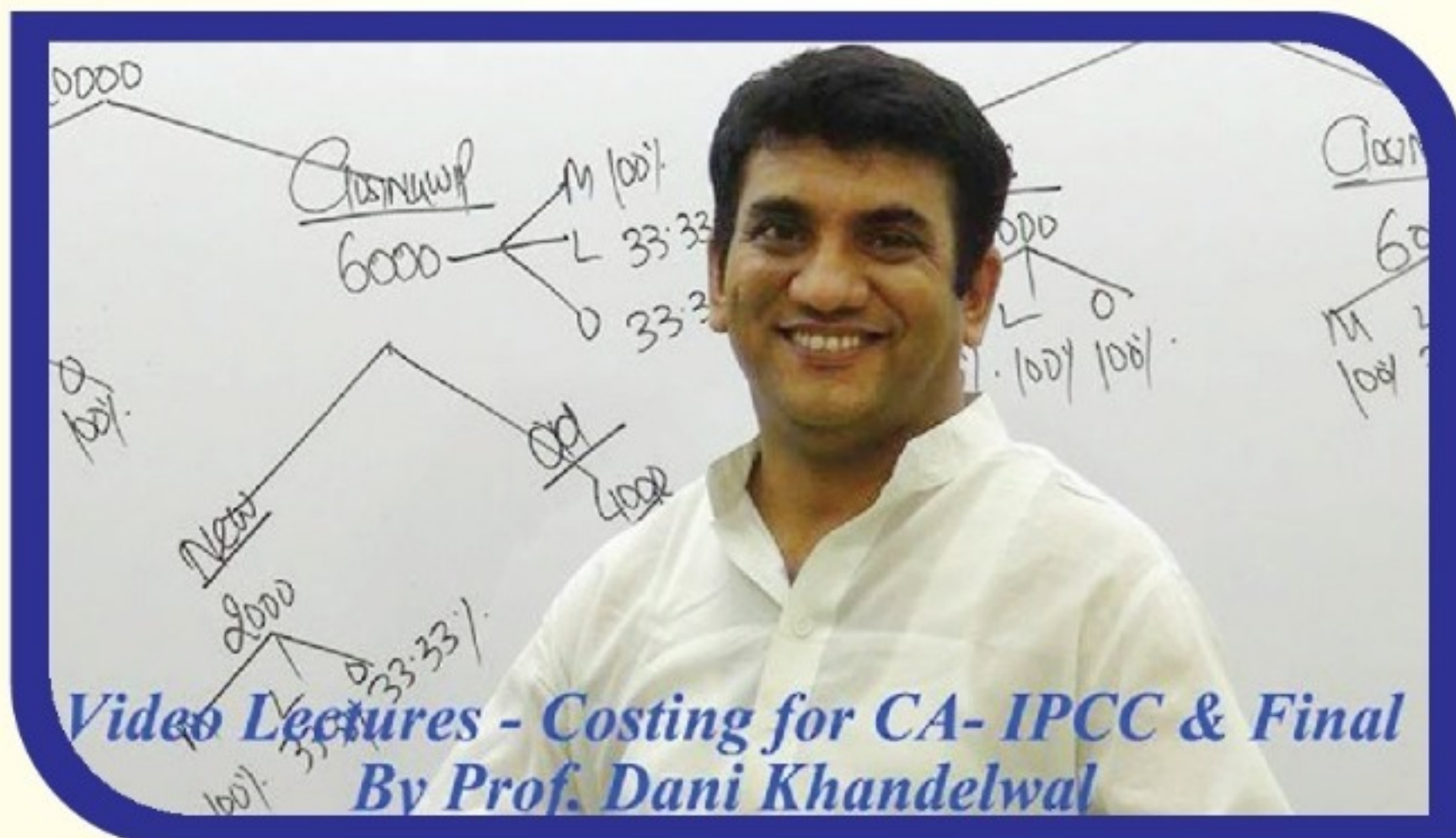




# CA INTER

Paper-3: Cost and Management Accounting

RTP IN DKC FORMAT



723, ECSTASY, CITY OF JOY, JSD ROAD,  
NEAR STATION, MULUND (W), MUMBAI 400080  
MOBILE : 9920443322 | Email id: educare@coppergate.in  
Website:-www.coppergateeducare.in

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

**QUESTIONS**

**Material Cost**

1. HBL Limited produces product 'M' which has a quarterly demand of 20,000 units. Each product requires 3 kg. and 4 kg. of material X and Y respectively. Material X is supplied by a local supplier and can be procured at factory stores at any time, hence, no need to keep inventory for material X. The material Y is not locally available, it requires to be purchased from other states in a specially designed truck container with a capacity of 10 tons.

