ULTIMATE CA

PYQ RTP COMPILER

Chp 9 Job Costing

Chp 8 Unit & Batch Costing

Costing CA Intermediate Regular Batch May / Sep 2025

CA PRANAV POPAT

Job Costing

Chapter 9

PYQ & RTP Analysis

Exam	Q No.	Marks	Requirement	Special Points
PYQ Jan 2025	5c	4m	Spoiled Work, Defective Work, Treatment of defective work under various circumstances	Theory
PYQ Sep 2024	6c	4m	Job and Job vs Batch	Theory
PYQ Nov 2019	1b	5	Job Cost Sheet, Determination of SP	Similar to Illustration 2 of Module
RTP Nov 2023	7		Calculation of Overhead Recovery Rates and Price to be quoted for a new order	Basic Easy
RTP May 2023	7		Cost and Profit per piece of each batch	Regular Study Material Question
RTP May 2022	14b		Calculation of Overhead Recovery Rates and Price to be quoted for a new order	Exact Same as RTP Nov 2023
RTP May 2021	7		Calculation of Overhead Recovery Rates and Price to be quoted for a new order	Exact Same as RTP Nov 2023
RTP Nov 2020	8		Calculate total cost of job and price to be charged to customer	Similar to Study Mat Question – Plumbing Question
RTP May 2020	8		Job Cost Sheet, Determination of SP	Basic Easy
RTP Nov 2019	9		Calculate the price for the job	Basic Easy
RTP Nov 2018	8		Calculate the price for the job	Basic Easy
RTP May 2018	8		Job Cost Sheet, Determination of SP	Similar to Study Mat Question

Past Year Questions (PYQs)

May 2018 to Jan 2025

PYQ Nov 2019 – Q1b

(b) *The following data is presented by the supervisor of a factory for a Job:*

	₹ per unit
Direct Material	120
Direct Wages @ ₹ 4 per hour	
(Departments A-4 hrs, B-7 hrs, C-2 hrs & D-2 hrs)	60
Chargeable Expenses	20
Total	200

Analysis of the Profit and Loss Account for the year ended 31st March, 2019

Material		2,00,000	Sales	4,30,000
Direct Wages				
Dept. A	12,000			
Dept. B	8,000			
Dept. C	10,000			
Dept. D	20,000	50,000		
Special Store items		6,000		

PYQ Nov 2019 – Q1b

Overheads				
Dept. A	*12,000*			
Dept. B	*6,000*			
Dept. C	*9,000*			
Dept. D	*17,000*	*44,000*		
Gross Profit c/d		*1,30,000*		
		4,30,000		*4,30,000*
Selling Expenses		*90,000*	*Gross Profit b/d*	*1,30,000*
Net Profit		*40,000*		
		1,30,000		*1,30,000*

It is also to be noted that average hourly rates for all the four departments are similar.

Required:

(i) Prepare a Job Cost Sheet.

(ii) Calculate the entire revised cost using the above figures as the base.

(iii) Add 20% profit on selling price to determine the selling price.

PYQ Nov 2019 – Q1b

(b) Job Cost Sheet

Customer Details ——— Job No._____

Date of commencement —— Date of completion _____

Particulars		**Amount (₹)**
Direct materials		120
Direct wages:		
Deptt. A ₹ 4.00 × 4 hrs.	₹ 16.00	
Deptt. B ₹ 4.00 × 7 hrs.	₹ 28.00	
Deptt. C ₹ 4.00 × 2 hrs.	₹ 8.00	
Deptt. D ₹ 4.00 × 2 hrs.	₹ 8.00	60
Chargeable expenses		20
Prime cost		**200**

PYQ Nov 2019 – Q1b

Overheads		
Deptt. A = $\frac{₹12,000}{₹12,000} \times 100$ =100% of ₹ 16	₹ 16	
Deptt. B = $\frac{₹6,000}{₹8,000} \times 100$ = 75% of ₹ 28	₹ 21	
Deptt. C = $\frac{₹9,000}{₹10,000} \times 100$ = 90% of ₹ 8 = $\frac{₹9,000}{₹10,000} \times 100$ = 90% of ₹ 8 = ₹ 7.20	₹ 7.20	
Deptt. D = $\frac{₹17,000}{₹20,000} \times 100$ = 85% of ₹ 8	₹ 6.80	**51.00**
Works cost		251.00
Selling expenses = $\frac{₹90,000}{₹3,00,000} \times 100$ = 30% of work cost		**75.30**
Total cost		326.30
Profit (20% profit on selling price i.e 25% of total cost)		**81.58**
Selling price		**407.88**

