)

There are 14 holidays besides Sundays in the year, of which six are on Saturdays. There was a Strike of workers for 5 working days (including one Saturday). The manufacturing department operates for 8 hours per day on regular week days, while on Saturdays, the operating hours are reduced by 2 hours per day. All machines operate at 80% capacity throughout the year. Assume 366 days in a year.

PYQ Sep 2024 – Q5a

The following additional information is also available:

- (i) A 20% hike in the price of oil.*
- (ii) A 10% rise in Oil consumption for machines 'X' and 'Y' only.*
- (iii)*

Particulars	Machines		
	X	Y	Z
<i>No. of Workers</i>	5	3	2
<i>Ratio of K.W. Rating</i>	3	3	4
<i>Ratio of Floor space utilized</i>	1	2	1

Required:

Prepare a Statement detailing the allocation of expenses to each machine on an annual basis and thereafter, compute the comprehensive machine hour rate for each of the specified machine.

(7 Marks)

PYQ Sep 2024 – Q5a

(a) Computation of Comprehensive Machine Hour Rate

Particulars	Basis of Apportionment	Total (₹)	Machines		
			X (₹)	Y (₹)	Z (₹)
Standing Charges (Per Annum)					
Direct Labour Expenses	No. of Workers (5:3:2)	10,00,000	5,00,000	3,00,000	2,00,000
Wages of Operator	Equal	9,00,000	3,00,000	3,00,000	3,00,000
Machine Insurance Expenses	Depreciation (1:2:3)	2,40,000	40,000	80,000	1,20,000
Building Maintenance Expenses	Floor Space (1:2:1)	4,00,000	1,00,000	2,00,000	1,00,000
Rent and Rates	Floor Space (1:2:1)	9,60,000	2,40,000	4,80,000	2,40,000
Salary of Technician	(1:1:0)	7,50,000	3,75,000	3,75,000	-
Total Standing Charges		42,50,000	15,55,000	17,35,000	9,60,000
Hourly Rate (A)			856.28	955.40	528.63
Machine Expenses (Per Annum)					

PYQ Sep 2024 – Q5a

Oil Expenses	Direct (W.N.1)	5,31,000	1,98,000	1,98,000	1,35,000
Depreciation	Direct	6,00,000	1,00,000	2,00,000	3,00,000
Electricity Expenses	K. W. Rating (3:3:4)	12,00,000	3,60,000	3,60,000	4,80,000
Total Machine Expenses		23,31,000	6,58,000	7,58,000	9,15,000
Hourly Rate (B)			362.33	417.40	503.85
Total Expenses		65,81,000	22,13,000	24,93,000	18,75,000
(A) + (B)			1,218.61	1,372.80	1,032.49

Calculation of Effective Working Hours.

	Per Machine Per Annum
Full Day Working Hours (250 days x 8 hours)	2,000
6 hours per day Working Hours (45 days x 6 hours)	270
Total Hours	2,270
Capacity Utilization	80%
Effective working hours	1,816

PYQ Sep 2024 – Q5a

No. of Shutdown Days

Sundays	52
Holidays	14
Strike Period	<u>5</u>
	<u>71</u>

No. of 6 Hours Working Days

Saturdays	52
Less: Holidays	(6)
Less: Strike Period	<u>(1)</u>
	<u>45</u>

No. of Full Working Days

Total No of Days in a year	366
Less: No of Shutdown Days	(71)
Less: No. of 6 Hours Working Days	<u>(45)</u>
	<u>250</u>

PYQ Sep 2024 – Q5a

Working notes

1. Calculation of Oil Expenses.

Particulars	Machines		
	X (₹)	Y (₹)	Z (₹)
Oil Expenses	1,50,000	1,50,000	1,12,500
Add: Increase in Price @20%	30,000	30,000	22,500
	1,80,000	1,80,000	1,35,000
Add: Increase in Consumption @10%	18,000	18,000	-
Total	1,98,000	1,98,000	1,35,000

PYQ May 2024 – Q4b

(b) *The cost variance report was being discussed at a review meeting where in Cost Accountant of the company reported under-absorption of production overheads.*

The following information was available from the cost records of the company at the end of financial year 2023-24:

- *Actual production overheads incurred were ₹ 4,50,000 which included ₹ 42,000 on account of 'written off obsolete stores.*
- *18,000 units were produced during the year out of which 10,000 units were sold and 8,000 units of finished goods were in stock.*
- *There were also 5,000 units in progress which may be reckoned as 40% complete.*
- *The actual machine hours worked during the period were 43,000.*

PYQ May 2024 – Q4b

ABC Ltd. absorbs the production overheads at a predetermined rate of ₹ 8 per machine hour.

On investigation, it has been found that 20% of the under-absorption of production overheads was due to defective planning and the rest was attributable to normal increase in costs of indirect materials and indirect labour.

You are required to:

- (i) Calculate the amount of under-absorption of production overheads during the year 2023-24; and*
- (ii) Show the treatment of under-absorption of production overheads in cost accounts.*

PYQ May 2024 – Q4b

(b) (i) Amount of under-absorption of production overheads during the current year

	(₹)
Total production overheads actually incurred during the current year	4,50,000
Less : 'Written off' obsolete stores	<u>42,000</u>
Net production overheads actually incurred : (A)	4,08,000
Production overheads absorbed by 43,000 machine hours@ ₹ 8 per hour : (B)	<u>3,44,000</u>

PYQ May 2024 – Q4b

Amount of under – absorption of production overheads :

[(A) – (B)]

64,000

(ii) Accounting treatment of under absorption of production overheads

It is given in the statement of the question that 18,000 units were produced, and 5,000 units were 40% complete, 20% of the under-absorbed overheads were due to defective planning and the rest were attributable to normal increase in costs of indirect materials and indirect labour.

1.	(20 % of ₹ 64,000) i.e., ₹ 12,800 of under-absorbed overheads were due to defective planning. This being abnormal, should be debited to the Costing Profit and Loss A/c.	₹ 12,800
2.	Balance (80% of ₹ 64,000) i.e., ₹ 51,200 of under-absorbed overheads should be distributed over work-in-progress, finished goods and cost of sales by using supplementary rate.	₹ 51,200
	Total under-absorbed overheads	₹ 64,000

PYQ May 2024 – Q4b

Apportionment of unabsorbed overheads of ₹ 51,200 over, work-in progress, finished goods and cost of sales

	Equivalent Completed Units	(₹)
Work-in-Progress (5,000 units × 40% × ₹ 2.56) (Refer to working note)	2,000	5,120
Finished goods (8,000 units × ₹ 2.56)	8,000	20,480
Cost of sales (10,000 units × ₹ 2.56)	10,000	25,600
	20,000	51,200

Working Note

$$\text{Supplementary rate per unit} = \frac{51,200}{20,000} = ₹ 2.56$$

PYQ Nov 2023 – Q3a

- (a) HCP Ltd. is a manufacturing company having two production departments, P and Q and two service departments, R and S. The budgeted cost information for the month of October 2023 is furnished below:

		Production Departments		Service Departments	
	(₹)	P (₹)	Q (₹)	R (₹)	S (₹)
Indirect material	1,77,500	94,750	49,750	18,270	14,730
Indirect Labour	1,55,000	35,000	75,000		
Factory Rent	75,000				
Depreciation on machinery	37,500				
Power	96,000				
Security Expenses for Factory Premises	24,000				
Insurance- machinery	12,000				
Supervisor Expenses	48,000				
Additional information					
Floor Area (Sq. meters)		1250	750	200	300
Net book value of machinery (₹)		21,00,000	5,00,000	1,00,000	3,00,000
H.P. of machines		800	200	80	120

PYQ Nov 2023 – Q3a

<i>Machine hours</i>	4,000	1,000	600	800
<i>Number of employees</i>	10	30	6	4
<i>Labour hours</i>	2,000	6,000	1,200	600

The overhead costs of the two service department are distributed using step method in the same order viz. R and S respectively on the following basis:

Department <i>R</i>	Number of employees
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Department S Machine hours

Required:

- (i) Prepare a statement showing distribution of overheads to various departments, clearly showing the basis of distribution.
 - (ii) Calculate the total budgeted overheads for both production departments after the service departments have been re-apportioned to them.
 - (iii) Calculate the most appropriate overhead absorption rate for each of the production department.
- (10 Marks)**

