

**PAPER – 3: COST AND MANAGEMENT ACCOUNTING**

**QUESTIONS**

**Material Cost**

1. The following data are available in respect of material X for the year ended 31st March, 2021:

	(₹)
Opening stock	9,00,000
Purchases during the year	1,70,00,000
Closing stock	11,00,000

- (i) CALCULATE:
- (a) Inventory turnover ratio, and
  - (b) The number of days for which the average inventory is held.
- (ii) INTERPRET the ratio calculated as above if the industry inventory turnover rate is 10.

**Employee Cost**

2. Textile Ltd. pays following overtime premium for its labour beside normal wages of ₹ 100 per hour:

Before and after normal working hours	80% of basic wage rate
Sundays and holidays	150% of basic wage rate

During the previous year 2019-20, the following hours were worked:

Normal time	3,00,000 hours
Overtime before and after normal working hours	60,000 hours
Overtime on Sundays and holidays	<u>15,000 hours</u>
Total	<u>3,75,000 hours</u>

During the current year 2020-21, the following hours have been worked on job 'Spinning':

Normal	4,000 hours
Overtime before and after normal working hours	400 hours
Overtime on Sundays and holidays	100 hours
Total	4,500 hours

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You are required to CALCULATE the labour cost chargeable to job 'Spinning' and overhead in each of the following instances:

- (a) Where overtime is worked regularly throughout the year as a policy due to the workers' shortage.
- (b) Where overtime is worked irregularly to meet the requirements of production.
- (c) Where overtime is worked at the request of the customer to expedite the job.

**Overheads: Absorption Costing Method**

3. PL Ltd. has three production departments P<sub>1</sub>, P<sub>2</sub> and P<sub>3</sub> and two service departments S<sub>1</sub> and S<sub>2</sub>. The following data are extracted from the records of the company for the month of October, 2020:

	(₹)
Rent and rates	12,50,000
General lighting	1,50,000
Indirect Wages	3,75,000
Power	5,00,000
Depreciation on machinery	10,00,000
Insurance of machinery	4,00,000

Other Information:

	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	S <sub>1</sub>	S <sub>2</sub>
Direct wages (₹)	7,50,000	5,00,000	7,50,000	3,75,000	1,25,000
Horse Power of Machines used	60	30	50	10	—
Cost of machinery (₹)	60,00,000	80,00,000	1,00,00,000	5,00,000	5,00,000
Floor space (Sq. ft)	2,000	2,500	3,000	2,000	500
Number of light points	10	15	20	10	5
Production hours worked	6,225	4,050	4,100	—	—

Expenses of the service departments S<sub>1</sub> and S<sub>2</sub> are reapportioned as below:

	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	S <sub>1</sub>	S <sub>2</sub>
S <sub>1</sub>	20%	30%	40%	—	10%
S <sub>2</sub>	40%	20%	30%	10%	—

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Required:

- (i) COMPUTE overhead absorption rate per production hour of each production department.
- (ii) DETERMINE the total cost of product X which is processed for manufacture in department P<sub>1</sub>, P<sub>2</sub> and P<sub>3</sub> for 5 hours, 3 hours and 4 hours respectively, given that its direct material cost is ₹ 12,500 and direct labour cost is ₹ 7,500.

**Activity Based Costing**

4. Family Store wants information about the profitability of individual product lines: Soft drinks, Fresh produce and Packaged food. Family store provides the following data for the year 2020-21 for each product line:

	Soft drinks	Fresh produce	Packaged food
Revenues	₹ 39,67,500	₹ 1,05,03,000	₹ 60,49,500
Cost of goods sold	₹ 30,00,000	₹ 75,00,000	₹ 45,00,000
Cost of bottles returned	₹ 60,000	₹ 0	₹ 0
Number of purchase orders placed	360	840	360
Number of deliveries received	300	2,190	660
Hours of shelf-stocking time	540	5,400	2,700
Items sold	1,26,000	11,04,000	3,06,000

Family store also provides the following information for the year 2020-21:

Activity	Description of activity	Total Cost (₹)	Cost-allocation base
Bottles returns	Returning of empty bottles	60,000	Direct tracing to soft drink line
Ordering	Placing of orders for purchases	7,80,000	1,560 purchase orders
Delivery	Physical delivery and receipt of goods	12,60,000	3,150 deliveries
Shelf stocking	Stocking of goods on store shelves and on-going restocking	8,64,000	8,640 hours of shelf-stocking time
Customer Support	Assistance provided to customers including check-out	15,36,000	15,36,000 items sold

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Required:

- (i) Family store currently allocates support cost (all cost other than cost of goods sold) to product lines on the basis of cost of goods sold of each product line. CALCULATE the operating income and operating income as a % of revenues for each product line.
- (ii) If Family Store allocates support costs (all costs other than cost of goods sold) to product lines using and activity-based costing system, CALCULATE the operating income and operating income as a % of revenues for each product line.

**Cost Sheet**

5. Impact Ltd. provides you the following details of its expenditures for the year ended 31st March, 2021:

S. No.	Particulars	Amount (₹)	Amount (₹)
(i)	Raw materials purchased		5,00,00,000
(ii)	GST paid under Composition scheme		10,00,000
(iii)	Freight inwards		5,20,600
(iv)	Trade discounts received		10,00,000
(v)	Wages paid to factory workers		15,20,000
(vi)	Contribution made towards employees' PF & ESIS		1,90,000
(vii)	Production bonus paid to factory workers		1,50,000
(viii)	Fee for technical assistance		1,12,000
(ix)	Amount paid for power & fuel		2,62,000
(x)	Job charges paid to job workers		4,50,000
(xi)	Stores and spares consumed		1,10,000
(xii)	Depreciation on:		
	Factory building	64,000	
	Office building	46,000	
	Plant & Machinery	86,000	1,96,000
(xiii)	Salary paid to supervisors		1,20,000
(xiv)	Repairs & Maintenance paid for:		
	Plant & Machinery	58,000	
	Sales office building	50,000	
	Vehicles used by directors	20,600	1,28,600

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(xv)	Insurance premium paid for:		
	Plant & Machinery	31,200	
	Factory building	28,100	59,300
(xvi)	Expenses paid for quality control check activities		25,000
(xvii)	Research & development cost paid for improvement in production process		48,200
(xviii)	Expenses paid for administration of factory work		1,38,000
(xix)	Salary paid to functional managers:		
	Production control	4,80,000	
	Finance & Accounts	9,60,000	
	Sales & Marketing	12,00,000	26,40,000
(xx)	Salary paid to General Manager		13,20,000
(xxi)	Packing cost paid for:		
	Primary packing necessary to maintain quality	1,06,000	
	For re-distribution of finished goods	1,12,000	2,18,000
(xxii)	Interest and finance charges paid (for usage of non- equity fund)		3,50,000
(xxiii)	Fee paid to auditors		1,80,000
(xxiv)	Fee paid to legal advisors		1,20,000
(xxv)	Fee paid to independent directors		2,40,000
(xxvi)	Payment for maintenance of website for online sales		1,80,000
(xxvii)	Performance bonus paid to sales staffs		2,40,000
(xxviii)	Value of stock as on 1st April, 2020:		
	Raw materials	9,00,000	
	Work-in-process	4,00,000	
	Finished goods	7,00,000	20,00,000
(xxix)	Value of stock as on 31st March, 2021:		
	Raw materials	5,60,000	
	Work-in-process	2,50,000	
	Finished goods	11,90,000	20,00,000

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Amount realized by selling of waste generated during manufacturing process – ₹ 66,000/-

From the above data, you are required to PREPARE Statement of cost of Impact Ltd. for the year ended 31st March, 2021, showing (i) Prime cost, (ii) Factory cost, (iii) Cost of Production, (iv) Cost of goods sold and (v) Cost of sales.