Revision Test Papers (RTPs)

May 2018 to Jan 2025

RTP Nov 2023 – Q7

7. SM Motors Ltd. is a manufacturer of auto components. Following are the details of expenses for the year 2022-23:

		(₹)
(i)	Opening Stock of Material	15,00,000
(ii)	Closing Stock of Material	20,00,000
(iii)	Purchase of Material	1,80,50,000
(iv)	Direct Labour	90,50,000
(v)	Factory Overhead	30,80,000
(vi)	Administrative Overhead	20,50,400

During the FY 2023-24, the company has received an order from a car manufacturer where it estimates that the cost of material and labour will be ₹ 80,00,000 and ₹ 40,50,000 respectively. The company charges factory overhead as a percentage of direct labour and administrative overheads as a percentage of factory cost based on previous year's cost. Cost of delivery of the components at customer's premises is estimated at ₹ 4,50,000.

You are required to:

(i) Calculate the overhead recovery rates based on actual costs for 2022-23.

(ii) Prepare a Job cost sheet for the order received and the price to be quoted if the desired profit is 25% on sales.

RTP Nov 2023 – Q7

7. (i) Calculation of Overhead Recovery Rate:

$$\text{Factory Overhead Recovery Rate} = \frac{₹\ 30,80,000}{₹ 90,50,000} \times 100 = 34\% \text{ of Direct labour}$$

$$\text{Administrative Overhead Recovery Rate} = \frac{₹\ 20,50,400}{₹\ 2,96,80,000} \times 100 = 6.91\% \text{ of Factory Cost}$$

Working Note: Calculation of Factory Cost in 2022-23

Particulars	Amount (₹)
Opening Stock of Material	15,00,000
Add: Purchase of Material	1,80,50,000
Less: Closing Stock of Material	(20,00,000)
Material Consumed	1,75,50,000
Direct Labour	90,50,000
Prime Cost	2,66,00,000
Factory Overhead	30,80,000
Factory Cost	2,96,80,000

RTP Nov 2023 – Q7

(ii) Job Cost Sheet for the order received in 2023-24

Particulars	Amount (₹)
Material	80,00,000
Labour	40,50,000
Factory Overhead (34% of ₹ 40,50,000)	13,77,000
Factory Cost	1,34,27,000
Administrative Overhead (6.91% of ₹1,34,27,000)	9,27,806
Cost of delivery	4,50,000
Total Cost	1,48,04,806
Add: Profit @ 25% of Sales or 33.33% of cost	49,34,935
Sales value (Price to be quoted for the order)	1,97,39,741

Hence the price to be quoted is ₹1,97,39,741.

RTP Nov 2018 – Q8

8. A company has been asked to quote for a job. The company aims to make a net profit of 30% on sales. The estimated cost for the job is as follows:

Direct materials 10 kg @₹10 per kg

Direct labour 20 hours @ ₹5 per hour

Variable production overheads are recovered at the rate of ₹ 2 per labour hour.

Fixed production overheads for the company are budgeted to be ₹1,00,000 each year and are recovered on the basis of labour hours.

There are 10,000 budgeted labour hours each year. Other costs in relation to selling, distribution and administration are recovered at the rate of ₹50 per job.

DETERMINE quote for the job by the Company.

RTP Nov 2018 – Q8

8. Determination of quotation price for the job

Cost	(₹)
Direct Material (10kg × ₹10)	100
Direct Labour (20hrs × ₹5)	100
Variable production overhead (20hrs × ₹2)	40
Fixed Overhead $\left(\frac{₹1,00,000}{10,000 \text{ budgeted hours}} \times 20 \text{ hours}\right)$	200
Other costs	50
Total costs	490

Net profit is 30% of sales, therefore total costs represent 70% (₹ 490 × 100) ÷ 70 = ₹ 700 price to quote for job.