PYQ Nov 2023 – Q3a

Overhead Distribution Statement

Particular	Basis	Total Amount (₹)	Production Departments		Service Departments	
			P (₹)	Q (₹)	R (₹)	S (₹)
Indirect material	Direct	1,77,500	94,750	49,750	18,270	14,730
Indirect labour	Direct	1,55,000	35,000	75,000	15,000	30,000
Factory rent (125:75:20:30)	Floor Area	75,000	37,500	22,500	6,000	9,000
Depreciation of machinery (21:5:1:3)	Book value of machinery	37,500	26,250	6,250	1,250	3,750
Power (3200:200:48:96)	H.P. x machine hours	96,000	86,682	5,418	1,300	2,600
Security expenses for factory premises (125:75:20:30)	Floor Area	24,000	12,000	7,200	1,920	2,880

PYQ Nov 2023 – Q3a

Insurance-machinery (21:5:1:3)	Book value of machinery	12,000	8,400	2,000	400	1,200
Supervisor expenses (10:30:6:4)	Number of employees	48,000	9,600	28,800	5,760	3,840
Total		6,25,000	3,10,182	1,96,918	49,900	68,000

Power can be distributed on the basis of HP of machines x machine hours

$800 \times 4000 = 32,00,000$, $200 \times 1000 = 2,00,000$, $80 \times 600 = 48,000$, 120×800
 $= 96,000$

Ratio is 3200:200:48:96

PYQ Nov 2023 – Q3a

(ii) Redistribution of Service Department's Expenses

Particular	Production Departments		Service Departments	
	P (₹)	Q (₹)	R (₹)	S (₹)
Overhead as per primary distribution	3,10,182	1,96,918	49,900	68,000
Expenses of service department R is apportioned among other departments P, Q & S in the ratio of number of employees (10:30:4)	11,340.90	34,022.73	(49,900)	4,536.37
Expenses of service department S is apportioned among other departments P & Q in the ratio of Machine hours (40:10)	58,029.10	14,507.27	-	(72,536.37)
Total Budgeted overheads	3,79,552	2,45,448	-	-

PYQ Nov 2023 – Q3a

(iii) Calculation of overhead rates for each of the production department

Particular	Production Departments	
	P (₹)	Q (₹)
Total Budgeted overheads	3,79,552	2,45,448
Actual machine hours	4000 hours	-
Actual labour hours	-	6000 hours
Actual machine/labour hour rate	94.89	40.91

Note: Department P is assumed to be machine oriented and Department Q is assumed to be labour oriented as per information available in the question

PYQ Nov 2022 – Q2a

(a) USP Ltd. is the manufacturer of 'double grip motorcycle tyres'. In the manufacturing process, it undertakes three different jobs namely, Vulcanising, Brushing and Striping. All of these jobs require the use of a special machine and also the aid of a robot when necessary. The robot is hired from outside and the hire charges paid for every six months is ₹ 2,70,000. An estimate of overhead expenses relating to the special machine is given below:

- Rent for a quarter is ₹ 18,000.
- The cost of the special machine is ₹ 19,20,000 and depreciation is charged @10% per annum on straight line basis.
- Other indirect expenses are recovered at 20% of direct wages.

The factory manager has informed that in the coming year, the total direct wages will be ₹ 12,00,000 which will be incurred evenly throughout the year.

PYQ Nov 2022 – Q2a

During the first month of operation, the following details are available from the job book:

Number of hours the special machine was used

Jobs	Without the aid of the robot	With the of the robot
<i>Vulcanising</i>	500	400
<i>Brushing</i>	1000	400
<i>Striping</i>	-	1200

You are required to :

- (i) Compute the Machine Hour Rate for the company as a whole for a month (A) when the robot is used and (B) when the robot is not used.*
 - (ii) Compute the Machine Hour Rate for the individual jobs i.e. Vulcanising, Brushing and Striping.*
- (10 Marks)**

PYQ Nov 2022 – Q2a

(a) Working notes:

(I) Total machine hours use	3,500
(500 + 1,000 + 400 + 400 + 1,200)	
(II) Total machine hours without the use of robot	1,500
(500 + 1,000)	
(III) Total machine hours with the use of robot	2,000
(400 + 400 + 1,200)	
(IV) Total overheads of the machine per month	
Rent (₹ 18,000 ÷ 3 months)	6,000
Depreciation [(₹ 19,20,000 x 10%) ÷ 12 months]	16,000
Indirect expenses [(₹ 12,00,000 x 20%) ÷ 12 months]	<u>20,000</u>
Total	<u>42,000</u>
(V) Robot hire charges for a month	₹ 45,000
(₹ 2,70,000 ÷ 6 months)	

PYQ Nov 2022 – Q2a

(VI) Overheads for using machines without robot

$$= \frac{₹ 42,000}{3,500 \text{ hrs.}} \times 1,500 \text{ hrs.} = ₹ 18,000$$

(VII) Overheads for using machines with robot

$$= \frac{₹ 42,000}{3,500 \text{ hrs.}} \times 2,000 \text{ hrs.} + ₹ 45,000 = ₹ 69,000$$

(i) **Computation of Machine hour rate for the firm as a whole for a month.**

(A) When the robot was used: $\frac{₹ 69,000}{2,000 \text{ hours}} = ₹ 34.50 \text{ per hour}$

(B) When the robot was not used: $\frac{₹ 18,000}{1,500 \text{ hrs.}} = ₹ 12 \text{ per hour}$

PYQ Nov 2022 – Q2a

(ii) Computation of Machine hour rate for the individual job

	Rate per hour	Job					
		Vulcanising		Brushing		Striping	
	(₹)	Hrs.	(₹)	Hrs.	(₹)	Hrs.	(₹)
Overheads							
Without robot	12.00	500	6,000	1,000	12,000	-	-
With robot	34.50	400	13,800	400	13,800	1,200	41,400
Total		900	19,800	1,400	25,800	1,200	41,400
Machine hour rate			22		18.43		34.50

PYQ May 2022 – Q2a

(a) In a manufacturing company, the overhead is recovered as follows:

Factory Overheads: a fixed percentage basis on direct wages and

Administrative overheads: a fixed percentage basis on factory cost.

The company has furnished the following data relating to two jobs undertaken by it in a period.

	Job 1 (₹)	Job 2 (₹)
Direct materials	1,08,000	75,000
Direct wages	84,000	60,000
Selling price	3,33,312	2,52,000
Profit percentage on total cost	12%	20%

PYQ May 2022 – Q2a

You are required to:

- (i) Compute the percentage recovery rates of factory overheads and administrative overheads.*
- (ii) Calculate the amount of factory overheads, administrative overheads and profit for each of the two jobs.*
- (iii) Using the above recovery rates, determine the selling price to be quoted for job 3. Additional data pertaining to Job 3 is as follows:*

<i>Direct materials</i>	<i>₹ 68,750</i>
<i>Direct wages</i>	<i>₹ 22,500</i>
<i>Profit percentage on selling price</i>	<i>15%</i>

(10 Marks)

PYQ May 2022 – Q2a

- (a) (i) **Computation of percentage recovery rates of factory overheads and administrative overheads.**

Let the factory overhead recovery rate as percentage of direct wages be F and administrative overheads recovery rate as percentage of factory cost be A.