**Cost Accounting System**

6. XYZ Ltd. maintains a non-integrated accounting system for the purpose of management information. The following are the data related with year 2020-21:

Particulars	(₹ in '000)
Opening balances:	
- Stores ledger control A/c	24,000
- Work-in-process control A/c	6,000
- Finished goods control A/c	1,29,000
- Building construction A/c	3,000
- Cost ledger control A/c	1,62,000
During the year following transactions took place:	
Materials:	
- Purchased	12,000
- Issued to production	15,000
- Issued to general maintenance	1,800
- Issued to building construction	1,200
Wages:	
- Gross wages paid	45,000
- Indirect wages paid	12,000
- For building construction	3,000
Factory overheads:	
- Actual amount incurred (excluding items shown above)	48,000
- Absorbed in building construction	6,000
- Under-absorbed	2,400
Royalty paid	1,500
Selling, distribution and administration overheads	7,500
Sales	1,35,000

At the end of the year, the stock of raw material and work-in-process was ₹ 1,65,00,000

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and ₹ 75,00,000 respectively. The loss arising in the raw material account is treated as factory overheads. The building under construction was completed during the year. Gross profit margin is 20% on sales.

**Required:**

PREPARE the relevant control accounts to record the above transactions in the cost ledger of the company.

**Batch Costing**

7. Rollon Ltd. is committed to supply 96,800 bearings per annum to Racing Ltd. on steady basis. It is estimated that it costs 25 paise as inventory carrying cost per bearing per month and the set-up cost per run of bearing manufacture is ₹ 588.
- (a) COMPUTE what would be the optimum run size for bearing manufacture?
- (b) Assuming that the company has a policy of manufacturing 8,800 bearings per run, CALCULATE how much extra costs the company would be incurring as compared to the optimum run suggested in (a) above?

**Contract Costing**

8. RN Builders Ltd. entered into a contract on April 1, 2019. The total contract was for ₹ 2,00,00,000. Actual expenditure for the period April 1, 2019 to March 31, 2020 and estimated expenditure for April 1, 2020 to December 31, 2020 are given below:

Particulars	2019-20 (actual) (₹)	2020-21 (9 months) (estimated) (₹)
Materials issued	36,00,000	34,30,000
Wages: Paid	30,00,000	34,93,000
Outstanding at the end	2,50,000	3,32,000
Plant purchased	10,00,000	-
Sundry expenses: Paid	2,90,000	2,75,000
Prepaid at the end	25,000	-
Establishment charges	5,85,000	-

A part of the material was unsuitable and thus sold for ₹ 7,25,000 (cost being ₹ 6,00,000) and a part of plant was scrapped and disposed-off for ₹ 1,15,000. The value of plant at site on 31 March, 2020 was ₹ 3,10,000 and the value of material at site was ₹ 1,70,000. Cash received on account to date was ₹ 70,00,000, representing 80% of the work certified. The cost of work uncertified was valued at ₹ 10,95,000.

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The contract would be completed by 31<sup>st</sup> December, 2020 and the contractor estimated further expenditure that would be incurred in completion of the contract:

- A sum of ₹ 12,50,000 would have to be spent on the plant and the residual value of the plant on the completion of the contract would be ₹ 1,50,000.
- Establishment charges would cost the same amount per month as in the previous year.
- ₹ 4,32,000 would be sufficient to provide for contingencies.

Required:

PREPARE a Contract Account for the year ended 31<sup>st</sup> March, 2020, and CALCULATE estimated total profit on this contract.

**Process Costing**

9. Following information is available regarding Process-I of a manufacturing company for the month of February:

**Production Record:**

Units in process as on 1 <sup>st</sup> February (All materials used, 1/4 <sup>th</sup> complete for labour and overhead)	8,000
New units introduced	32,000
Units completed	28,000
Units in process as on 28 <sup>th</sup> February (All materials used, 1/3 <sup>rd</sup> complete for labour and overhead)	12,000

**Cost Records:**

Work-in-process as on 1 <sup>st</sup> February	(₹)
Materials	1,20,000
Labour	20,000
Overhead	20,000
	1,60,000
 Cost during the month:	
Materials	5,12,000
Labour	3,00,000
Overhead	3,00,000
	11,12,000

Presuming that average method of inventory is used, PREPARE the following:

- (i) Statement of equivalent production.

- (ii) Statement showing cost for each element.
- (iii) Statement of apportionment of cost.
- (iv) Process cost account for Process-I.

### Joint Products & By Products

10. A company produces two joint products A and B from the same basic materials. The processing is completed in three departments.

Materials are mixed in Department I. At the end of this process, A and B get separated. After separation, A is completed in the Department II and B in Department III. During a period, 4,00,000 kg of raw material was processed in Department I at a total cost of ₹ 17,50,000, and the resultant 50% becomes A and 40% becomes B and 10% normally lost in processing.

In Department II,  $\frac{1}{5}$ <sup>th</sup> of the quantity received from Department I is lost in processing. A is further processed in Department II at a cost of ₹ 2,60,000.

In Department III, further new material is added to the material received from Department I and weight mixture is doubled, there is no quantity loss in the department III. Further processing cost (with material cost) in Department III is ₹ 3,00,000.

The details of sales during the said period are:

	Product A	Product B
Quantity sold (kg)	1,50,000	3,00,000
Sales price per kg (₹)	10	4

There were no opening stocks. If these products sold at split-off-point, the selling price of A and B would be ₹ 8 and ₹ 4 per kg respectively.

Required:

- (i) PREPARE a statement showing the apportionment of joint cost to A and B in proportion of sales value at split off point.
- (ii) PREPARE a statement showing the cost per kg of each product indicating joint cost, processing cost and total cost separately.
- (iii) PREPARE a statement showing the product wise profit for the year.
- (iv) On the basis of profits before and after further processing of product A and B, give your COMMENT that products should be further processed or not.