To check answer is correct; profit achieved will be ₹ 210 (₹ 700 - ₹ 490)

= ₹ 210 ÷ ₹ 700 = 30%

Unit and Batch Costing

Chapter 8

PYQ and RTP Analysis

Exam	Q#	Marks	Requirement	Special Points
PYQ - Jan 25	1b	5	i) Contribution pu for good units (3m) ii) Company's total monthly profit (2m)	Total VC will be distributed to good units to obtain contribution per unit
PYQ - May 24	6c	2	Describe Unit and Batch Costing with Example	Theory
PYQ - May 23	1a	5	EBQ, Additional Cost by not using EBQ	Regular Que
PYQ - Nov 22	1a	5	Sales value of Batch and SP pu	Regular Que
PYQ - Jul 21	1c	5	EBQ, Additional Cost by not using EBQ	Regular Que
PYQ - Jan 21	1d	5	Optimum Run Size, Min Holding Cost, Extra Cost due to current policy	Annual Demand Calculation
PYQ - Nov 18	3a	10	Optimum Run Size, Interval between two runs, Extra Cost due to current policy, Opinion	Number of runs in decimal or round up
PYQ - May 18	6d	5	Explain Job Costing and Batch Costing	Theory
RTP Jan 2025	13		Cost and Profit per unit of each batch	Similar to Study Material Problem
RTP Sep 2024	13		Cal of cost and profit per piece, overall position	Similar to Study Material Problem
RTP May 2024	7		Profit/ Loss per batch, EBQ	Multiple New Points, New Pattern
RTP Nov 2022	7		SP pu of Batch	Cal of Admin Overheads by reverse percentage
RTP May 2022	7		Optimum Run Size, Min Holding Cost, Extra Cost due to current policy	Similar to PYQ Jan 21
RTP Nov 2021	7		EBQ, Additional Cost by not using EBQ	Similar to PYQ May 23
RTP Nov 2020	7		Optimum Run Size, Extra Cost due to current policy	Similar to PYQ Jan 21
RTP Nov 2019	8		EBQ, Additional Cost by not using EBQ	Similar to PYQ May 23
RTP May 2018	7		Price for the order of 600 units, Cost and Price per unit, SP of 605 units	Special Requirement in Part iii

Past Year Questions (PYQs)

May 2018 to Jan 2025

PYQ Jan 2025 – Q1b

ALC2

(b) PQR Ltd. manufactures a product in batches of 2,000 units. The following costs are incurred for each batch :

Particulars	Amount (in ₹)
Direct Material Cost per Batch	2,40,000
Direct Labour Cost per Batch	1,65,000
Overhead Absorption Rate (variable)	120 per machine hour
Expected Rejection Rate	3%
Scrap Value per Rejected Unit	75

PYQ Jan 2025 – Q1b

Other Information :

Particulars	Details
Selling Price per Good Unit	₹ 250
Total Available Machine Hours per month	3,000 hours
Fixed Overheads per Month	₹ 1,25,000
Batches Manufactured per Month	10 batches

Required :

(i) Calculate contribution per unit of good units after adjusting rejected units. **3**

(ii) Calculate the company's total monthly profit. **2**

PYQ Jan 2025 – Q1b

Part-(i)

Variable cost

Direct material per batch	240,000
Direct labour per batch	165,000
Variable overheads	36,000
120/MHr × $\frac{3000 \text{ MHrs}}{10 \text{ batches}}$	
Total variable cost per batch	441,000
less: scrap value of rejected units	4500
2000 × 3% × 75	
Net variable cost	436500

PYQ Jan 2025 – Q1b

Effective units per batch	1940 units
2000 × 97%	
VC per unit	₹ 225 p.u.

Contribution p.u. = 250 − 225 = 25 p.u.

Part (ii)

Total contribution p.m	485000
10 batches × 1940 × 25	
Fixed overheads p.m	125000
Profit p.m.	360,000

Remark: VC for batch will be distributed over good units

PYQ May 2023 – Q1a

(a) *TSK Limited manufactures a variety of products. The annual demand for one of its products- Product 'X' is estimated as ₹1,35,000 units. Product 'X' is to be manufactured done in batches. Set up cost of each batch is ₹3,375 and inventory holding cost is ₹5 per unit. It is expected that demand of Product 'X' would be uniform throughout the year.*

Required:

(i) *Calculate the Economic Batch (EBQ) for Product 'X'.*

(ii) *Assuming that the company has a policy of manufacturing 7,500 units of Product 'X' per batch, calculate the additional cost incurred as compared to the cost incurred as per Economic Batch Quantity (EBQ) as computed in (i) above.* ***(5 Marks)***