Factory Cost of Jobs:

Direct materials + Direct wages + Factory overhead

For Job 1 = ₹ 1,08,000 + ₹ 84,000 + ₹ 84,000F

For Job 2 = ₹ 75,000 + ₹ 60,000 + ₹ 60,000F

Total Cost of Jobs:

Factory cost + Administrative overhead

For Job 1 = (₹ 1,92,000 + ₹ 84,000F) + (₹ 1,92,000 + ₹ 84,000F) A = ₹ 2,97,600*

For Job-2 = (₹ 1,35,000 + ₹ 60,000F) + (₹ 1,35,000 + ₹ 60,000F) A = ₹ 2,10,000**

PYQ May 2022 – Q2a

The value of F & A can be found using following equations

$$1,92,000 + 84,000F + 1,92,000A + 84,000AF = ₹ 2,97,600 \quad \dots\dots\dots \text{eqn (i)}$$

$$1,35,000 + 60,000F + 1,35,000A + 60,000AF = ₹ 2,10,000 \quad \dots\dots\dots \text{eqn (ii)}$$

Multiply equation (i) by 5 and equation (ii) by 7

$$9,60,000 + 4,20,000F + 9,60,000A + 4,20,000AF = ₹ 14,88,000 \quad \dots \text{eqn (iii)}$$

$$9,45,000 + 4,20,000F + 9,45,000A + 4,20,000AF = ₹ 14,70,000 \quad \dots \text{eqn (iv)}$$

$$\begin{array}{rcl} - & - & - \\ 15,000 + 15,000A & = & ₹ 18,000 \end{array}$$

$$15,000 A = 18,000 - 15,000$$

$$A = 0.20$$

Now putting the value of A in equation (i) to find the value of F

$$1,92,000 + 84,000F + (1,92,000 \times 0.20) + (84,000 F \times 0.20) = ₹ 2,97,600$$

Or

$$1,92,000 + 84,000F + 38,400 + 16,800 F = ₹ 2,97,600$$

$$1,00,800 F = 67,200$$

$$F = 0.667$$

PYQ May 2022 – Q2a

On solving the above relations: $F = 0.667$ and $A = 0.20$

Hence, percentage recovery rates of:

Factory overheads = 66.7% or $\frac{2}{3}$ rd of wages and

Administrative overheads = 20% of factory cost.

Working note:

$$\text{Total Cost} = \frac{\text{Selling price}}{(100\% + \text{Percentage of profit})}$$

$$\text{*For Job 1} = \frac{\text{₹ 3,33,312}}{(100\% + 12\%)} = \text{₹ 2,97,600}$$

$$\text{**For Job 2} = \frac{\text{₹ 2,52,000}}{(100\% + 20\%)} = \text{₹ 2,10,000}$$

PYQ May 2022 – Q2a

- (ii) Statement of jobs, showing amount of factory overheads, administrative overheads and profit:

	Job 1	Job 2
	(₹)	(₹)
Direct materials	1,08,000	75,000
Direct wages	84,000	60,000
Prime cost	1,92,000	1,35,000
Factory overheads 2/3 rd of direct wages	56,000	40,000
Factory cost	2,48,000	1,75,000
Administrative overheads 20% of factory cost	49,600	35,000
Total cost	2,97,600	2,10,000
Profit (12% & 20% respectively)	35,712	42,000
Selling price	3,33,312	2,52,000

PYQ May 2022 – Q2a

(iii) Selling price of Job 3

	(₹)
Direct materials	68,750
Direct wages	22,500
Prime cost	91,250
Factory overheads (2/3 rd of Direct Wages)	15,000
Factory cost	1,06,250
Administrative overheads (20% of factory cost)	21,250
Total cost	1,27,500
Profit margin (balancing figure)	22,500
Selling price $\left[\frac{\text{Total Cost}}{85\%} \right]$	1,50,000

PYQ Dec 2021 – Q5b

- (b) XYZ Ltd. manufactures a single product. It recovers factory overheads at a pre-determined rate of ₹ 20 per man-day.

During the year 2020-21, 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 sick period and ₹ 1.00 lakh was in respect of expenses of previous year booked in this current year. During the period, 50,000 units were sold. At the end of the period, 12,000 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 20,000 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. You are required to:

- (i) Calculate the amount of unabsorbed overheads during the year 2020-21.
 - (ii) Show the accounting treatment of unabsorbed overheads in cost accounts and pass journal entry.
- (10 Marks)**

PYQ Dec 2021 – Q5b

(b) (i) Amount of under-absorption of overheads during the year 2020-21

	(₹)
Total production overheads actually incurred during the year 2020-21	35,50,000
Less: Wages paid during strike period	₹2,00,000
Wages of previous year booked in current year	<u>₹ 1,00,000</u>
Net production overheads actually incurred: (A)	32,50,000
Production overheads absorbed by 1.50 lakh man-days @ ₹ 20 per man-day: (B)	30,00,000
Amount of under-absorption of production overheads: [(A)–(B)]	2,50,000

(ii) **Accounting treatment of under absorption of production overheads:** It is given in the statement of the question that 62,000 units (50,000 sold + 12,000 closing stock – 0 opening stock) were completely finished and 20,000 units were 65% complete, 40% of the under-absorbed overheads were due to factory inefficiency and the rest were attributable to increase in cost of indirect materials and indirect labour.

PYQ Dec 2021 – Q5b

	(₹)
1. (40% of ₹2,50,000) i.e. ₹ 1,00,000 of under – absorbed overheads were due to factory inefficiency. This being abnormal, should be debited to the Costing Profit and Loss A/c	1,00,000
2. Balance (60% of ₹ 2,50,000) i.e. ₹ 1,50,000 of under – absorbed overheads should be distributed over work-in-progress, finished goods and cost of sales by using supplementary rate	1,50,000
Total under-absorbed overheads	2,50,000

Apportionment of unabsorbed overheads of ₹1,50,000 over work-in-progress, finished goods and cost of sales.

	Equivalent Completed units	(₹)
Work-in-progress (13,000 units × ₹ 2) (Refer to Working Note)	20000 * 65% = 13,000	26,000
Finished goods (12,000 units × ₹ 2)	12,000	24,000
Cost of sales (50,000 units × ₹ 2)	50,000	1,00,000
	75,000	1,50,000

PYQ Dec 2021 – Q5b

Journal entry:

Work-in-progress control A/c	Dr.	₹ 26,000	
Finished goods control A/c	Dr.	₹ 24,000	
Cost of Sales A/c	Dr.	₹ 1,00,000	
Costing Profit & Loss A/c	Dr.	₹ 1,00,000	
To Overhead control A/c			₹ 2,50,000

Working Note:

$$\text{Supplementary overhead absorption rate} = \frac{\text{₹ 1,50,000}}{75,000 \text{ units}} = \text{₹ 2 per unit}$$

PYQ Jul 2021 – Q1b

(b) SNS Trading Company has three Main Departments and two Service Departments. The data for each department is given below:

Departments	Expenses (in ₹)	Area in (Sq. Mtr)	Number of Employees
Main Department:			
Purchase Department	5,00,000	12	800
Packing Department	8,00,000	15	1700
Distribution Department	3,50,000	7	700
Service Departments:			
Maintenance Department	6,40,000	4	200
Personnel Department	3,20,000	6	250

PYQ Jul 2021 – Q1b

The cost of Maintenance Department and Personnel Department is distributed on the basis of 'Area in Square Metres' and 'Number of Employees' respectively.

You are required to:

- (i) Prepare a Statement showing the distribution of expenses of Service Departments to the Main Departments using the "Step Ladder method" of Overhead Distribution.*
- (ii) Compute the Rate per hour of each Main Department, given that, the Purchase Department, Packing Department and Distribution Department works for 12 hours a day, 24 hours a day and 8 hours a day respectively. Assume that there are 365 days in a year and there are no holidays.*

PYQ Jul 2021 – Q1b

- (b) (i) Schedule Showing the Distribution of Expenses of Service Departments using Step ladder method.

	Main Department			Service Department	
	Purchase (₹)	Packing (₹)	Distribution (₹)	Maintenance (₹)	Personnel (₹)
Expenses	5,00,000	8,00,000	3,50,000	6,40,000	3,20,000
Distribution of Maintenance Department (12:15:7:-:6)	1,92,000	2,40,000	1,12,000	(6,40,000)	96,000
Distribution of Personnel Department (800:1700:700:-:-)	1,04,000	2,21,000	91,000	-	(4,16,000)
Total	7,96,000	12,61,000	5,53,000	-	-

- (ii) Calculation of Expenses rate per hour of Main Department

	Purchase	Packing	Distribution
Total apportioned expenses (₹)	7,96,000	12,61,000	5,53,000
Total Hours worked	4,380 (12 x 365)	8,760 (24 x 365)	2,920 (8 x 365)
Expenses rate per hour (₹)	181.74	143.95	189.38

PYQ Jan 2021 – Q1b

- (b) A machine shop has 8 identical machines manned by 6 operators. The machine cannot work without an operator wholly engaged on it. The original cost of all the 8 machines works out to ₹ 32,00,000. The following particulars are furnished for a six months period:

Normal available hours per month per operator	208
Absenteeism (without pay) hours per operator	18
Leave (with pay) hours per operator	20
Normal unavoidable idle time-hours per operator	10
Average rate of wages per day of 8 hours per operator	₹ 100
Production bonus estimated	10% on wages
Power consumed	₹ 40,250
Supervision and Indirect Labour	₹ 16,500
Lighting and Electricity	₹ 6,000

PYQ Jan 2021 – Q1b

The following particulars are given for a year:

Insurance ₹ 3,60,000

Sundry work Expenses ₹ 50,000

Management Expenses allocated ₹ 5,00,000

Depreciation 10% on the original cost

Repairs and Maintenance (including consumables): 5% of the value of all the machines.