The cost and other information related with the materials are as follows:

Particulars	Material - X	Material - Y
Purchase price per kg. (excluding GST)	₹140	₹640
Rate of GST	18%	18%
Freight per trip (fixed, irrespective of quantity)	-	₹28,000
Loss of materials in transit*	-	2%
Loss in process*	4%	5%

\*On purchased quantity

Other information:

- The company has to pay 15% p.a. to bank for cash credit facility.
- Input credit is available on GST paid on materials.

Required:

- (i) CALCULATE cost per kg. of material X and Y
- (ii) CALCULATE the Economic Order quantity for both the materials.

ANS (i) STATEMENT SHOWING COST PER KG

INPUT MATERIAL RATE =  $\frac{\text{TOTAL COST}}{\text{TOTAL QTY}}$  → NO. 10 - 1

(X)  $\frac{\text{---}}{\text{---}}$

(Y)  $\frac{\text{---}}{\text{---}}$

PRODUCTION (20000 UNITS X 4 QTR) = 80000

STATEMENT SHOWING TOTAL QTY

	<u>INPUT / PURCHASES</u>	<u>LOS / PURCHASE</u>	<u>INPUT FOR PRODUCT</u>
(X)	100%	4%	96%
	$(240000 \times 100)$		$80000 \times 3$
	= 240000	10000	= 240000

# STATEMENT SHOWING TOTAL QTY

<u>PURCHASES</u>	<u>LOSS IN TRANSIT/ LOSS IN PROGRESS/PURCHASES</u>	<u>INPUT</u>
100	2 + 5	93

$$\frac{320000 \times 100}{93} = 344086$$

$$= 320000 \quad (20000 \times 4 \times 4)$$

24086.02

OR

As per ICAL  
ROUND OFF  
344085

2 :	5
6881.72	17204.30

<u>6881</u>	<u>17204</u>
-------------	--------------

LOD.

344085

6881 + 17204

NET  
320000

Note - Input credit on GST paid is available; hence, it will not be included in cost of material.

(i) Calculation of cost per kg. of material X and Y:

Particulars	Mat-X	Mat-Y
Purchase quantity	2,50,000 kg.	3,44,085 kg.
Rate per kg.	₹140	₹640
Purchase price	₹3,50,00,000	₹22,02,14,400
Add: Freight	0	₹9,80,000*
Total cost	₹3,50,00,000	₹22,11,94,400
Net Quantity	2,40,000 kg.	3,20,000 kg.
Cost per kg.	₹145.83	₹691.23

\*No. of trucks =  $\frac{3,44,085 \text{ kg.}}{10 \text{ ton} \times 1,000} = 34.40$  trucks or 35 trucks

Therefore, total freight = 35 trucks × ₹28,000 = ₹9,80,000

(ii) Calculation of Economic Order Quantity (EOQ) for Mat.-X and Y:

$$EOQ = \sqrt{\frac{2 \times \text{Annual Requirement} \times \text{Order cost}}{\text{Carrying cost per unit p.a.}}}$$

Particulars	Mat-X	Mat-Y
Annual Requirement	2,50,000 kg.	3,44,085 kg.
Ordering cost	0	₹28,000
Cost per unit	₹145.83	₹691.23
Carrying cost	15%	15%
Carrying cost per unit p.a.	0*	₹103.68
EOQ	0	13,632.62 kg.

### Employee (Labour) Cost

2. ADV Pvt. Ltd. manufactures a product which requires skill and precision in work to get quality products. The company has been experiencing high labour cost due to slow speed of work. The management of the company wants to reduce the labour cost but without compromising with the quality of work. It wants to introduce a bonus scheme but is indifferent between the Halsey and Rowan scheme of bonus.

For the month of November 2019, the company budgeted for 24,960 hours of work. The workers are paid ₹80 per hour.

Required:

- (i) CALCULATE and suggest the bonus scheme where the time taken (in %) to time allowed to complete the works is (a) 100% (b) 75% (c) 50% & (d) 25% of budgeted hours.