PYQ May 2023 – Q1a

(a) (i) Economic Batch Quantity (EBQ) = $\sqrt{\frac{2DS}{C}}$

where,

D = Annual demand for the product

S = Set-up cost per batch

C = Carrying cost per unit per annum.

$$\sqrt{\frac{2DS}{C}} = \sqrt{\frac{2 \times 1,35,000 \times 3,375}{5}} = \textbf{13,500 units.}$$

PYQ May 2023 – Q1a

(ii) Total Cost (of maintaining the inventories) when batch size (Q) are 13,500 and 7,500 units respectively

Total cost = Total set-up cost + Total carrying cost.

	When batch size is 13,500 units	**When batch size is 7,500 units**
Total set up cost	$= \frac{1,35,000}{13,500} \times ₹\ 3,375 =$ ₹ 33,750 Or, No. of setups = 10 = 10 x ₹ 3,375 = ₹ 33,750	$= \frac{1,35,000}{7,500} \times ₹\ 3,375$ = ₹ 60,750
Total Carrying cost	1/2 × 13,500 × 5 = ₹ 33,750	1/2 × 7,500 × 5 = ₹ 18,750
Total Cost	₹ 67,500	₹ 79,500

₹ 12,000 is the excess cost borne by the company due to batch size not being economic batch quantity.

PYQ Jan 21 – Q1d

(d) *GHI Ltd. manufactures 'Stent' that is used by hospitals in heart surgery. As per the estimates provided by Pharmaceutical Industry Bureau, there will be a demand of 40 Million 'Stents' in the coming year. GHI Ltd. is expected to have a market share of 2.5% of the total market demand of the Stents in the coming year. It is estimated that it costs ₹ 1.50 as inventory holding cost per stent per month and that the set-up cost per run of stent manufacture is ₹ 225.*

Required:

(i) What would be the optimum run size for Stent manufacture?

(ii) What is the minimum inventory holding cost?

(iii) Assuming that the company has a policy of manufacturing 4,000 stents per run, how much extra costs the company would be incurring as compared to the optimum run suggested in (i) above?

(4 x 5 = 20 Marks)

PYQ Jan 21 – Q1d

(d) (i) Computation of Optimum Run size of 'Stents' or Economic Batch Quantity (EBQ)

$$\text{Economic Batch Quantity (EBQ)} = \sqrt{\frac{2DS}{C}}$$

Where, D = Annual demand for the Stents

= 4,00,00,000 × 2.5% = 10,00,000 units

S = Set- up cost per run

= ₹ 225

C = Carrying cost per unit per annum

= ₹ 1.50 × 12 = ₹ 18

$$\text{EBQ} = \sqrt{\frac{2 \times 10,00,000 \times ₹\ 225}{₹\ 18}}$$

= 5,000 units of Stents

PYQ Jan 21 – Q1d

(ii) Minimum inventory holding cost

Minimum Inventory Cost = Average Inventory × Inventory Carrying Cost per unit per annum

= (5,000 ÷ 2) × ₹ 18

= ₹ 45,000

(iii) Calculation of the extra cost due to manufacturing policy

	When run size is 4,000 units	When run size is 5,000 units i.e. at EBQ
Total set up cost	$= \frac{10,00,000}{4,000} \times$ ₹ 225 = ₹ 56,250	$\frac{10,00,000}{5,000} \times$ ₹ 225 = ₹ 45,000
Total Carrying cost	½ × 4,000 × ₹ 18 = ₹ 36,000	½ × 5,000 × ₹ 18 = ₹ 45,000
Total Cost	**₹ 92,250**	**₹ 90,000**

Extra cost = ₹ 92,250 - ₹ 90,000 = **₹ 2,250**

PYQ Nov 18 – Q3a

(a) *XYZ Ltd. has obtained an order to supply 48000 bearings per year from a concern. On a steady basis, it is estimated that it costs ₹ 0.20 as inventory holding cost per bearing per month and the set-up cost per run of bearing manufacture is ₹ 384.*

You are required to:

(i) compute the optimum run size and number of runs for bearing manufacture.

(ii) compute the interval between two consecutive runs.

(iii) find out the extra costs to be incurred, if company adopts a policy to manufacture 8000 bearings per run as compared to optimum run Size.