Prepare a statement showing the comprehensive machine hour rate for the machine shop.

PYQ Jan 2021 – Q1b

(b) Workings:

Particulars	Six months 6 operators (Hours)
Normal available hours per month (208 x 6 months x 6 operators)	7,488
Less: Absenteeism hours (18 x 6 operators)	(108)
Paid hours (A)	7,380
Less: Leave hours (20 x 6 operators)	(120)
Less: Normal idle time (10 x 6 operators)	(60)
Effective working hours	7,200

PYQ Jan 2021 – Q1b

Computation of Comprehensive Machine Hour Rate

Particulars	Amount for six months (₹)
Operators' wages $(7,380/8 \times 100)$	92,250
Production bonus (10% on wages)	9,225
Power consumed	40,250
Supervision and indirect labour	16,500
Lighting and Electricity	6,000
Repair and maintenance $\{(5\% \times ₹ 32,00,000)/2\}$	80,000
Insurance $(₹ 3,60,000/2)$	1,80,000
Depreciation $\{(₹ 32,00,000 \times 10\%)/2\}$	1,60,000
Sundry Work expenses $(₹ 50,000/2)$	25,000
Management expenses $(₹ 5,00,000/2)$	2,50,000
Total Overheads for 6 months	8,59,225
Comprehensive Machine Hour Rate = ₹ 8,59,225/7,200 hours	₹ 119.33

(Note: Machine hour rate may be calculated alternatively. Further, presentation of figures may also be done on monthly or annual basis.)

PYQ Nov 2020 – Q2b

- (b) TEE Ltd. is a manufacturing company having three production departments 'P', 'Q' and 'R' and two service departments 'X' and 'Y' details pertaining to which are as under :

	P	Q	R	X	Y
Direct wages (₹)	5,000	1,500	4,500	2,000	800
Working hours	13,191	7,598	14,995	-	-
Value of machine (₹)	1,00,000	80,000	1,00,000	20,000	50,000
H.P. of machines	100	80	100	20	50
Light points (Nos.)	20	10	15	5	10
Floor space (sq. ft.)	2,000	2,500	3,500	1,000	1,000

The expenses are as follows:

	(₹)
Rent and Rates	10,000
General Lighting	600
Indirect Wages	3,450
Power	3,500
Depreciation on Machines	70,000
Sundries (apportionment on the basis of direct wages)	13,800

PYQ Nov 2020 – Q2b

The expenses of Service Departments are allocated as under :

	P	Q	R	X	Y
X	45%	15%	30%	-	10%
Y	35%	25%	30%	10%	-

Product 'A' is processed for manufacture in Departments P, Q and R for 6, 5 and 2 hours respectively.

Direct Costs of Product A are :

Direct material cost is ₹ 65 per unit and Direct labour cost is ₹ 40 per unit.

You are Required to:

- (i) Prepare a statement showing distribution of overheads among the production and service departments.*
- (ii) Calculate recovery rate per hour of each production department after redistributing the service departments costs.*
- (iii) Find out the Total Cost of a 'Product A'.*

(10 Marks)

PYQ Nov 2020 – Q2b

(b) (i)

Statement showing distribution of Overheads

Primary Distribution Summary

Item of cost	Basis of apportionment	Total (₹)	P (₹)	Q (₹)	R (₹)	X (₹)	Y (₹)
Direct wages	Actual	2,800	--	--	--	2,000	800
Rent and Rates	Floor area (4:5:7:2:2)	10,000	2,000	2,500	3,500	1,000	1,000
General lighting	Light points (4:2:3:1:2)	600	200	100	150	50	100
Indirect wages	Direct wages (50:15:45:20:8)	3,450	1,250	375	1,125	500	200
Power	Horse Power of machines used (10:8:10:2:5)	3,500	1,000	800	1,000	200	500
Depreciation of machinery	Value of machinery (10:8:10:2:5)	70,000	20,000	16,000	20,000	4,000	10,000
Sundries	Direct wages (50:15:45:20:8)	13,800	5,000	1,500	4,500	2,000	800
Total		1,04,150	29,450	21,275	30,275	9,750	13,400

PYQ Nov 2020 – Q2b

Secondary Distribution using simultaneous equation method:

Overheads of service cost centres

Let, X be the overhead of service cost centre X

Y be the overhead of service cost centre Y

$$X = 9,750 + 0.10 Y$$

$$Y = 13,400 + 0.10 X$$

Substituting the value of Y in X we get

$$X = 9,750 + 0.10 (13,400 + 0.10 X)$$

$$X = 9,750 + 1,340 + 0.01 X$$

$$0.99 X = 11,090$$

$$\therefore X = ₹ 11,202$$

$$\therefore Y = 13,400 + 0.10 \times 11,202$$

$$= ₹ 14,520.20$$

PYQ Nov 2020 – Q2b

Secondary Distribution Summary

Particulars	Total (₹)	P (₹)	Q (₹)	R (₹)
Allocated and Apportioned over-heads as per primary distribution		29,450.00	21,275.00	30,275.00
X	11,202.00	5,040.90	1,680.30	3,360.60
Y	14,520.20	5,082.07	3,630.05	4,356.06
Total		39,572.97	26,585.35	37,991.66

(ii) Calculation of Overhead recovery rate per hour

	P (₹)	Q (₹)	R (₹)
Total overheads cost	39,572.97	26,585.35	37,991.66
Working hours	13,191	7,598	14,995
Rate per hour (₹)	3	3.50	2.53

PYQ Nov 2020 – Q2b

(iii) Cost of Product A

	(₹)
Direct material	65.00
Direct labour	40.00
Prime cost	105.00
Production on overheads	
P 6 hours × ₹ 3 = ₹ 18	
Q 5 hours × ₹ 3.50 = ₹ 17.50	
R 2 hours × ₹ 2.53 = ₹ <u>5.06</u>	40.56
Total cost	145.56

Note: Secondary Distribution can also be done using repeated distribution Method

PYQ Nov 2019 – Q2b

- (b) *ABS Enterprises produces a product and adopts the policy to recover factory overheads applying blanket rate based on machine hours. The cost records of the concern reveal the following information:*

Budgeted production overheads ₹ 10,35,000

Budgeted machine hours ₹ 90,000

Actual machine hours worked ₹ 45,000

Actual production overheads ₹ 8,80,000

Production overheads (actual) include-

Paid to worker as per court's award ₹ 50,000

Wages paid for strike period ₹ 38,000

Stores written off ₹ 22,000

Expenses of previous year booked in current year ₹ 18,500

Production -

Finished goods 30,000 units

Sale of finished goods 27,000 units

PYQ Nov 2019 – Q2b

The analysis of cost information reveals that $\frac{1}{3}$ of the under absorption of overheads was due to defective production planning and the balance was attributable to increase in costs.

You are required:

- (i) To find out the amount of under absorbed production overheads.*
- (ii) To give the ways of treating it in Cost Accounts.*
- (iii) To apportion the under absorbed overheads over the items.*

(10 Marks)

PYQ Nov 2019 – Q2b

(b) (i) Amount of under absorption of production overheads:

Particular	Amount t (₹)	Amount (₹)
Total production overheads actually incurred		8,80,000
Less: Amount paid to worker as per court order	50,000	
Wages paid for the strike period under an award	38,000	
Stores written off	22,000	
Expenses of previous year booked in the current year	18,500	1,28,500
		7,51,500
Less: Production overheads absorbed as per machine hour rate (45,000 hours × ₹11.50*)		5,17,500
Amount of under- absorbed production overheads		2,34,000

$$\text{*Budgeted Machine hour rate (Blanket rate)} = \frac{\text{₹ 10,35,000}}{90,000} = \text{₹ 11.50 per hour}$$

PYQ Nov 2019 – Q2b

(ii) Accounting treatment of under absorbed production overheads:

- (a) As 1/3rd of the under absorbed overheads were due to defective production planning, this being abnormal, hence should be debited to Costing Profit and Loss Account.