2. The Cost of labour under the bonus schemes are tabulated as below:

Time Allowed	Time taken	Wages (₹) = (2) × ₹ 80	Bonus (₹)		Total Wages (₹)		Earning per hour (₹)	
			Halsey*	Rowan**	Halsey = (3) + (4)	Rowan = (3) + (5)	Halsey = (6)/(2)	Rowan = (7)/(2)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
24,960	24,960	19,96,800	-	-	19,96,800	19,96,800	80.00	80.00
24,960	18,720	14,97,600	2,49,600	3,74,400	17,47,200	18,72,000	93.33	100.00
24,960	12,480	9,98,400	4,99,200	4,99,200	14,97,600	14,97,600	120.00	120.00
24,960	6,240	4,99,200	7,48,800	3,74,400	12,48,000	8,73,600	200.00	140.00

\* Bonus under Halsey Plan = 50% of (Time Allowed – Time Taken) × Rate per hour

\*\* Bonus under Rowan Plan =  $\frac{\text{Time taken}}{\text{Time allowed}} \times \text{Time saved} \times \text{Rate per hour}$

Rowan scheme of bonus keeps checks on speed of work as the rate of incentive increases only upto 50% of time taken to time allowed but the rate decreases as the time taken to time allowed comes below 50%. It provides incentives for efficient workers for saving in time but also puts check on careless speed. On implementation of Rowan scheme, the management of ADV Pvt. Ltd. would resolve issue of the slow speed work while maintaining the skill and precision required maintaining the quality of product.

**Overheads-Absorption Costing Method**

3. PLR Ltd. manufactures a single product and recovers the overheads by adopting a single blanket rate based on machine hours. The budgeted production overheads of the factory for the FY 2019-20 are ₹50,40,000 and budgeted machine hours are 6,000.

For a period of first six months of the financial year 2019-20, following information were extracted from the books:

Actual production overheads	₹34,08,000
Amount included in the production overheads:	
Paid as per court's order	₹4,50,000
Expenses of previous year booked in current year	₹1,00,000
Paid to workers for strike period under an award	₹4,20,000
Obsolete stores written off	₹36,000

Production and sales data of the concern for the first six months are as under:

Production:	
Finished goods	1,10,000 units
Works-in-progress	
(50% complete in every respect)	80,000 units
Sale:	
Finished goods	90,000 units

The actual machine hours worked during the period were 3,000 hours. It is revealed from the analysis of information that 40% of the over/under-absorption was due to defective production policies and the balance was attributable to increase in costs.

You are required:

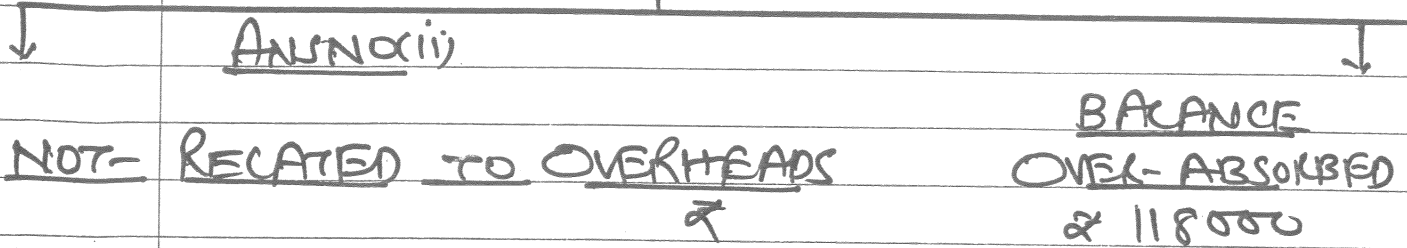
- (i) to determine the amount of over/ under absorption of production overheads for the period,
- (ii) to show the accounting treatment of over/ under-absorption of production overheads, and
- (iii) to apportion the over/ under-absorbed overheads over the items.