(iv) give your opinion regarding run size of bearing manufacture.

Assume 365 days in a year. ***(10 Marks)***

PYQ Nov 18 – Q3a

(a) (i) Optimum batch size or Economic Batch Quantity (EBQ):

$$EBQ = \sqrt{\frac{2DS}{C}} = \sqrt{\frac{2 \times 48{,}000 \times 384}{2.4}} = 3919.18 \text{ or } 3{,}920 \text{ units}$$

Number of Optimum runs = 48,000 ÷ 3,920 = 12.245 or **13 run**

(ii) Interval between 2 runs (in days) = 365 days ÷ 13 = 28 days

Or 365÷12.24=29.82 days

(iii) If 8,000 bearings are manufactures in a run:

Total cost = Set-up cost + Inventory holding cost

= ₹.384×(48,000÷8,000) + (8,000÷2)×₹.2.4

= **2304+9,600** = 11,904

Extra cost = ₹(11,904 – 9,406*) =₹ **2,498**/-

OR

Extra cost = ₹ (11,904 – 9,696*) = ₹ **2,208/-**

* Minimum Inventory Cost = Average Inventory × Inventory Carrying Cost per unit per annum

PYQ Nov 18 – Q3a

Average Inventory = 3,920 units ÷ 2 = 1,960 units

Carrying Cost per unit per annum = ₹0.2 × 12 months = ₹2.4

Minimum Inventory Holding Costs = 1,960 units × ₹2.4 = ₹4,704

Total cost = Set-up cost + Inventory holding cost = (12.245×384) + 4704 = ₹ **9,406** (approx.)

OR

Total cost = Set-up cost + Inventory holding cost = (13×384) + 4704 = ₹ **9,696** (approx.)

(iv) To save cost the company should run at optimum batch size i.e. 3,920 Units. **It saves ₹ 2,498 or 2208.** Run size should match with the Economic production run of bearing manufacture. When managers of a manufacturing operation make decisions about the number of units to produce for each production run, they must consider the costs related to setting up the production process and the costs of holding inventory

PYQ Nov 18 – Q3a

Alternative presentation to part 3(a) (iii)

Statement showing Total Cost at Production Run size of 3,600 and 8,000 bearings

A.	Annual requirement	48,000	48,000
B.	Run Size	3,920	8,000
C.	No. of runs (A/B)	12.245	6
D.	Set up cost per run	₹ 384	₹ 384
E.	Total set up cost (CxD)	₹ 4,702	₹ 2,304
F.	Average inventory (B/2)	1,960	4,000
G.	Carrying cost per unit p.a.	2.40	2.40
H.	Total Carrying cost (FxG)	4,704	9,600
I.	Total cost (E+H)	9,406	11,904

Extra cost incurred, if run size is of 8,000= ₹11,904-9,406= **₹ 2,498**

Revision Test Papers (RTPs)

May 2018 to Jan 2025

RTP Jan 2025 – Q13

13. Phonick Ltd. accepted an order to supply 2,000 units per month of Product 'E' for the third quarter of the year. Each monthly batch order records the actual costs of materials and labour. Overheads are charged at a rate per labour hour. The selling price is established at ₹ 15 per unit.

Information relating to Material, Labour and Overheads is provided below:

Month	Batch Output (Numbers)	Material Cost (₹)	Labour Cost (₹)	Overheads (₹)	Total Labour Hours
October	2,500	12,500	5,000	24,000	8,000
November	3,000	18,000	6,000	18,000	9,000
December	2,000	10,000	4,000	30,000	10,000

Labour is paid at the rate of ₹ 2 per hour.

CALCULATE the cost and profit per unit of each batch order along with the overall position of the order for 6,000 units.