Amount to be debited to Costing Profit and Loss Account

$$= ₹ 2,34,000 \times 1/3 = ₹ 78,000.$$

- (b) Balance of under absorbed production overheads should be distributed over Finished goods and Cost of sales by applying supplementary rate*.

$$\text{Amount to be distributed} = ₹ 2,34,000 \times 2/3 = ₹ 1,56,000$$

$$\text{*Supplementary rate} = \frac{₹ 1,56,000}{30,000 \text{ units}} = ₹ 5.20 \text{ per unit}$$

- (iii) Apportionment of under absorbed production overheads over Finished goods and Cost of sales:

Particular	Units	Amount (₹)
Finished goods (3,000 units × ₹5.20)	3,000	15,600
Cost of sales (27,000 units × ₹5.20)	27,000	1,40,400
Total	30,000	1,56,000

PYQ May 2019 – Q5b

(b) *M/s Zaina Private Limited has purchased a machine costing ₹ 29,14,800 and it is expected to have a salvage value of ₹ 1,50,000 at the end of its effective life of 15 years. Ordinarily the machine is expected to run for 4,500 hours per annum but it is estimated that 300 hours per annum will be lost for normal repair & maintenance. The other details in respect of the machine are as follows :*

- (i) Repair & Maintenance during the whole life of the machine are expected to be ₹ 5,40,000.*
- (ii) Insurance premium (per annum) 2% of the cost of the machine.*
- (iii) Oil and Lubricants required for operating the machine (per annum) ₹ 87,384.*
- (iv) Power consumptions: 10 units per hour @ ₹ 7 per unit. No power consumption during repair and maintenance.*
- (v) Salary to operator per month ₹ 24,000. The operator devotes one third of his time to the machine.*

You are required to calculate comprehensive machine hour rate.

(5 Marks)

PYQ May 2019 – Q5b

(b) Effective machine hour = $4,500 - 300 = 4,200$ hours

Calculation of Comprehensive machine hour rate

Elements of Cost and Revenue	Amount (₹) Per Annum
Repair and Maintenance (₹5,40,000 ÷ 15 years)	36,000
Power (4,200 hours × 10 units × ₹7)	2,94,000
Depreciation $\left(\frac{₹29,14,800 - ₹1,50,000}{15 \text{ years}} \right)$	1,84,320
Insurance (₹29,14,800 × 2%)	58,296
Oil and Lubricant	87,384
Salary to Operator $\{(₹24,000 \times 12) / 3\}$	96,000
Total Cost	7,56,000
Effective machine hour	4,200
Total Machine Rate Per Hour	180

PYQ Nov 2018 – Q5b (ii)

- (ii) *M/s. NOP Limited has its own power plant and generates its own power. Information regarding power requirements and power used are as follows:*

	Production Dept.		Service Dept.	
	A	B	X	Y
	(Horse power hours)			
<i>Needed capacity production</i>	20,000	25,000	15,000	10,000
<i>Used during the quarter ended September 2018</i>	16,000	20,000	12,000	8,000

During the quarter ended September 2018, costs for generating power amounted to ₹ 12.60 lakhs out of which ₹ 4.20 lakhs was considered as fixed cost.

Service department X renders services to departments A, B, and Y in the ratio of 6:4:2 whereas department Y renders services to department A and B in the ratio of 4: 1. The direct labour hours of department A and B are 67500 hours and 48750 hours respectively.

Required:

- 1 Prepare overheads distribution sheet.*
- 2 Calculate factory overhead per labour hour for the dept. A and dept. B.*

(5 Marks)

PYQ Nov 2018 – Q5b (ii)

(ii)

(1) Overheads distribution Sheet

Item	Basis	Total Amount (₹)	Production Departments		Service Departments	
			A (₹)	B (₹)	X (₹)	Y (₹)
Variable overheads (₹ 12.60 lakhs - ₹ 4.20 lakhs)	Horse Power hours used	8,40,000	2,40,000	3,00,000	1,80,000	1,20,000
Fixed Overheads	Horse power for Capacity production	4,20,000	1,20,000	1,50,000	90,000	60,000
Total Overheads		12,60,000	3,60,000	4,50,000	2,70,000	1,80,000
Service dept X allocated to A, B & Y	As per the ratio 6:4:2	(2,70,000)	1,35,000	90,000		45,000
Service dept Y allocated to A & B	As per the ratio of 4:1	(1,80,000 + 45,000 = 2,25,000)	1,80,000	45,000		

PYQ Nov 2018 – Q5b (ii)

Total Overheads of Production departments			6,75,000	5,85,000		
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(2) Calculation of Factory overhead per labour hour

Item	Production Departments	
	A (₹)	B (₹)
Total overheads	6,75,000	5, 85,000
Direct labour hours	67,500	48,750
Factory overheads per hour	10	12

Revision Test Papers (RTPs)

May 2018 to Jan 2025

RTP Analysis

Exam	Q No.	Requirement	Special Points
RTP - Jan 2025	4	MCQ - Comprehensive MH Rate	Regular
RTP - Jan 2025	10	Profit Statement after allocating Admin, Selling Dist Costs	Regular
RTP - Sep 2024	9	Comprehensive Machine Hour Rate	Alternative Presentation w/o cal of wage rate per M/C hour is also allowed
RTP - Sep 2024	3	MCQ - amount of over/under absorbed overhead	Basic - Easy
RTP - May 2024	3	Case Scenario MCQ - (i) Bud Machine Hr Rate, (ii) Recovered Prod OH, (iii) Amount of under/ over abs (iv) Supplementary Rate (v) OH apportioned to WIP	Regular Que

RTP Analysis

Exam	Q No.	Requirement	Special Points
RTP - Nov 2023	3	Machine Hour Rate	i. Setup time to be taken under productive as given in que ii. Power not consumed in setup time
RTP - May 2023	3	Primary Distribution, Reciprocal Redistribution by repeated distribution, Machine hour rate dept wise	Basic Regular
RTP – Nov 2022	3	i. Production and Sales Quantity for both Products A and B ii. Effect of using blanket rate in company's income iii. Difference in SP of product due to use of blanket rate	i. Cal of Budgeted Output based on Budgeted Hours and taking same as actual output as said by que ii. Special Requirement Effect of Blanket Rate vs Dept wise Rate on Income
RTP - May 2022	3	Primary Distribution, Reciprocal Redistribution by all three methods	Basic Regular
RTP - Nov 2021	3	Primary Distribution, Reciprocal Redistribution by all three methods	Basic Regular
RTP - May 2021	3	Machine hour rate	i. Cal of Effective Hours - setup time not included in productive, ii. Setup time considered in Electricity Cost, iii. Some expenses are general for all machines (take care of that)

RTP Analysis

Exam	Q No.	Requirement	Special Points
RTP - Nov 2020	3	Machine hours rates	i. Calculation of spare parts cost - effect of price and qty ii. Indirect Labour will affect by change in wage rates not other salaries, iii. Interest to be ignored, iv. Calculation of effective hours is special taking Saturdays and Sundays impact
RTP - May 2020	3	Primary Distribution, Reciprocal Redistribution by all three methods	Basic Regular
RTP - Nov 2019	3	Amount of unabsorbed overheads, treatment in cost accounts, apportion into cost accounts	Basic Regular
RTP - May 2019	3	Primary Distribution, Reciprocal Redistribution by all three methods	Basic Regular
RTP - Nov 2018	3	Machine Hour Rate and Cost Allocation to Jobs	i. Fixed cost is distributed among set up and operation time both ii. Separate rates for operation and setup in machine due to wages and power
RTP - May 2018	3	Amount of unabsorbed overheads, treatment in cost accounts, apportion into cost accounts	Basic Regular

RTP Jan 2025 – Q4

4. Gaarmentz Ltd. run a sewing factory for medical garments. But, the company suffers from the limiting factor i.e. labor. Each sewing machine needs 100% attention of one person at a particular point of time to operate it. The company has 8 number of alike sewing machines on which 8 operators work separately. The following particulars are furnished for a six months period:

Paid hours for all the 8 operators	9,594 hours
Effective working hours for all the 8 operators	9,360 hours
Average rate of wages per day of 8 hours per operator	₹ 110
Power consumed	₹ 60,125
Supervision and Indirect Labour	₹ 21,450
The following particulars are given for a year:	
Insurance	₹ 4,68,000
Sundry Expenses	₹ 7,15,000

RTP Jan 2025 – Q4

Depreciation charged is 10% on the original cost of all the sewing machines.