<u>NO. NO (i)</u>	<u>GIVEN</u>				
	<u>BUDGET</u>			<u>ACTUAL</u>	
	<u>MACHINE</u>	<u>R.R</u>	<u>EXP</u>	<u>MACHINE</u>	<u>EXP</u>
	<u>HRS</u>			<u>HRS</u>	
	<u>6000</u>	<u>840</u>	<u>5040,000</u>	<u>3000</u>	<u>3408000</u>

<u>F.O.A/c</u>			
TO BANK	3408000	By P.F. a/c (3000 X 840)	25,20,000
		By Balance	<u>888,000</u>

# ANALYSIS OF BALANCE

₹ 88,000



- |       |                     |               |
|-------|---------------------|---------------|
| (i)   | COURT ORDER         | 450,000       |
| (ii)  | EXP-P-YEAR          | 100,000       |
| (iii) | PAID TO WORKERS     | 420,000       |
| (iv)  | OBSOLETE STOCKS     | <u>36,000</u> |
|       |                     | 1,006,000     |
|       | <u>COSTING PLAC</u> | ↓             |

ANSNO(ii)

↓

DEFECTIVE PRODUCTION

$118,000 \times 40\%$

$= 47,200$

↓

COSTING PLAC

↓

NORMAL ENG-COST

$118,000 \times 60\%$

$= 70,800$

SUPP REC-MAT =  $\left( \frac{70,800}{1,500,000} \right)$

$\cdot 472 =$

↓ $1,100,000$	↓ <u>WIP</u>
	$80,000 \times 5\%$
	$= 4,000$

ANSNO(iii)

↓

90,000  
(sold)

$\times 0.472$

$= 42,480$

↓

COSTING PLAC

↓

FIN GOOD STOCK

30,000

$\times 0.472$

$= 9,440$

↓

WIP

40,000

$\times 0.472$

$= 18,880$

ACCOUNTING TREATMENT

COSTING PROCESS BY 10,06,000

TO F.O. AC 10,06,000

F.O. AC

₹ 118000

TO COSTING PLAC 47200

TO COSTING PCAC 42480

TO FIN GOODS 9440

TO WIP 18880

4. SMP Pvt. Ltd. manufactures three products using three different machines. At present the overheads are charged to products using labour hours. The following statement for the month of September 2019, using the absorption costing method has been prepared:

Particulars	Product X (using machine A)	Product Y (using machine B)	Product Z (using machine C)
Production units	45,000	52,500	30,000
Material cost per unit (₹)	350	460	410
Wages per unit @ ₹80 per hour	240	400	560
Overhead cost per unit (₹)	240	400	560
Total cost per unit (₹)	830	1,260	1,530
Selling price (₹)	1,037.50	1,575	1,912.50

The following additional information is available relating to overhead cost drivers.

Cost driver	Product X	Product Y	Product Z	Total
No. of machine set-ups	40	160	400	600
No. of purchase orders	400	800	1,200	2,400
No. of customers	1,000	2,200	4,800	8,000

Actual production and budgeted production for the month is same. Workers are paid at standard rate. Out of total overhead costs, 30% related to machine set-ups, 30% related to customer order processing and customer complaint management, while the balance proportion related to material ordering.

Required:

- COMPUTE overhead cost per unit using activity based costing method.
- DETERMINE the selling price of each product based on activity-based costing with the same profit mark-up on cost.

NO. (1)

TOTAL OVERHEADS

Product	Units		P.U.	*
X	45000	X	240	= 10800000
Y	52500	X	400	= 21000000
Z	30000	X	560	= 16800000
				<u>48600000</u>

ACTIVITIES

(1) MACHINE SETUP	(2) CUSTOMER ORDER	(3) MATERIAL ORDERING
30%	30%	40%
X 48600000	X 48600000	X 48600000
= 14580000	= 14580000	= 19440000



SCENARIO 1

STATEMENT SHOWING COST DRIVER RATE

<u>ACTIVITY</u>	<u>COST DRIVER USED</u>	$\frac{\text{ACTIVITY COST}}{\text{COST DRIVER}} = \text{COST DRIVER RATE}$
-----------------	-------------------------	---

(1) MACHINE SETUP  
 NO OF SETUP (40 + 160 + 400) = 600  
 $\left( \frac{14580000}{600} \right) = 24300$

(2) CUSTOMER ORDER  
 NO OF CUSTOMER (400 + 800 + 1200) = 2400  
 $\left( \frac{14580000}{2400} \right) = 6075$

(3) MATERIAL ORDERING  
 NO OF ~~CUSTOMER~~ <sup>PURCHASE ORDER</sup> (1000 + 2200 + 4800) = 8000  
 $\left( \frac{19440000}{8000} \right) = 2430$