RTP Jan 2025 – Q13

13. Statement of Cost and Profit per unit of each batch order

	October	November	December	Total
a) Batch Output (Nos.)	2,500	3,000	2,000	7,500
b) Sales Value (@ ₹ 15 per unit)	(₹) 37,500	(₹) 45,000	(₹) 30,000	(₹) 1,12,500
Cost				
Material	12,500	18,000	10,000	40,500
Wages	5,000	6,000	4,000	15,000
Overheads (working note)	7,500	6,000	6,000	19,500
c) Total	25,000	30,000	20,000	75,000
d) Profit per batch (b) – (c)	12,500	15,000	10,000	37,500
e) Cost per unit (c) ÷ (a)	**10**	**10**	**10**	
f) Profit per unit (d) ÷ (a)	**5**	**5**	**5**	

RTP Jan 2025 – Q13

Overall Position of the Order for 6,000 Units

Particulars	Amount (₹)
Sales value (6,000 units × ₹ 15)	90,000
Less: Total cost (6,000 units × ₹ 10)	60,000
Profit	30,000

Working Note:

Calculation of overhead per hour

Particulars	October	November	December
i. Labour hours:			
$= \frac{\text{Labour cost}}{\text{Labour rates per hour}}$	$\frac{₹\ 5,000}{2}$ = 2,500 hrs.	$\frac{₹\ 6,000}{2}$ = 3,000 hrs.	$\frac{₹\ 4,000}{2}$ = 2,000 hrs.
ii. Overhead per hour:			
$= \frac{\text{Total Overheads}}{\text{Total labour hour}}$	$\frac{₹\ 24,000}{8,000\ \text{hrs.}}$ = ₹ 3	$\frac{₹\ 18,000}{9,000\ \text{hrs.}}$ = ₹ 2	$\frac{₹\ 30,000}{10,000\ \text{hrs.}}$ = ₹ 3
iii. Overhead for the batch (i) × (ii)	₹ 7,500	₹ 6,000	₹ 6,000

RTP May 2024 – Q7

7. Arnav Ltd. operates in beverages industry where it manufactures soft-drink in three sizes of Large (3 litres), Medium (1.5 litres) and Small (600 ml) bottles. The products are processed in batches. The 5,000 litres capacity processing plant consumes electricity of 90 Kilowatts per hour and a batch takes 1 hour 45 minutes to complete. Only symmetric size of products can be processed at a time. The machine set-up takes 15 minutes to get ready for next batch processing. During the set-up power consumption is only 20%.

   (i) The current price of Large, Medium and Small are ₹ 150, ₹ 90 and ₹ 50 respectively.

   (ii) To produce a litre of beverage, 14 litres of raw material-W and 25 ml of Material-C are required which costs ₹ 0.50 and ₹ 1,000 per litre respectively.

   (iii) 20 direct workers are required. The workers are paid ₹ 880 for 8 hours shift of work.

RTP May 2024 – Q7

(iv) The average packing cost per bottle is ₹ 3

(v) Power cost is ₹ 7 per Kilowatt -hour (Kwh)

(vi) Other variable cost is ₹ 30,000 per batch.

(vii) Fixed cost (Administration and marketing) is ₹ 4,90,00,000.

(viii) The holding cost is ₹ 1 per bottle per annum.

The marketing team has surveyed the following demand (bottle) of the product:

Large	Medium	Small
3,00,000	7,50,000	20,00,000

You are required to CALCULATE profit/ loss per batch and also COMPUTE Economic Batch Quantity (EBQ).

RTP May 2024 – Q7

7. Workings:

1. Maximum number of bottles that can be processed in a batch:

$$= \frac{5{,}000 \text{ ltrs}}{\text{Bottle volume}}$$

Large		Medium		Small	
Qty (ltr)	**Max bottles**	**Qty (ltr)**	**Max bottles**	**Qty (ltr)**	**Max bottles**
3	1,666	1.5	3,333	0.6	8,333

*For simplicity of calculation small fractions has been ignored.

2. Number of batches to be run:

		Large	Medium	Small	Total
A	Demand	3,00,000	7,50,000	20,00,000	
B	Bottles per batch (Refer WN-1)	1,666	3,333	8,333	
C	No. of batches [A÷B]	180	225	240	645

*For simplicity of calculation small fractions has been ignored.