Repairs and Maintenance comes to 5% of the value of all the sewing machines.

The original cost of all the sewing machines works out to ₹ 41,60,000

CALCULATE the Comprehensive Machine Hour Rate.

- (a) ₹ 215.86
- (b) ₹ 217.99
- (c) ₹ 116.43
- (d) ₹ 119.34

RTP Jan 2025 – Q4

4. (d) Computation of Comprehensive Machine Hour Rate

Particulars	Amount for six months (₹)
Operators' wages paid [(9,594 hrs./ 8 hrs.) x ₹ 110]	1,31,918
Power consumed	60,125
Supervision and indirect labour	21,450
Insurance (₹ 4,68,000/2)	2,34,000
Sundry expenses (₹ 7,15,000/2)	3,57,500
Depreciation {(₹ 41,60,000 × 10%)/2}	2,08,000
Repair and maintenance {(5% × ₹ 41,60,000)/2}	1,04,000
Total Overheads for 6 months	11,16,993
Comprehensive Machine Hour Rate $= \left(\frac{₹ 11,16,993}{9,360 \text{ hours}} \right)$	119.34

RTP Jan 2025 – Q10

10. Han Ltd. sells three products namely 'A', 'B' and 'C'. The following information is available regarding sales, costs and activity for the year ended 31st March:

Particulars	A	B	C
Sales (₹)	60,00,000	90,00,000	54,00,000
Cost of Sales (₹)	30,00,000	78,00,000	27,00,000
Area of storage (sq.ft.)	72,000	1,08,000	36,000
Number of parcels sent	2,40,000	3,00,000	2,10,000
Number of invoices sent	60,000	90,000	1,44,000

Selling and Distribution overheads and the basis of allocation are as follows :

Fixed Cost	Amount (₹)	Basis of allocation to Products
Rent and Insurance	6,00,000	Square feet
Depreciation	2,70,000	Parcel

RTP Jan 2025 – Q10

Salesman's salaries & expenses	11,40,000	Sales Volume
Administrative wages and salaries	9,00,000	No. of Invoices
Variable Costs:		
Packing wages & materials		₹ 4.80 per parcel
Commission		2.40% of sales
Stationery		₹ 1.80 per invoice

Finance Manager of the Company has recommended to discontinue the Product 'C' since its sales are less compared to other products.

You are required to PREPARE the profitability statement of each product, showing the percentage of profit/ (loss) on sales for each product, and also EXAMINE the recommendation of Finance Manager.

RTP Jan 2025 – Q10

10. Profitability statement of each product for the year ended 31st March

Particulars	Total (₹)	Products		
		A (₹)	B (₹)	C (₹)
Sales	2,04,00,000	60,00,000	90,00,000	54,00,000
Variable Costs:				
Cost of sales	1,35,00,000	30,00,000	78,00,000	27,00,000
Commission @ 2.40% of sales	4,89,600	1,44,000	2,16,000	1,29,600
Packaging wages and materials @ ₹ 4.80 per parcel	36,00,000	11,52,000	14,40,000	10,08,000
Stationery @ ₹ 1.80 per invoice	5,29,200	1,08,000	1,62,000	2,59,200
Total Variable Costs	1,81,18,800	44,04,000	96,18,000	40,96,800
Contribution (sales - variable cost)	22,81,200	15,96,000	(6,18,000)	13,03,200

RTP Jan 2025 – Q10

Fixed costs:				
Rent and insurance	6,00,000	2,00,000	3,00,000	1,00,000
Depreciation	2,70,000	86,400	1,08,000	75,600
Salesman's salary and expenses	11,40,000	3,35,294	5,02,941	3,01,765
Administrative wages and salaries	9,00,000	1,83,674	2,75,510	4,40,816
Total Fixed Costs	29,10,000	8,05,368	11,86,451	9,18,181
Profit or loss (Contribution – Fixed costs)	(6,28,800)	7,90,632	(18,04,451)	3,85,019
Percentage of profit or loss on sales (%)	(3.08)%	13.18%	(20.05)%	7.13%

Recommendation of finance manager is not correct. Product 'C' should not be discontinued as it is profitable.

RTP Sep 2024 – Q9

9. From the details furnished below you are required to compute a comprehensive machine-hour rate:

Original purchase price of the machine (subject to depreciation at 10% per annum on original cost)	₹ 12,96,000
Normal working hours for the month (The machine works for only 75% of normal capacity)	200 hours
Wages to Machine-man	₹ 800 per day (of 8 hours)
Wages to Helper (machine attendant)	₹ 500 per day (of 8 hours)
Power cost for the month for the time worked	₹ 1,30,000
Supervision charges apportioned for the machine centre for the month	₹ 18,000
Electricity & Lighting (fixed in nature) for the month	₹ 9,500
Repairs & maintenance (machine) including consumable stores per month	₹ 17,500
Insurance of Plant & Building (apportioned) for the year	₹ 18,000
Other general expense per annum	₹ 18,000

RTP Sep 2024 – Q9

The workers are paid a fixed dearness allowance of ₹ 4,500 per month. Production bonus payable to workers in terms of an award is equal to 10% of basic wages and dearness allowance. Add 10% of the basic wage and dearness allowance against leave wages and holidays with pay to arrive at a comprehensive labour-wage for debit to production.

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9. Effective machine hours = 200 hours × 75% = 150 hours

Computation of Comprehensive Machine Hour Rate

	Per month (₹)	Per hour (₹)
Fixed cost		
Supervision charges	18,000.00	
Electricity and lighting	9,500.00	
Insurance of Plant and building (₹ 18,000 ÷ 12)	1,500.00	
Other General Expenses (₹ 18,000 ÷ 12)	1,500.00	
Depreciation (₹ 1,29,600 ÷ 12)	10,800.00	
	41,300.00	275.33
Direct Cost		
Repairs and maintenance	17,500.00	116.67
Power	1,30,000.00	866.67
Wages of machine man		196.00
Wages of Helper		136.00
Machine Hour rate (Comprehensive)		1,590.67

Wages per machine hour

	Machine man	Helper
Wages for 200 hours		
Machine-man ($\text{₹ } 800 \times 25$)	₹ 20,000.00	---
Helper ($\text{₹ } 500 \times 25$)	---	₹ 12,500.00
Dearness Allowance (DA)	₹ 4,500.00	₹ 4,500.00
	₹ 24,500.00	₹ 17,000.00
Production bonus (10% of Basic and DA)	2,450.00	1,700.00
Leave wages (10% of Basic and DA)	2,450.00	1,700.00
	29,400.00	20,400.00
Effective wage rate per machine hour	196.00	136.00

RTP Nov 2023 – Q3

3. The following particulars refer to process used in the treatment of material subsequently incorporated in a component forming part of an electrical appliance:

(i) The original cost of the machine used (Purchased in June 2018) was ₹ 10,00,000. Its estimated life is 10 years, the estimated scrap value at the end of its life is ₹ 10,000, and the estimated working time per year (50 weeks of 44 hours) is 2,200 hours. Out of which machine maintenance etc., is estimated to take up 200 hours.

No other loss of working time expected, setting up time, estimated at 100 hours, is regarded as productive time. (Holiday to be ignored).

(ii) Electricity used by the machine during production is 16 units per hour at cost of a ₹ 7 per unit. No power is consumed during maintenance or setting up.

(iii) The machine required a chemical solution which is replaced at the end of week at a cost of ₹ 2,000 each time.

(iv) The estimated cost of maintenance per year is ₹ 1,20,000.

(v) Two attendants control the operation of machine together with five other identical machines. Their combined weekly wages, insurance and the employer's contribution to holiday pay amount is ₹ 9,000.