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**Service Costing**

11. Mr. PS owns a bus which runs according to the following schedule:

(i)	Delhi to Hisar and back, the same day	
	Distance covered:	160 km. one way
	Number of days run each month:	9
	Seating capacity occupied	90%.
(ii)	Delhi to Aligarh and back, the same day	
	Distance covered:	160 km. one way
	Number of days run each month:	12
	Seating capacity occupied	95%
(iii)	Delhi to Alwar and back, the same day	
	Distance covered:	170 km. one way
	Number of days run each month:	6
	Seating capacity occupied	100%
(iv)	Following are the other details:	
	Cost of the bus	₹ 15,00,000
	Salary of the Driver	₹ 30,000 p.m.
	Salary of the Conductor	₹ 26,000 p.m.
	Salary of the part-time Accountant	₹ 7,000 p.m.
	Insurance of the bus	₹ 6,000 p.a.
	Diesel consumption 5 km. per litre at	₹ 90 per litre
	Road tax	₹ 21,912 p.a.
	Lubricant oil	₹ 30 per 100 km.
	Permit fee	₹ 500 p.m.
	Repairs and maintenance	₹ 5,000 p.m.
	Depreciation of the bus	@ 30% p.a.
	Seating capacity of the bus	50 persons

Passenger tax is 20% of the total takings.

CALCULATE the bus fare to be charged from each passenger to earn a profit of 30% on total takings.

The fares are to be indicated per passenger for the journeys: (i) Delhi to Hisar (ii) Delhi to Aligarh and (iii) Delhi to Alwar.

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**Standard Costing**

12. BabyMoon Ltd. uses standard costing system in manufacturing one of its product 'Baby Cap'. The details are as follows:

Direct Material 1 Meter @ ₹ 60 per meter	₹ 60
Direct Labour 2 hour @ ₹ 20 per hour	₹ 40
Variable overhead 2 hour @ ₹ 10 per hour	₹ <u>20</u>
Total	₹ <u>120</u>

During the month of August, 10,000 units of 'Baby Cap' were manufactured. Details are as follows:

Direct material consumed	11,400 meters	@	₹ 58 per meter	
Direct labour Hours	?	@	?	₹ 4,48,800
Variable overhead incurred				₹ 2,24,400

Variable overhead efficiency variance is ₹ 4,000 A. Variable overheads are based on Direct Labour Hours.

You are required to CALCULATE the following Variances:

- Material Variances- Material Cost Variance, Material Price Variance and Material Usage Variance.
- Variable Overheads variances- Variable overhead Cost Variance, Variable overhead Efficiency Variance and Variable overhead Expenditure Variance.
- Labour variances- Labour Cost Variance, Labour Rate Variance and Labour Efficiency Variance.

**Marginal Costing**

13. A company has three factories situated in North, East and South with its Head Office in Mumbai. The Management has received the following summary report on the operations of each factory for a period:

(₹ in '000)

Factory	Sales		Profit	
	Actual	Over / (Under) Budget	Actual	Over / (Under) Budget
North	1,100	(400)	135	(180)
East	1,450	150	210	90
South	1,200	(200)	330	(110)

CALCULATE the following for each factory and for the company as a whole for the period:

- (i) Fixed Cost
- (ii) Break-even Sales

### Budget and Budgetary Control

14. The accountant of manufacturing company provides you the following details for year 2019-20:

Particulars	(₹)
Direct materials	28,00,000
Direct Wages	16,00,000
Fixed factory overheads	16,00,000
Variable factory overheads	16,00,000
Other variable costs	12,80,000
Other fixed costs	12,80,000
Profit	18,40,000
Sales	1,20,00,000

During the year, the company manufactured two products A and B and the output and costs were:

Particulars	A	B
Output (units)	2,00,000	1,00,000
Selling price per unit	₹ 32.00	₹ 56.00
Direct materials per unit	₹ 8.00	₹ 12.00
Direct wages per unit	₹ 4.00	₹ 8.00

Variable factory overhead is absorbed as a percentage of direct wages. Other variable costs have been computed as: Product A ₹ 4.00 per unit; and B ₹ 4.80 per unit.

During 2020-21, it is expected that the demand for product A will fall by 25% and for B by 50%. It is decided to manufacture a new product C, the cost for which is estimated as follows:

Particulars	Product C
Output (units)	2,00,000
Selling price per unit	₹ 28.00
Direct materials per unit	₹ 6.40
Direct wages per unit	₹ 4.00

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It is anticipated that the other variable costs per unit of Product C will be same as for product A.

PREPARE a budget to present to the management, showing the current position and the position for 2020-21. COMMENT on the comparative results.

**Miscellaneous**

15. (a) DIFFERENTIATE between Cost Control and Cost Reduction.  
 (b) 'Like other branches of accounting, cost accounting also has certain limitations'. EXPLAIN the limitations.  
 (c) DIFFERENTIATE between Job Costing and Batch Costing.  
 (d) DISCUSS the treatment of by-product cost in Cost Accounting when they are of small total value.

**SUGGESTED HINTS/ANSWERS**

1. (i) (a) Inventory turnover ratio (Refer to working note)  

$$= \frac{\text{Cost of stock of raw material consumed}}{\text{Average stock of raw material}}$$

$$= \frac{\text{₹ } 1,68,00,000}{\text{₹ } 10,00,000} = 16.8$$
 (b) Average number of days for which the average inventory is held  

$$= \frac{365}{\text{Inventory turnover ratio}} = \frac{365 \text{ days}}{16.8} = 21.73 \text{ days}$$

**Working Note:**

Particulars	(₹)
Opening stock of raw material	9,00,000
Add: Material purchases during the year	1,70,00,000
Less: Closing stock of raw material	11,00,000
	1,68,00,000

- (ii) The Inventory turnover ratio for material X is 16.8 which mean an inventory item takes only 21.73 or 22 days to issue from stores for production process. The rate is better than the industry rate which is 10 time or 36.5 days. This inventory turnover ratio

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indicates better inventory management system and good demand for the final product in market.

**2. Workings:**

Basic wage rate	= ₹ 100 per hour
Overtime wage rate before and after working hours	= ₹ 100 + (₹ 100 × 80%) = ₹ 180 per hour
Overtime wage rate for Sundays and holidays	= ₹ 100 + (₹ 100 × 150%) = ₹ 250 per hour

**Computation of average inflated wage rate (including overtime premium):**

Particulars	Amount (₹)
Annual wages for the previous year for normal time (3,00,000 hrs. × ₹ 100)	3,00,00,000
Wages for overtime before and after normal working hours (60,000 hrs. × ₹ 180)	108,00,000
Wages for overtime on Sundays and holidays (15,000 hrs. × ₹ 250)	37,50,000
<b>Total wages for 3,75,000 hrs.</b>	<b>4,45,50,000</b>

$$\text{Average inflated wage rate} = \frac{\text{₹ } 4,45,50,000}{3,75,000 \text{ hours}} = \text{₹ } 118.80$$

**(a) Where overtime is worked regularly as a policy due to workers' shortage**

The overtime premium is treated as a part of employee cost and job is charged at an inflated wage rate. Hence, employee cost chargeable to job 'Spinning'

$$= \text{Total hours} \times \text{Inflated wage rate} = 4,500 \text{ hrs.} \times \text{₹ } 118.80 = \text{₹ } 5,34,600$$