SCENARIO 2 STATEMENT SHOWING COST DRIVER RATE

<u>ACTIVITY</u>	<u>PRODUCTS</u>	<u>P.U / P.P</u>	<u>COST DRIVER USED</u>	<u>X COST DRIVER RATE</u>	<u>C.D.R ÷ PRODUCT = P.U/P</u>
-----------------	-----------------	------------------	-------------------------	---------------------------	--------------------------------

		<u>NO OF SETUP</u>		
(1) MACHINE	X	40	X	24300 ÷ 45000 = 21.60
SETUP	Y	160	X	24300 ÷ 52500 = 74.06
	Z	400	X	24300 ÷ 30000 = 324.00

		<u>NO OF CUSTOMER</u>		
(2) CUSTOMER ORDER	(X)	400	X	6075 ÷ <del>24300</del> 45000 = 54
	(Y)	800	X	6075 ÷ <del>24300</del> 52500 = 92.57
	(Z)	1200	X	6075 ÷ <del>24300</del> 30000 = 243

		<u>NO OF P. ORDER</u>		
(3) MATERIAL ORDERING	X	1000 <del>4000</del>	X	2430 ÷ 45000 = <del>1000</del> 54
	Y	2200 <del>800</del>	X	2430 ÷ 52500 = <del>200</del> 101.83
	Z	4800 <del>1500</del>	X	2430 ÷ 30000 = <del>57000</del> 388.8

SCOP NO(1)

STATEMENT SHOWING COST DRIVER RATE

ACTIVITY COST DRIVER USED  $\left( \frac{\text{ACTIVITY COST}}{\text{COST DRIVER}} \right) = \text{COST DRIVER RATE}$

(1) MACHINE SETUP

NO OF SETUP  
(40 + 160 + 400)  
= 600

$\left( \frac{14580000}{600} \right)$   
= 24300

(2) CUSTOMER ORDER

NO OF CUSTOMER  
(400 + 800 + 1200)  
= 2400

$\left( \frac{14580000}{2400} \right)$   
= 6075

(3) MATERIAL ORDERING

NO OF <sup>PURCHASE ORDER</sup> ~~ORDER~~  
(1000 + 2200 + 4800)  
= 8000

$\left( \frac{19440000}{8000} \right)$   
= 2430

SCOP NO(2) STATEMENT SHOWING COST DRIVER RATE

P-U / P-P

ACTIVITY PRODUCTS COST DRIVER X COST DRIVER RATE  $\div$  PRODUCTION = P-U/P

NO OF SETUP

(1) MACHINE SETUP	X	40	X	24300 $\div$ 45000 =	21.60
	X	160	X	24300 $\div$ 52500 =	74.06
	Z	400	X	24300 $\div$ 30000 =	324.00

(2) CUSTOMER ORDER

NO OF CUSTOMER

(X)	400	X	6075 $\div$ <del>24300</del> 45000 =	54
(Y)	800	X	6075 $\div$ <del>24300</del> 52500 =	92.57
(Z)	1200	X	6075 $\div$ <del>24300</del> 30000 =	243

(3) MATERIAL ORDERING

NO OF P-ORDER

X	1000	X	2430 $\div$ 45000 =	<del>1000</del> 54
X	2200	X	2430 $\div$ 52500 =	32.02 10/83
X	4800	X	2430 $\div$ 30000 =	<del>24300</del> 70.0

5. DFG Ltd. manufactures leather bags for office and school purpose. The following information is related with the production of leather bags for the month of September 2019.

- (i) Leather sheets and cotton cloths are the main inputs, and the estimated requirement per bag is two meters of leather sheets and one meter of cotton cloth. 2,000 meter of leather sheets and 1,000 meter of cotton cloths are purchased at ₹3,20,000 and ₹15,000 respectively. Freight paid on purchases is ₹8,500.
- (ii) Stitching and finishing need 2,000 man hours at ₹80 per hour.
- (iii) Other direct cost of ₹10 per labour hour is incurred.
- (iv) DFG has 4 machines at a total cost of ₹22,00,000. Machine has a life of 10 years with a scrape value of 10% of the original cost. Depreciation is charged on straight line method.
- (v) The monthly cost of administrative and sales office staffs are ₹45,000 and ₹72,000 respectively. DFG pays ₹1,20,000 per month as rent for a 2400 sq. feet factory premises. The administrative and sales office occupies 240 sq. feet and 200 sq. feet respectively of factory space.
- (vi) Freight paid on delivery of finished bags is ₹18,000.
- (vii) During the month 35 kg. of leather and cotton cuttings are sold at ₹150 per kg.
- (viii) There is no opening and closing stocks for input materials. There is 100 bags in stock at the end of the month.