(vi) Departmental and general works overhead allocated to this machine for the current year amount to ₹ 20,000.

You are required to calculate the machine hour rate of operating the machine.

3. Working Notes:

- (i) Total Productive hours = Estimated Working hours – Machine Maintenance hours
= 2,200 hours – 200 hours = 2,000 hours
- (ii) Depreciation per annum = $\frac{10,00,000 - 10,000}{10} = ₹ 99,000$
- (iii) Chemical solution cost per annum = ₹ 2,000 × 50 weeks = ₹ 1,00,000
- (iv) Wages of attendants (per annum) = $\frac{9,000 \times 50 \text{ weeks}}{6 \text{ machines}} = ₹ 75,000$

Calculation of Machine hour rate

Particulars	Amount (per annum)	Amount (per hour)
A. Standing Charge		
(i) Wages of attendants	75,000	
(ii) Departmental and general works overheads	20,000	
Total Standing Charge	95,000	
Standing Charges per hour		47.50

RTP Nov 2023 – Q3

B. Machine Expense		
(iii) Depreciation	99,000	49.50
(iv) Electricity (7 × 1,900 × 16 units) ÷ 2,000	-	106.40
(v) Chemical solution	1,00,000	50.00
(vi) Maintenance cost	1,20,000	60.00
Machine operating cost per hour (A + B)		313.40

RTP Nov 2022 – Q3

3. SE Limited manufactures two products- A and B. The company had budgeted factory overheads amounting to ₹ 36,72,000 and budgeted direct labour hour of 1,80,000 hours. The company uses pre-determined overhead recovery rate for product costing purposes.

The department-wise break-up of the overheads and direct labour hours were as follows:

Particulars	Budgeted overheads	Budgeted direct labour hours	Rate per direct labour hour
Department Pie	₹ 25,92,000	90,000 hours	₹ 28.80
Department Qui	₹ 10,80,000	90,000 hours	₹ 12.00
Total	₹ 36,72,000	1,80,000 hours	

Additional Information:

Each unit of product A requires 4 hours in department Pie and 1 hour in department Qui. Also, each unit of product B requires 1 hour in department Pie and 4 hours in department Qui.

This was the first year of the company's operation. There was no WIP at the end of the year. However, 1,800 and 5,400 units of Products A and B were on hand at the end of the year.

RTP Nov 2022 – Q3

The budgeted activity has been attained by the company. You are required to:

- (i) DETERMINE the production and sales quantities of both products 'A' and 'B' for the above year.
- (ii) ASCERTAIN the effect of using a pre-determined overhead rate instead of department-wise overhead rates on the company's income due to its effect on stock value.
- (iii) CALCULATE the difference in the selling price due to the use of pre-determined overhead rate instead of using department-wise overhead rates. Assume that the direct costs (material and labour costs) per unit of products A and B were ` 25 and ` 40 respectively and the selling price is fixed by adding 40% over and above these costs to cover profit and selling and administration overhead.

RTP Nov 2022 – Q3

3. (i) Computation of production and sales quantities:

The products processing times are as under –

Product	A	B	Total
Department Pie	4 hours	1 hour	90,000 hours
Department Qui	1 hour	4 hours	90,000 hours

Let X and Y be the number of units (production quantities) of the two products.

Converting these into equations, we have –

$$4X + Y = 90,000 \text{ \&}$$

$$X + 4Y = 90,000$$

Solving the above, we get X = 18,000; Y = 18,000

Hence, the Production and Sales Quantities are determined as under –

Product	Production Quantity	Closing Stock (Given)	Sales Quantity (Balancing Figure)
A	18,000 units	1,800 units	16,200 units
B	18,000 units	5,400 units	12,600 units

RTP Nov 2022 – Q3

(ii) Effect of using pre-determined rate of overheads on the company's profit

Product	Closing Stock Quantity	Overhead included using pre-determined rate	Overhead included using department rate	Difference in overhead in closing stock value / Effect on closing stock value
A	1,800 units	$1,800 \times 5 \text{ hours} \times ₹ 20.40$ $= ₹ 1,83,600$	Pie = $1,800 \text{ units} \times 4 \text{ hours} \times ₹ 28.80$ $= ₹ 2,07,360$ Qui = $1,800 \text{ units} \times 1 \text{ hour} \times ₹ 12$ $= ₹ 21,600$	(-) ₹ 45,360
B	5,400 units	$5,400 \times 5 \text{ hours} \times ₹ 20.40$ $= ₹ 5,50,800$	Pie = $5,400 \text{ units} \times 1 \text{ hour} \times ₹ 28.80$ $= ₹ 1,55,520$	(+) ₹ 1,36,080
			Qui = $5,400 \text{ units} \times 4 \text{ hours} \times ₹ 12$ $= ₹ 2,59,200$	
Total		₹ 7,34,400	₹ 6,43,680	(+) ₹ 90,720

Use of pre-determined overhead rate has resulted in over valuation of stock by ₹ 90,720 due to which the company's income would be affected (increase) by ₹ 90,720. Profit would be affected only to the extent of Overhead contained in closing finished goods and closing WIP, if any.

RTP Nov 2022 – Q3

(iii) Effect of using pre-determined on the products' selling prices

Particulars	Product A	Product B
Selling Price per unit if pre-determined overhead rate is used	₹177.80	₹ 198.80
Selling Price per unit if department wise rate is used	₹ 213.08	₹163.52
Difference	₹ 35.28	₹ 35.28
	Under-Priced	Over-Priced

Workings:

(1) **Pre-determined overhead recovery rate** = $\frac{₹ 36,72,000}{1,80,000 \text{ hours}}$ = ₹ 20.40 per direct labour hour

(2) **If pre-determined recovery rate is used**

Particulars	Product A in ₹	Product B in ₹
Materials & Labour	25.00	40.00
Add: Production Overhead	102.00	102.00
A = 5 hours x ₹ 20.40 per hour		
B = 5 hours x ₹ 20.40 per hour		
Cost of production	127.00	142.00
Add: 40% of margin	50.80	56.80
	177.80	198.50

RTP Nov 2022 – Q3

(3) If department-wise recovery rate is used

Particulars	Product A in ₹	Product B in ₹
Materials & Labour	25.00	40.00
Add: Production Overhead	127.20	76.80
A = Pie = 4 hours x ₹ 28.80 Qui = 1 hour x ₹ 12		
B = Pie = 1 hour x ₹ 28.80 Qui = 4 hours x ₹ 12		
Cost of production	152.20	116.80
Add: 40% of margin	60.88	46.72
Selling Price per unit	213.08	163.52

RTP May 2021 – Q3

3. A manufacturing unit has purchased and installed a new machine at a cost of ₹ 24,90,000 to its fleet of 5 existing machines. The new machine has an estimated life of 12 years and is expected to realise ₹ 90,000 as scrap value at the end of its working life.

Other relevant data are as follows:

- (i) Budgeted working hours are 2,496 based on 8 hours per day for 312 days. Plant maintenance work is carried out on weekends when production is totally halted. The estimated maintenance hours are 416. During the production hours machine set-up and change over works are carried out. During the set-up hours no production is done. A total 312 hours are required for machine set-ups and change overs.
- (ii) An estimated cost of maintenance of the machine is ₹ 2,40,000 p.a.
- (iii) The machine requires a component to be replaced every week at a cost of ₹ 2,400.
- (iv) There are three operators to control the operations of all the 6 machines. Each operator is paid ₹ 30,000 per month plus 20% fringe benefits.
- (v) Electricity: During the production hours including set-up hours, the machine consumes 60 units per hour. During the maintenance the machine consumes only 10 units per hour. Rate of electricity per unit of consumption is ₹ 6.
- (vi) Departmental and general works overhead allocated to the operation during last year was ₹ 5,00,000. During the current year it is estimated to increase by 10%.

Required:

COMPUTE the machine hour rate.

RTP May 2021 – Q3

3. Working Note:

1. Effective machine hour:

= Budgeted working hours – Machine Set-up time

= 2,496 hours – 312 hours = 2,184 hours.