RTP May 2024 – Q7

Quantity of Material-W and Material C required to meet demand:

	Particulars	Large	Medium	Small	Total
A	Demand (bottle)	3,00,000	7,50,000	20,00,000	
B	Qty per bottle (Litre)	3	1.5	0.6	
C	Output (Litre) [A×B]	9,00,000	11,25,000	12,00,000	32,25,000
D	Material-W per litre of output (Litre)	14	14	14	
E	Material-W required (Litre) [C×D]	**1,26,00,000**	**1,57,50,000**	**1,68,00,000**	**4,51,50,000**
F	Material-C required per litre of output (ml)	25	25	25	
G	Material-C required (Litre) [(C×F)÷1000]	**22,500**	**28,125**	**30,000**	**80,625**

RTP May 2024 – Q7

3. No. of Man-shift required:

		Large	Medium	Small	Total
A	No. of batches	180	225	240	645
B	Hours required per batch	2	2	2	
	(Hours)				
C	Total hours required (Hours) [A×B]	360	450	480	1,290
D	No. of shifts required [C÷8]	45	57	60	162
E	**Total manshift [D×20 workers]**	**900**	**1,140**	**1,200**	**3,240**

RTP May 2024 – Q7

4. Power consumption in Kwh

		Large	Medium	Small	Total
For processing					
A	No. of batches	180	225	240	645
B	Hours required per batch (Hours)	1.75	1.75	1.75	1.75
C	Total hours required (Hours) [A×B]	315	393.75	420	1,128.75
D	Power consumption per hour	90	90	90	90
E	**Power consumption in Kwh [C×D]**	**28,350**	**35,437.5**	**37,800**	**1,01,587.5**
F	**Per batch consumption (Kwh) [E÷A]**	**157.5**	**157.5**	**157.5**	**157.5**

RTP May 2024 – Q7

For set-up					
G	Hours required per batch (Hours)	0.25	0.25	0.25	0.25
H	Total hours required (Hours) [A×G]	45	56.25	60	161.25
I	Power consumption per hour [20%×90]	18	18	18	18
J	**Power consumption in Kwh [H×I]**	**810**	**1,012.5**	**1,080**	**2,902.5**
K	**Per batch consumption (Kwh) [J÷A]**	**4.5**	**4.5**	**4.5**	**4.5**

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Calculation of Profit/ loss per batch:

	Particulars	Large	Medium	Small	Total
A	Demand (bottle)	3,00,000	7,50,000	20,00,000	30,50,000
B	Price per bottle (₹)	150	90	50	
C	**Sales value (₹) [A×B]**	**4,50,00,000**	**6,75,00,000**	**10,00,00,000**	**21,25,00,000**
	Direct Material cost:				
E	Material-W (₹) [Qty in WN-3 × ₹ 0.50]	63,00,000	78,75,000	84,00,000	2,25,75,000
F	Material-C (₹) [Qty in WN-3 × ₹1,000]	2,25,00,000	2,81,25,000	3,00,00,000	8,06,25,000
G	[E+F]	**2,88,00,000**	**3,60,00,000**	**3,84,00,000**	**10,32,00,000**

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H	Direct Wages (₹) [Man-shift in WN-4 × × ₹ 880]	7,92,000	10,03,200	10,56,000	28,51,200
I	Packing cost (₹) [A×₹3]	9,00,000	22,50,000	60,00,000	91,50,000
	Power cost (₹)				
J	For processing (₹) [WN-5 × ₹7]	1,98,450	2,48,062.5	2,64,600	7,11,112.5
K	For set-up time (₹) [WN-5 × ₹7]	5,670	7,087.5	7,560	20,317.5
L	[J+K]	**2,04,120**	**2,55,150**	**2,72,160**	**7,31,430**
M	Other variable cost (₹). [No. of batch in WN-2 × ₹ 30,000]	54,00,000	67,50,000	72,00,000	1,93,50,000
N	**Total Variable cost per batch**	**3,60,96,120**	**4,62,58,350**	**5,29,28,160**	**13,52,82,630**

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	[G+H+I+L+M]				
O	**Profit/ loss before fixed cost [C-N]**	**89,03,880**	**2,12,41,650**	**4,70,71,840**	**7,72,17,370**
P	Fixed Cost				4,90,00,000
Q	**Total Cost [O-P]**				**2,82,17,370**

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Computation of Economic Batch Quantity (EBQ):

$$EBQ = \sqrt{\frac{2 \times D \times S}{C}}$$

D = Annual Demand for the Product = Refer A below

S = Set-up cost per batch = Refer D below

C = Carrying cost per unit per annum =Refer E below

	Particulars	Large	Medium	Small
A	Annual Demand (bottle)	3,00,000	7,50,000	20,00,000
Set-up Cost:				
B	Power cost for set-up time (₹) [Consumption per batch in WN-5 × ₹7]	31.50	31.50	31.50
C	Other variable cost (₹) *	30,000	30,000	30,000
D	Total Set-up cost [B+C]	30,031.50	30,031.50	30,031.50
E	Holding cost:	1.00	1.00	1.00
F	**EBQ (Bottle)**	**1,34,234**	**2,12,243**	**3,46,592**

* Other variable cost is assumed to be part of set-up cost.