**(b) Where overtime is worked irregularly to meet the requirements of production**

Basic wage rate is charged to the job and overtime premium is charged to factory overheads as under:

$$\begin{aligned} \text{Employee cost chargeable to Job 'Spinning'} &= 4,500 \text{ hours @ ₹ } 100 \text{ per hour} \\ &= \text{₹ } 4,50,000 \end{aligned}$$

$$\begin{aligned} \text{Factory overhead} &= \{400 \text{ hrs.} \times (\text{₹ } 100 \times 80\%)\} + \{100 \text{ hrs.} \times (\text{₹ } 100 \times 150\%)\} \\ &= \{\text{₹ } 32,000 + \text{₹ } 15,000\} = \text{₹ } 47,000 \end{aligned}$$

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(c) Where overtime is worked at the request of the customer, overtime premium is also charged to the job as under: (₹)

Job 'Spinning' Employee cost: 4,500hrs. @ ₹ 100	=	4,50,000
Overtime premium: 400 hrs. @ (₹ 100 × 80%)	=	32,000
100 hrs. @ (₹ 100 × 150%)	=	<u>15,000</u>
<b>Total</b>		<b><u>4,97,000</u></b>

## 3. Primary Distribution Summary

Item of cost	Basis of apportionment	Total (₹)	P <sub>1</sub> (₹)	P <sub>2</sub> (₹)	P <sub>3</sub> (₹)	S <sub>1</sub> (₹)	S <sub>2</sub> (₹)
Direct wages	Actual	5,00,000	--	--	--	3,75,000	1,25,000
Rent and Rates	Floor area (4 : 5 : 6 : 4 : 1)	12,50,000	2,50,000	3,12,500	3,75,000	2,50,000	62,500
General lighting	Light points (2 : 3 : 4 : 2 : 1)	1,50,000	25,000	37,500	50,000	25,000	12,500
Indirect wages	Direct wages (6 : 4 : 6 : 3 : 1)	3,75,000	1,12,500	75,000	1,12,500	56,250	18,750
Power	Horse Power of machines used (6 : 3 : 5 : 1)	5,00,000	2,00,000	1,00,000	1,66,667	33,333	–
Depreciation of machinery	Value of machinery (12 : 16 : 20 : 1 : 1)	10,00,000	2,40,000	3,20,000	4,00,000	20,000	20,000
Insurance of machinery	Value of machinery (12 : 16 : 20 : 1 : 1)	4,00,000	96,000	1,28,000	1,60,000	8,000	8,000
		<b>41,75,000</b>	<b>9,23,500</b>	<b>9,73,000</b>	<b>12,64,167</b>	<b>7,67,583</b>	<b>2,46,750</b>

Overheads of service cost centres

Let S<sub>1</sub> be the overhead of service cost centre S<sub>1</sub> and S<sub>2</sub> be the overhead of service cost centre S<sub>2</sub>.

$$S_1 = 7,67,583 + 0.10 S_2$$

$$S_2 = 2,46,750 + 0.10 S_1$$

Substituting the value of S<sub>2</sub> in S<sub>1</sub> we get

$$S_1 = 7,67,583 + 0.10 (2,46,750 + 0.10 S_1)$$

$$S_1 = 7,67,583 + 24,675 + 0.01 S_1$$

$$0.99 S_1 = 7,92,258$$

$$\therefore S_1 = ₹ 8,00,260$$

$$\therefore S_2 = 2,46,750 + 0.10 \times 8,00,260$$

$$= ₹ 3,26,776$$

**Secondary Distribution Summary**

Particulars	Total (₹)	P <sub>1</sub> (₹)	P <sub>2</sub> (₹)	P <sub>3</sub> (₹)
Allocated and Apportioned over-heads as per primary distribution	31,60,667	9,23,500	9,73,000	12,64,167
S <sub>1</sub>	8,00,260	1,60,052	2,40,078	3,20,104
S <sub>2</sub>	3,26,776	1,30,710	65,355	98,033
		<b>12,14,262</b>	<b>12,78,433</b>	<b>16,82,304</b>

**(i) Overhead rate per hour**

	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>
Total overheads cost (₹)	12,14,262	12,78,433	16,82,304
Production hours worked	6,225	4,050	4,100
<b>Rate per hour (₹)</b>	<b>195.06</b>	<b>315.67</b>	<b>410.32</b>

**(ii) Cost of Product X**

	(₹)
Direct material	12,500.00
Direct labour	7,500.00
<b>Prime cost</b>	<b>20,000.00</b>
Production on overheads	
P <sub>1</sub> 5 hours × ₹ 195.06 = 975.30	
P <sub>2</sub> 3 hours × ₹ 315.67 = 947.01	
P <sub>3</sub> 4 hours × ₹ 410.32 = <u>1,641.28</u>	3,563.59
<b>Factory cost</b>	<b>23,563.59</b>

**4. Working notes:**

**1. Total support cost:**

	(₹)
Bottles returns	60,000
Ordering	7,80,000
Delivery	12,60,000
Shelf stocking	8,64,000
Customer support	15,36,000
<b>Total support cost</b>	<b>45,00,000</b>

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## 2. Percentage of support cost to cost of goods sold (COGS):

$$= \frac{\text{Total support cost}}{\text{Total cost of goods sold}} \times 100$$

$$= \frac{\text{₹ } 45,00,000}{\text{₹ } 1,50,00,000} \times 100 = 30\%$$

## 3. Cost for each activity cost driver:

Activity (1)	Total cost (₹) (2)	Cost allocation base (3)	Cost driver rate (4) = [(2) ÷ (3)]
Ordering	7,80,000	1,560 purchase orders	₹ 500 per purchase order
Delivery	12,60,000	3,150 deliveries	₹ 400 per delivery
Shelf-stocking	8,64,000	8,640 hours	₹ 100 per stocking hour
Customer support	15,36,000	15,36,000 items sold	₹ 1 per item sold

## (i) Statement of Operating income and Operating income as a percentage of revenues for each product line

(When support costs are allocated to product lines on the basis of cost of goods sold of each product)

	Soft Drinks (₹)	Fresh Produce (₹)	Packaged Foods (₹)	Total (₹)
Revenues: (A)	39,67,500	1,05,03,000	60,49,500	2,05,20,000
Cost of Goods sold (COGS): (B)	30,00,000	75,00,000	45,00,000	1,50,00,000
Support cost (30% of COGS): (C) (Refer working notes)	9,00,000	22,50,000	13,50,000	45,00,000
Total cost: (D) = {(B) + (C)}	39,00,000	97,50,000	58,50,000	1,95,00,000
Operating income: (E) = {(A)-(D)}	67,500	7,53,000	1,99,500	10,20,000
Operating income as a percentage of revenues: (F) = {(E)/(A) × 100}	1.70%	7.17%	3.30%	4.97%

(ii) **Statement of Operating income and Operating income as a percentage of revenues for each product line**