2. Operators' salary per annum:

Salary (3 operators × ₹30,000 × 12 months) ₹ 10,80,000

Add: Fringe benefits (20% of ₹10,80,000) ₹ 2,16,000

₹ 12,96,000

3. Depreciation per annum

$\frac{₹24,90,000 - ₹90,000}{12 \text{ years}} = ₹2,00,000$

RTP May 2021 – Q3

Computation of Machine hour Rate

	Amount p.a. (₹)	Amount per hour (₹)
<u>Standing charges</u>		
Operators' Salary $\left(\frac{₹12,96,000}{6 \text{ machines}} \times \frac{1}{2,184 \text{ hours}} \right)$	12,96,000	98.90
Departmental and general overheads: (₹ 5,00,000 × 110%) $\left(\frac{₹5,50,000}{6 \text{ machines}} \times \frac{1}{2,184 \text{ hours}} \right)$	5,50,000	41.97
(A)	18,46,000	140.87

RTP May 2021 – Q3

<u>Machine Expenses</u>			
Depreciation $\left(\frac{₹2,00,000}{2,184 \text{ hours}} \right)$		2,00,000	91.58
Electricity:			
During working hours (2,496 hours × 60 units × ₹6)		8,98,560	411.43
During maintenance hours (416 hours × 10 units × ₹6)		24,960	11.43
Component replacement cost (2,400 × 52 weeks)		1,24,800	57.14
Machine maintenance cost		2,40,000	109.89
(B)		14,88,320	681.47
Machine Hour Rate	(A + B)		822.34

3. You are given the following information of the three machines of a manufacturing department of X Ltd.:

	Preliminary estimates of expenses (per annum)			
	Total (₹)	Machines		
		A (₹)	B (₹)	C (₹)
Depreciation	2,00,000	75,000	75,000	50,000
Spare parts	1,00,000	40,000	40,000	20,000
Power	4,00,000			
Consumable stores	80,000	30,000	25,000	25,000
Insurance of machinery	80,000			
Indirect labour	2,00,000			
Building maintenance expenses	2,00,000			

RTP Nov 2020 – Q3

Annual interest on capital outlay	1,00,000	40,000	40,000	20,000
Monthly charge for rent and rates	20,000			
Salary of foreman (per month)	42,000			
Salary of Attendant (per month)	12,000			

(The foreman and the attendant control all the three machines and spend equal time on them.)

The following additional information is also available:

	Machines		
	A	B	C
Estimated Direct Labour Hours	1,00,000	1,50,000	1,50,000
Ratio of K.W. Rating	3	2	3
Floor space (sq. ft.)	40,000	40,000	20,000

RTP Nov 2020 – Q3

There are 12 holidays besides Sundays in the year, of which two were on Saturdays. The manufacturing department works 8 hours in a day but Saturdays are half days. All machines work at 90% capacity throughout the year and 2% is reasonable for breakdown.

You are required to :

CALCULATE predetermined machine hour rates for the above machines after taking into consideration the following factors:

- An increase of 15% in the price of spare parts.
- An increase of 25% in the consumption of spare parts for machine 'B' & 'C' only.
- 20% general increase in wages rates.

3. (a) Computation of Machine Hour Rate

	Basis of apportionment	Total (₹)	Machines		
			A (₹)	B (₹)	C (₹)
(A) Standing Charges					
Insurance	Depreciation Basis (3:3:2)	80,000	30,000	30,000	20,000
Indirect Labour	Direct Labour (2:3:3)	2,40,000	60,000	90,000	90,000
Building maintenance expenses	Floor Space (2:2:1)	2,00,000	80,000	80,000	40,000
Rent and Rates	Floor Space (2:2:1)	2,40,000	96,000	96,000	48,000
Salary of foreman	Equal	5,04,000	1,68,000	1,68,000	1,68,000
Salary of attendant	Equal	1,44,000	48,000	48,000	48,000
Total standing charges		14,08,000	4,82,000	5,12,000	4,14,000
Hourly rate for standing charges			247.43	262.83	212.53

RTP Nov 2020 – Q3

(B) Machine Expenses:					
Depreciation	Direct	2,00,000	75,000	75,000	50,000
Spare parts	Final estimates	1,32,250	46,000	57,500	28,750
Power	K.W. rating (3:2:3)	4,00,000	1,50,000	1,00,000	1,50,000
Consumable Stores	Direct	80,000	30,000	25,000	25,000
Total Machine expenses		8,12,250	3,01,000	2,57,500	2,53,750
Hourly Rate for Machine expenses			154.52	132.19	130.26
Total (A + B)		22,20,250	7,83,000	7,69,500	6,67,750
Machine Hour rate			401.95	395.02	342.79

RTP Nov 2020 – Q3

Working Notes:

(i) Calculation of effective working hours:

No. of full off-days = No. of Sunday + No. of holidays
= 52 + 12 = 64 days

No. of half working days = 52 days – 2 holidays = 50 days

No. of full working days = 365 days – 64 days – 50 days = 251 days

Total working Hours = {(251 days × 8 hours) + (50 days × 4 hours)}
= 2,008 hours + 200 = 2,208 hours.

Total effective hours = Total working hours × 90% - 2% for break-down
= 2,208 hours × 90% - 2% (2,208 hours × 90%)
= 1,987.2 hours – 39.74 hours
= 1947.46 or Rounded up to 1948 hours.

RTP Nov 2020 – Q3

(ii) Amount of spare parts is calculated as under:

	A (₹)	B (₹)	C (₹)
Preliminary estimates	40,000	40,000	20,000
Add: Increase in price @ 15%	6,000	6,000	3,000
	46,000	46,000	23,000
Add: Increase in consumption @ 25%	—	11,500	5,750
Estimated cost	46,000	57,500	28,750

(iii) Amount of Indirect Labour is calculated as under:

	(₹)
Preliminary estimates	2,00,000
Add: Increase in wages @ 20%	40,000
	2,40,000

(iv) Interest on capital outlay is a finance cost, therefore it has been excluded from the cost accounts.

RTP Nov 2018 – Q3

3. Sree Ajeet Ltd. having fifteen different types of automatic machines furnishes information as under for 20X8-20X9
- (i) Overhead expenses: Factory rent ₹ 1,80,000 (Floor area 1,00,000 sq. ft.), Heat and gas ₹ 60,000 and supervision ₹ 1,50,000.
 - (ii) Wages of the operator are ₹ 200 per day of 8 hours. Operator attends to one machine when it is under set up and two machines while they are under operation.

In respect of machine B (one of the above machines) the following particulars are furnished:

- (i) Cost of machine ₹1,80,000, Life of machine- 10 years and scrap value at the end of its life ₹ 10,000
- (ii) Annual expenses on special equipment attached to the machine are estimated as ₹ 12,000

RTP Nov 2018 – Q3

- (iii) Estimated operation time of the machine is 3,600 hours while set up time is 400 hours per annum
- (iv) The machine occupies 5,000 sq. ft. of floor area.
- (v) Power costs ₹ 5 per hour while machine is in operation.

ESTIMATE the comprehensive machine hour rate of machine B. Also find out machine costs to be absorbed in respect of use of machine B on the following two work orders

	Work order- 1	Work order-2
Machine set up time (Hours)	15	30
Machine operation time (Hours)	100	190

Sree Ajeet Ltd.

Statement showing comprehensive machine hour rate of Machine B

	(₹)
Standing Charges:	
Factory rent {(₹ 1,80,000/1,00,000 sq. ft.) × 5,000 Sq. ft.}	9,000
Heat and Gas (₹ 60,000/15 machines)	4,000
Supervision (₹ 1,50,000/ 15 machines)	10,000
Depreciation [(₹ 1,80,000 – ₹ 10,000)/ 10 years]	17,000
Annual expenses on special equipment	12,000
	52,000
Fixed cost per hour (₹ 52,000/ 4,000 hrs.)	13/-

	Set up rate Per hour (₹)	Operational rate Per hour (₹)
Fixed cost	13.00	13.00
Power	--	5.00
Wages	25.00	12.50
Comprehensive machine hour rate per hr.	38.00	30.50

**Statement of 'B' machine costs
to be absorbed on the two work orders**

	Work order-1			Work order-2		
	Hours	Rate	Amount	Hours	Rate	Amount
		₹	₹	₹	₹	₹
Set up time cost	15	38	570	30	38	1,140
Operation time cost	100	30.5	3,050	190	30.5	5,795
Total cost			3,620			6,935