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7. PS Ltd. manufactures articles in predetermined lots simultaneously. The following costs have been incurred for Batch No. 'PS143' in the month of March, 2022:

Units produced	1,000 units
Direct materials cost	₹ 2,00,000
Direct Labour -	
Department A	800 labour hours @ ₹ 100 per hour.
Department B	1,400 labour hours @ ₹ 120 per hour.

Factory overheads are absorbed on labour hour basis and the rates are:

Department A	@ ₹ 140 per hour.
Department B	@ ₹ 80 per hour.

Administrative overheads are absorbed at 10% of selling price.

The firm expects 25% gross profit (sales value minus factory cost) for determining the selling price.

You are required to CALCULATE the selling price per unit of Batch No. 'PS143'.

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7. Statement showing selling price per unit of Batch number 'PS143'

Particulars	Amount (₹)	Amount (₹)
Direct Materials		2,00,000
Direct Labour		
Department A 800 labour hours @ ₹100 per hour	80,000	
Department B 1400 labour hours @ ₹120 per hour	1,68,000	**2,48,000**
Factory overheads		
Department A 800 labour hours @ ₹140 per hour	1,12,000	
Department B 1400 labour hours @ ₹80 per hour	1,12,000	2,24,000
Factory Cost		**6,72,000**
Add: Administrative overheads (10% of selling price) (6,72,000/75% x 10%)		89,600
Cost of production		7,61,600
Add: Profit (15% of selling price) (6,72,000/75% x 15%)		1,34,400
Selling price of batch no 'PS143'		**8,96,000**
Selling price per unit (8,96,000 / 1000 units)		**896**

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7. Arnav Confectioners (AC) owns a bakery which is used to make bakery items like pastries, cakes and muffins. AC use to bake at least 50 units of any item at a time. A customer has given an order for 600 cakes. To process a batch, the following cost would be incurred:

Direct materials - ₹ 5,000

Direct wages - ₹ 500 (irrespective of units)

Oven set- up cost - ₹750 (irrespective of units)

AC absorbs production overheads at a rate of 20% of direct wages cost. 10% is added to the total production cost of each batch to allow for selling, distribution and administration overheads.

AC requires a profit margin of 25% of sales value.

Required:

(i) DETERMINE the price to be charged for 600 cakes.

(ii) CALCULATE cost and selling price per cake.

(iii) DETERMINE what would be selling price per unit If the order is for 605 cakes.

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7. Statement of cost per batch and per order

No. of batch = 600 units ÷ 50 units = 12 batches

	Particulars	Cost per batch (₹)	Total Cost (₹)
	Direct Material Cost	5,000.00	60,000
	Direct Wages	500.00	6,000
	Oven set-up cost	750.00	9,000
	Add: Production Overheads (20% of Direct wages)	100.00	1,200
	Total Production cost	6,350.00	76,200
	Add: S&D and Administration overheads (10% of Total production cost)	635.00	7,620
	Total Cost	6,985.00	83,820
	Add: Profit (1/3rd of total cost)	2,328.33	27,940
(i)	**Sales price**	**9,313.33**	**1,11,760**
	No. of units in batch	50 units	
(ii)	**Cost per unit** (₹6,985 ÷ 50 units)	**139.70**	
	Selling price per unit (9,313.33 ÷ 50 units)	**186.27**	

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(iii) If the order is for 605 cakes, then selling price per cake would be as below:

Particulars	Total Cost (₹)
Direct Material Cost	60,500
Direct Wages (₹500 × 13 batches)	6,500
Oven set-up cost (₹750 × 13 batches)	9,750
Add: Production Overheads (20% of Direct wages)	1,300
Total Production cost	78,050
Add: S&D and Administration overheads (10% of Total production cost)	7,805
Total Cost	85,855
Add: Profit (1/3rd of total cost)	28,618
Sales price	**1,14,473**
No. of units	605 units
Selling price per unit (₹1,14,473 ÷ 605 units)	**189.21**