(When support costs are allocated to product lines using an activity-based costing system)

	Soft drinks (₹)	Fresh Produce (₹)	Packaged Food (₹)	Total (₹)
Revenues: (A)	39,67,500	1,05,03,000	60,49,500	2,05,20,000
Cost & Goods sold	30,00,000	75,00,000	45,00,000	1,50,00,000
Bottle return costs	60,000	0	0	60,000
Ordering cost* (360:840:360)	1,80,000	4,20,000	1,80,000	7,80,000
Delivery cost* (300:2,190:660)	1,20,000	8,76,000	2,64,000	12,60,000
Shelf stocking cost* (540:5,400:2,700)	54,000	5,40,000	2,70,000	8,64,000
Customer Support cost* (1,26,000:11,04,000:3,06,000)	1,26,000	11,04,000	3,06,000	15,36,000
Total cost: (B)	35,40,000	1,04,40,000	55,20,000	1,95,00,000
Operating income: (C) = {(A)- (B)}	4,27,500	63,000	5,29,500	10,20,000
Operating income as a % of revenues: (D) = {(C)/(A) × 100}	10.78%	0.60%	8.75%	4.97%

\* Refer to working note 3

5. **Statement of Cost of Impact Ltd. for the year ended 31st March, 2021:**

Sl. No.	Particulars	Amount (₹)	Amount (₹)
(i)	Material Consumed:		
	Raw materials purchased	5,00,00,000	
	GST paid under Composition scheme*	10,00,000	
	Freight inwards	5,20,600	
	Less: Trade discounts received	(10,00,000)	

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	Add: Opening stock of raw materials	9,00,000	
	Less: Closing stock of raw materials	(5,60,000)	5,08,60,600
(ii)	Direct employee (labour) cost:		
	Wages paid to factory workers	15,20,000	
	Contribution made towards employees' PF & ESIS	1,90,000	
	Production bonus paid to factory workers	1,50,000	18,60,000
(iii)	Direct expenses:		
	Fee for technical assistance	1,12,000	
	Amount paid for power & fuel	2,62,000	
	Job charges paid to job workers	4,50,000	8,24,000
	<b>Prime Cost</b>		<b>5,35,44,600</b>
(iv)	Works/ Factory overheads:		
	Stores and spares consumed	1,10,000	
	Depreciation on factory building	64,000	
	Depreciation on plant & machinery	86,000	
	Repairs & Maintenance paid for plant & machinery	58,000	
	Insurance premium paid for plant & machinery	31,200	
	Insurance premium paid for factory building	28,100	
	Salary paid to supervisors	1,20,000	4,97,300
	Gross factory cost		<b>5,40,41,900</b>
	Add: Opening value of W-I-P		4,00,000
	Less: Closing value of W-I-P		(2,50,000)
	<b>Factory Cost</b>		<b>5,41,91,900</b>
(v)	Quality control cost:		
	Expenses paid for quality control check activities		25,000
(vi)	Research & development cost paid for improvement in production process		48,200
(vii)	Administration cost related with production:		
	-Expenses paid for administration of factory work	1,38,000	
	-Salary paid to Production control manager	4,80,000	6,18,000

(viii)	Less: Realisable value on sale of scrap and waste		(66,000)
(ix)	Add: Primary packing cost		1,06,000
	<b>Cost of Production</b>		<b>5,49,23,100</b>
	Add: Opening stock of finished goods		7,00,000
	Less: Closing stock of finished goods		(11,90,000)
	<b>Cost of Goods Sold</b>		<b>5,44,33,100</b>
(x)	Administrative overheads:		
	Depreciation on office building	46,000	
	Repairs & Maintenance paid for vehicles used by directors	20,600	
	Salary paid to Manager- Finance & Accounts	9,60,000	
	Salary paid to General Manager	13,20,000	
	Fee paid to auditors	1,80,000	
	Fee paid to legal advisors	1,20,000	
	Fee paid to independent directors	2,40,000	28,86,600
(xi)	Selling overheads:		
	Repairs & Maintenance paid for sales office building	50,000	
	Salary paid to Manager- Sales & Marketing	12,00,000	
	Payment for maintenance of website for online sales	1,80,000	
	Performance bonus paid to sales staffs	2,40,000	16,70,000
(xii)	Packing cost paid for re-distribution of finished goods		1,12,000
(xiii)	Interest and finance charges paid		3,50,000
	<b>Cost of Sales</b>		<b>5,94,51,700</b>

\* GST paid under Composition scheme would be included under cost of material as it is not eligible for input tax credit.

6. **Cost Ledger Control Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Costing P&L A/c	1,35,000	By Balance b/d	1,62,000
To Building Construction A/c	13,200	By Stores Ledger control A/c	12,000

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To Balance c/d	1,44,900	By Wages Control A/c	45,000
		By Factory overhead control A/c	48,000
		By Royalty A/c	1,500
		By Selling, Distribution and Administration overheads	7,500
		By Costing P&L A/c	17,100
	2,93,100		2,93,100

**Stores Ledger Control Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Balance b/d	24,000	By WIP control A/c	15,000
To Cost Ledger control A/c	12,000	By Factory overheads control A/c	1,800
		By Building construction A/c	1,200
		By Factory overhead control A/c (bal. fig.) (loss)	1,500
		By Balance c/d	16,500
	36,000		36,000

**Wages Control Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Cost Ledger control A/c	45,000	By Factory overhead control A/c	12,000
		By Building Construction A/c	3,000
		By WIP Control A/c (bal. fig.)	30,000
	45,000		45,000

**Factory Overhead Control Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Stores Ledger control A/c	1,800	By Building Construction A/c	6,000
To Wages Control A/c	12,000	By WIP Control A/c (bal. fig.)	54,900
To Cost Ledger control A/c	48,000	By Costing P&L A/c (under-absorption)	2,400

To Stores Ledger control A/c (loss)	1,500		
	63,300		63,300

**Royalty Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Cost Ledger control A/c	1,500	By WIP Control A/c	1,500
	1,500		1,500

**Work-in-process Control Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Balance b/d	6,000	By Finished goods control A/c (bal. fig.)	99,900
To Stores Ledger control A/c	15,000		
To Wages Control A/c	30,000		
To Factory overhead control A/c	54,900		
To Royalty A/c	1,500	By Balance c/d	7,500
	1,07,400		1,07,400

**Finished Goods Control Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Balance b/d	1,29,000	By Cost of Goods Sold A/c (Refer working note)	1,08,000
To WIP control A/c	99,900	By Balance c/d	1,20,900
	2,28,900		2,28,900

**Cost of Goods Sold Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Finished Goods control A/c	1,08,000	By Cost of sales A/c	1,08,000
	1,08,000		1,08,000

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**Selling, Distribution and Administration Overhead Control Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Cost Ledger control A/c	7,500	By Cost of sales A/c	7,500
	7,500		7,500

**Cost of Sales Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Cost of Goods Sold A/c	1,08,000	By Costing P&L A/c	1,15,500
To Selling, Distribution and Administration A/c	7,500		
	1,15,500		1,15,500

**Costing P&L Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Cost of Sales A/c	1,15,500	By Cost Ledger control A/c	1,35,000
To Factory overhead control A/c	2,400		
To Cost Ledger control A/c (bal. fig.) (Profit)	17,100		
	1,35,000		1,35,000

**Building Construction Account**

Particulars	(₹ in '000)	Particulars	(₹ in '000)
To Balance b/d	3,000	By Cost Ledger control A/c	13,200
To Stores Ledger control A/c	1,200		
To Wages Control A/c	3,000		
To Factory overhead control A/c	6,000		
	13,200		13,200

## Trial Balance

Particulars	Dr.	Cr.
	(₹ in '000)	(₹ in '000)
Stores Ledger Control A/c	16,500	
WIP Control A/c	7,500	
Finished Goods Control A/c	1,20,900	
Cost Ledger Control A/c		1,44,900
	1,44,900	1,44,900

## Workings:

$$\text{Cost of Goods sold} = \frac{₹ 13,50,00,000 \times 80}{100} = ₹ 10,80,00,000$$

## 7. (a) Optimum production run size (Q)

$$= \sqrt{\frac{2DS}{C}} = \sqrt{\frac{2 \times 96,800 \times ₹ 588}{0.25 \times 12}} = 6,160 \text{ bearings.}$$

## (b) Calculation of Extra Cost

Total Cost (of maintaining the inventories) when production run size (Q) are 6,160 and 8,800 bearings respectively.

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

Particulars	When run size is 6,160 bearings	When run size is 8,800 bearings
Total set up cost	$= \frac{96,800}{6,160} \times ₹ 588 = ₹ 9,240$ Or, No. of setups = 15.71 (16 setups) $= 16 \times ₹ 588 = ₹ 9,408$	$= \frac{96,800}{8,800} \times ₹ 588 = ₹ 6,468$
Total Carrying cost	$\frac{1}{2} \times 6,160 \times 0.25 \times 12$ $= ₹ 9,240$	$\frac{1}{2} \times 8,800 \times 0.25 \times 12$ $= ₹ 13,200$
<b>Total Cost</b>	<b>₹ 18,480/ ₹ 18,648</b>	<b>₹ 19,668</b>

₹ 1,188/ ₹ 1,020 is the extra cost incurred by the company due to run size not being optimum run size.

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RN Builders Ltd.

Contract Account (2019-20)

Particulars	(₹)	Particulars	(₹)
To Materials issued	36,00,000	By Material sold	7,25,000
To Wages paid 30,00,000		By Plant sold	1,15,000
Add: Outstanding <u>2,50,000</u>	32,50,000	By Plant at site c/d	3,10,000
To Plant	10,00,000	By Material at site c/d	1,70,000
To Sundry Expenses 2,90,000		By Work-in-progress c/d	
Less: Prepaid <u>(25,000)</u>	2,65,000	Work certified 87,50,000	
		(₹ 70,00,000 ÷ 80%)	
To Establishment charges	5,85,000	Work uncertified <u>10,95,000</u>	98,45,000
To Costing P & L A/c (₹ 7,25,000 – ₹ 6,00,000)	1,25,000		
To Notional profit (Profit for the year)	23,40,000		
	<b>1,11,65,000</b>		<b>1,11,65,000</b>

Calculation of Estimated Profit

	Particulars	(₹)	(₹)
(1)	Material consumed (36,00,000+ 1,25,000– 7,25,000)	30,00,000	
	Add: Further consumption	34,30,000	64,30,000
(2)	Wages:	32,50,000	
	Add: Further cost (34,93,000 – 2,50,000)	32,43,000	
	Add: Outstanding	3,32,000	68,25,000
(3)	Plant used (10,00,000– 1,15,000)	8,85,000	
	Add: Further plant introduced	12,50,000	
	Less: Closing balance of plant	(1,50,000)	19,85,000
(4)	Establishment charges	5,85,000	

	Add: Further charges for nine months $(5,85,000 \times 9/12)$	4,38,750	10,23,750
(5)	Sundry expenses	2,90,000	
	Add: Further expenses	2,75,000	5,65,000
(6)	Reserve for contingencies		4,32,000
<b>Estimated profit (balancing figure)</b>			<b>27,39,250</b>
Contract price			2,00,00,000

9. (i) **Statement of equivalent production (Average cost method)**

Particulars	Input Units	Particulars	Output Units	Equivalent Production			
				Material		Labour & O.H.	
				%	Units	%	Units
Opening WIP	8,000	Completed and transferred	28,000	100	28,000	100	28,000
Units introduced	32,000	Closing WIP	12,000	100	12,000	1/3 <sup>rd</sup>	4,000
	40,000		40,000		40,000		32,000

(ii) **Statement showing cost for each element**

Particulars	Materials (₹)	Labour (₹)	Overhead (₹)	Total (₹)
Cost of opening work-in-process	1,20,000	20,000	20,000	1,60,000
Cost incurred during the month	5,12,000	3,00,000	3,00,000	11,12,000
Total cost: (A)	6,32,000	3,20,000	3,20,000	12,72,000
Equivalent units: (B)	40,000	32,000	32,000	
Cost per equivalent unit: (C) = (A ÷ B)	15.8	10	10	35.8

(iii) **Statement of apportionment of cost**

Particulars	Amount (₹)	Amount (₹)
1. Value of units completed and transferred (28,000 units × ₹ 35.8)		10,02,400
2. Value of Closing W-I-P:		
- Materials (12,000 units × ₹ 15.8)	1,89,600	

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- Labour (4,000 units × ₹ 10)	40,000	
- Overheads (4,000 units × ₹ 10)	40,000	2,69,600

## (iv) Process-I Cost Account

Particulars	Units	(₹)	Particulars	Units	(₹)
To Opening W-I-P	8,000	1,60,000	By Completed units	28,000	10,02,400
To Materials	32,000	5,12,000	By Closing W-I-P	12,000	2,69,600
To Labour	--	3,00,000			
To Overhead	--	3,00,000			
	40,000	12,72,000		40,000	12,72,000

## 10. Calculation of quantity produced

	Dept I (kg)	Dept II (kg)	Dept III (kg)
Input	4,00,000	2,00,000 (50% of 4,00,000 kg.)	1,60,000 (40% of 4,00,000 kg.)
Weight (lost) or added	(40,000) (10% of 4,00,000 kg.)	(40,000) (1/5 <sup>th</sup> of 2,00,000 kg.)	1,60,000
	3,60,000	1,60,000	3,20,000
Production of A	2,00,000	1,60,000	--
Production of B	1,60,000	--	3,20,000

## (i) Statement of apportionment of joint cost of dept I

	Product A	Product B
Output (kg)	2,00,000	1,60,000
Selling price per kg (₹)	8	4
Sales value (₹)	16,00,000	6,40,000
Share in Joint cost (5:2)	12,50,000 (₹ 17,50,000 × 5 ÷ 7)	5,00,000 (₹ 17,50,000 × 2 ÷ 7)

## (ii) Statement of cost per kg

	Product A	Product B
Output (kg)	1,60,000	3,20,000
Share in joint cost (₹)	12,50,000	5,00,000
Joint Cost per kg (₹) (A)	7.8125	1.5625

Further processing cost (₹)	2,60,000	3,00,000
Further processing cost per kg (₹) (B)	1.625	0.9375
Total cost per kg (₹) {(A)+(B)}	9.4375	2.5000

**(iii) Statement of profit**

	Product A	Product B
Output (kg)	1,60,000	3,20,000
Sales (kg)	(1,50,000)	(3,00,000)
Closing stock (kg)	10,000	20,000
	(₹)	(₹)
Sales	15,00,000 (1,50,000 kg × ₹ 10)	12,00,000 (3,00,000 kg × ₹ 4)
Add: closing stock (at full cost)	94,375 (10,000 kg × ₹ 9.4375)	50,000 (20,000 kg × ₹ 2.5)
Value of production	15,94,375	12,50,000
Less: Share in joint cost	12,50,000	5,00,000
Further processing cost	2,60,000	3,00,000
Profit	84,375	4,50,000

**(iv) Profitability statement before and after processing**

	Product A		Product B	
	Before (₹)	After (₹)	Before (₹)	After (₹)
Sales Value	16,00,000	84,375 (as per iii above)	6,40,000	4,50,000 (as per iii above)
Share in joint costs	12,50,000		5,00,000	
Profit	3,50,000		1,40,000	

Product A should be sold at split off point and product B after processing because of higher profitability.

**11. Working Notes:**

**1. Total Distance (in km.) covered per month**

Bus route	Km. per trip	Trips per day	Days per month	Km. per month
Delhi to Hisar	160	2	9	2,880

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Delhi to Aligarh	160	2	12	3,840
Delhi to Alwar	170	2	6	2,040
Total				8,760

## 2. Passenger- km. per month

	Total seats available per month (at 100% capacity)	Capacity utilised		Km. per trip	Passenger-Km. per month
		(%)	Seats		
Delhi to Hisar & Back	900 (50 seats × 2 trips × 9 days)	90	810	160	1,29,600 (810 seats × 160 km.)
Delhi to Aligarh & Back	1,200 (50 seats × 2 trips × 12 days)	95	1,140	160	1,82,400 (1,140 seats × 160 km.)
Delhi to Alwar & Back	600 (50 seats × 2 trips × 6 days)	100	600	170	1,02,000 (600 seats × 170 km.)
Total					4,14,000

## Monthly Operating Cost Statement

Particulars	(₹)	(₹)
<b>(i) Running Costs</b>		
Diesel {(8,760 km ÷ 5 km) × ₹ 90}	1,57,680.00	
Lubricant oil {(8,760 km ÷ 100) × ₹ 30}	2,628.00	1,60,308.00
<b>(ii) Maintenance Costs</b>		
Repairs & Maintenance		5,000.00
<b>(iii) Standing charges</b>		
Salary to driver	30,000.00	
Salary to conductor	26,000.00	
Salary of part-time accountant	7,000.00	
Insurance (₹ 6,000 ÷ 12)	500.00	
Road tax (₹ 21,912 ÷ 12)	1,826.00	
Permit fee	500.00	

Depreciation $\{(\text{₹ } 15,00,000 \times 30\%) \div 12\}$	37,500.00	1,03,326.00
Total costs per month before Passenger Tax (i)+(ii)+(iii)		2,68,634.00
Passenger Tax*		1,07,453.60
Total Cost		3,76,087.60
Add: Profit*		1,61,180.40
Total takings per month		5,37,268.00

\*Let total takings be X then,

$$X = \text{Total costs per month before passenger tax} + 0.2 X (\text{passenger tax}) + 0.3 X (\text{profit})$$

$$X = \text{₹ } 2,68,634 + 0.2 X + 0.3 X$$

$$0.5 X = \text{₹ } 2,68,634 \text{ or, } X = \text{₹ } 5,37,268$$

$$\text{Passenger Tax} = 20\% \text{ of } \text{₹ } 5,37,268 = \text{₹ } 1,07,453.60$$

$$\text{Profit} = 30\% \text{ of } \text{₹ } 5,37,268 = \text{₹ } 1,61,180.40$$

#### Calculation of Rate per passenger km. and fares to be charged for different routes

$$\begin{aligned} \text{Rate per Passenger-Km.} &= \frac{\text{Total takings per month}}{\text{Total Passenger-Km. per month}} \\ &= \frac{\text{₹ } 5,37,268}{4,14,000 \text{ Passenger-Km.}} = \text{₹ } 1.30 \text{ (approx.)} \end{aligned}$$

#### Bus fare to be charged per passenger:

$$\text{Delhi to Hisar} = \text{₹ } 1.30 \times 160 \text{ km} = \text{₹ } 208.00$$

$$\text{Delhi to Aligarh} = \text{₹ } 1.30 \times 160 \text{ km} = \text{₹ } 208.00$$

$$\text{Delhi to Alwar} = \text{₹ } 1.30 \times 170 \text{ km} = \text{₹ } 221.00$$

#### 12. (i) Material Variances

Budget			Std. for actual			Actual		
Quantity (Meter)	Price (₹)	Amount (₹)	Quantity (Meter)	Price (₹)	Amount (₹)	Quantity (Meter)	Price (₹)	Amount (₹)
1	60	60	10,000	60	6,00,000	11,400	58	6,61,200

$$\text{Material Cost Variance} = (\text{SQ} \times \text{SP} - \text{AQ} \times \text{AP})$$

$$= 6,00,000 - 6,61,200 = \text{₹ } 61,200 \text{ (A)}$$

$$\text{Material Price Variance} = (\text{SP} - \text{AP}) \text{ AQ}$$

$$= (60 - 58) 11,400 = ₹ 22,800 (F)$$

$$\text{Material Usage Variance} = (SQ - AQ) SP$$

$$= (10,000 - 11,400) 60 = ₹ 84,000 (A)$$

## (ii) Variable Overheads variances

## Variable overhead cost Variance

$$= \text{Standard variable overhead} - \text{Actual Variable Overhead}$$

$$= (10,000 \text{ units} \times 2 \text{ hours} \times ₹ 10) - 2,24,400 = ₹ 24,400 (A)$$

## Variable overhead Efficiency Variance

$$= (\text{Standard Hours} - \text{Actual Hours}) \times \text{Standard Rate per Hour}$$

Let Actual Hours be 'X', then:

$$(20,000 - X) \times 10 = 4,000 (A)$$

$$2,00,000 - 10X = -4,000$$

$$X = 2,04,000 \div 10$$

$$\text{Therefore, Actual Hours (X)} = 20,400$$

## Variable overhead Expenditure Variance

$$= \text{Variable Overhead at Actual Hours} - \text{Actual Variable Overheads}$$

$$= 20,400 \times ₹ 10 - 2,24,400 = ₹ 20,400 (A)$$

## (iii) Labour variances

Budget			Std. for actual			Actual		
Hours	Rate (₹)	Amount (₹)	Hours	Rate (₹)	Amount (₹)	Hours	Rate (₹)	Amount (₹)
2	20	40	20,000	20	4,00,000	20,400	22*	4,48,800

$$* \text{Actual Rate} = ₹ 4,48,800 \div 20,400 \text{ hours} = ₹ 22$$

$$\text{Labour Cost Variance} = (SH \times SR) - (AH \times AR)$$

$$= 4,00,000 - 4,48,800 = ₹ 48,800 (A)$$

$$\text{Labour Rate Variance} = (SR - AR) \times AH$$

$$= (20 - 22) \times 20,400 = ₹ 40,800 (A)$$

$$\text{Labour Efficiency Variance} = (SH - AH) \times SR$$

$$= (20,000 - 20,400) \times 20 = ₹ 8,000 (A)$$

## 13. Computation of Profit Volume Ratio

(₹ in '000)

Factory	Sales			Profit			P/V Ratio <small>(Change in Profit) Change in Sales</small>
	Actual	Over / (Under) Budget	Budgeted Sales	Actual	Over / (Under) Budget	Budget Profit	
North	1,100	(400)	1,500	135	(180)	315	45%
East	1,450	150	1,300	210	90	120	60%
South	1,200	(200)	1,400	330	(110)	440	55%

(i) Computation of Fixed Costs

(₹ in '000)

Factory	Actual Sales	P/V Ratio	Contribution	Actual Profit	Fixed Cost
	(1)	(2)	(3) = (1) × (2)	(4)	(5) = (3) - (4)
North	1,100	45%	495	135	360
East	1,450	60%	870	210	660
South	1,200	55%	660	330	330
<b>Total</b>	<b>3,750</b>		<b>2,025</b>	<b>675</b>	<b>1,350</b>

(ii) Computation of Break-Even Sales

Factory	Fixed Cost (a)	P/V Ratio (b)	Break-even Sales (a) / (b)
North	360	45%	800
East	660	60%	1,100
South	330	55%	600
			<b>2,500</b>

$$\begin{aligned} \text{Break-even Sales (Company as Whole)} &= \frac{\text{Fixed Cost}}{\text{Composite P / V Ratio}^*} \\ &= \frac{₹ 13,50,000}{54\%} \\ &= ₹ 25,00,000 \end{aligned}$$

$$*\text{Composite P/V Ratio} = \frac{\text{Total Contribution}}{\text{Total Actual sales}} = \frac{2,025}{3,750} = 54\%$$

14. Budget Showing Current Position and Position for 2020-21

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	Position for 2019-20			Position for 2020-21			
	A	B	Total (A+B)	A	B	C	Total (A+B+C)
Sales (units)	2,00,000	1,00,000	–	1,50,000	50,000	2,00,000	–
	(₹)	(₹)	(₹)	(₹)	(₹)	(₹)	(₹)
<b>(A) Sales</b>	<b>64,00,000</b>	<b>56,00,000</b>	<b>1,20,00,000</b>	<b>48,00,000</b>	<b>28,00,000</b>	<b>56,00,000</b>	<b>1,32,00,000</b>
Direct Material	16,00,000	12,00,000	28,00,000	12,00,000	6,00,000	12,80,000	30,80,000
Direct wages	8,00,000	8,00,000	16,00,000	6,00,000	4,00,000	8,00,000	18,00,000
Factory overhead (variable)	8,00,000	8,00,000	16,00,000	6,00,000	4,00,000	8,00,000	18,00,000
Other variable costs	800,000	4,80,000	12,80,000	6,00,000	240,000	8,00,000	16,40,000
<b>(B) Marginal Cost</b>	<b>40,00,000</b>	<b>32,80,000</b>	<b>72,80,000</b>	<b>30,00,000</b>	<b>16,40,000</b>	<b>36,80,000</b>	<b>83,20,000</b>
<b>(C) Contribution (A-B)</b>	<b>24,00,000</b>	<b>23,20,000</b>	<b>47,20,000</b>	<b>18,00,000</b>	<b>11,60,000</b>	<b>19,20,000</b>	<b>48,80,000</b>
Fixed costs							
– Factory			16,00,000				16,00,000
– Others			12,80,000				12,80,000
<b>(D) Total fixed cost</b>			<b>28,80,000</b>				<b>28,80,000</b>
<b>Profit (C – D)</b>			<b>18,40,000</b>				<b>20,00,000</b>

**Comments:** Introduction of Product C is likely to increase profit by ₹ 1,60,000 (i.e. from ₹ 18,40,000 to ₹ 20,00,000) in 2020-21 as compared to 2019-20 even if the demand for Product A & B falls. Therefore, introduction of product C is recommended.

15. (a)

S. No.	Cost Control	Cost Reduction
1	Cost control aims at maintaining the costs in accordance with the established standards.	Cost reduction is concerned with reducing costs. It challenges all standards and endeavours to improve them continuously.
2	Cost control seeks to attain lowest possible cost under existing conditions.	Cost reduction recognises no condition as permanent, since a change will result in lower cost.
3	In case of cost control, emphasis is on past and present.	In case of cost reduction, it is on present and future.
4	Cost control is a preventive	Cost reduction is a corrective function. It operates even when an efficient cost

	function.	control system exists.
5	Cost control ends when targets are achieved.	Cost reduction has no visible end and is a continuous process.

(b) "Like other branches of accounting, cost accounting also has certain limitations". The limitations of cost accounting are as follows:

- (i) **Expensive:** It is expensive because analysis, allocation and absorption of overheads requires considerable amount of additional work, and hence additional money.
- (ii) **Requirement of reconciliation:** The results shown by cost accounts differ from those shown by financial accounts. Thus, preparation of reconciliation statements is necessary to verify their accuracy.
- (iii) **Duplication of work:** It involves duplication of work as organization has to maintain two sets of accounts i.e. Financial Accounts and Cost Accounts.

(c)

S. No.	Job Costing	Batch Costing
1	Method of costing used for non- standard and non-repetitive products produced as per customer specifications and against specific orders.	Homogeneous products produced in a continuous production flow in lots.
2	Cost determined for each Job.	Cost determined in aggregate for the entire Batch and then arrived at on per unit basis.
3	Jobs are different from each other and independent of each other. Each Job is unique.	Products produced in a batch are homogeneous and lack of individuality.

(d) When the by-products are of small total value, the amount realised from their sale may be dealt in any one the following two ways:

- (i) The sales value of the by-products may be **credited to the Costing Profit and Loss Account** and no credit be given in the Cost Accounts. The credit to the Costing Profit and Loss Account here is treated either as miscellaneous income or as additional sales revenue.
- (ii) The sale proceeds of the by-product may be **treated as deductions from the total costs**. The sale proceeds in fact should be deducted either from the production cost or from the cost of sales.