Required:

PREPARE a cost sheet following functional classification for the month of September 2019.

5. No. of bags manufactured = 1,000 units

**Cost sheet for the month of September 2019**

	Particulars	Total Cost (₹)	Cost per unit (₹)
1.	Direct materials consumed:		
	- Leather sheets	3,20,000	320.00
	- Cotton cloths	15,000	15.00
	Add: Freight paid on purchase	8,500	8.50
2.	Direct wages (₹80 × 2,000 hours)	1,60,000	160.00
3.	Direct expenses (₹10 × 2,000 hours)	20,000	20.00
4.	<b>Prime Cost</b>	<b>5,23,500</b>	<b>523.50</b>
5.	Factory Overheads: Depreciation on machines {(₹22,00,000 × 90%) ÷ 120 months}	16,500	16.50
	Apportion cost of factory rent	98,000	98.00
6.	<b>Works/ Factory Cost</b>	<b>6,38,000</b>	<b>638.00</b>
7.	Less: Realisable value of cuttings (₹150 × 35 kg.)	(5,250)	(5.25)
8.	<b>Cost of Production</b>	<b>6,32,750</b>	<b>632.75</b>
9.	Add: Opening stock of bags	0	
10.	Less: Closing stock of bags (100 bags × ₹632.75)	(63,275)	
11.	<b>Cost of Goods Sold</b>	<b>5,69,475</b>	<b>632.75</b>
12.	Add: Administrative Overheads:		
	- Staff salary	45,000	45.00
	- Apportioned rent for administrative office	12,000	12.00
13.	Add: Selling and Distribution Overheads		
	- Staff salary	72,000	80.00
	- Apportioned rent for sales office	10,000	11.11
	- Freight paid on delivery of bags	18,000	20.00
14.	<b>Cost of Sales (18+19+20)</b>	<b>7,26,475</b>	<b>800.86</b>

**Apportionment of Factory rent:**

To factory building {(₹1,20,000 ÷ 2400 sq. feet) × 1,960 sq. feet} = ₹98,000

To administrative office {(₹1,20,000 ÷ 2400 sq. feet) × 240 sq. feet} = ₹12,000

To sale office {(₹1,20,000 ÷ 2400 sq. feet) × 200 sq. feet} = ₹10,000



6.

**Cost Ledger Control Account**

Dr.

Cr.

	(₹)		(₹)
To Store Ledger Control A/c	65,000	By Opening Balance	34,25,000
To Balance c/d	47,10,000	By Store ledger control A/c	6,25,000
		By Manufacturing Overhead Control A/c	4,25,000
		By Wages Control A/c	3,00,000
	47,75,000		47,75,000

**Stores Ledger Control Account**

Dr.

Cr.

	(₹)		(₹)
To Opening Balance	15,00,000	By WIP Control A/c	6,75,000
To Cost ledger control A/c	6,25,000	By Cost ledger control A/c (Returns)	65,000
		By Balance c/d	13,85,000
	21,25,000		21,25,000

**WIP Control Account**

Dr.

Cr.

	(₹)		(₹)
To Opening Balance	7,50,000	By Finished Stock Ledger Control A/c	11,25,000
To Wages Control A/c	2,00,000	By Balance c/d	9,25,000
To Stores Ledger Control A/c	6,75,000		
To Manufacturing Overhead Control A/c	4,25,000		
	20,50,000		20,50,000

**Finished Stock Ledger Control Account**

Dr.

Cr.

	(₹)		(₹)
To Opening Balance	12,50,000	By Cost of Sales	8,75,000
To WIP Control A/c	11,25,000	By Balance c/d	15,45,000
To Cost of Sales A/c (Sales Return)	45,000		
	24,20,000		24,20,000

**Manufacturing Overhead Control Account**

	(₹)		(₹)
To Cost Ledger Control A/c	4,25,000	By Opening Balance	75,000
To Wages Control A/c	1,00,000	By WIP Control A/c	4,25,000
		By Under recovery c/d	25,000
	5,25,000		5,25,000

**Wages Control Account**

Dr.		Cr.	
	(₹)	(₹)	
To Transfer to Cost Ledger Control A/c	3,00,000	By WIP Control A/c	2,00,000
		By Manufacturing Overhead Control A/c	1,00,000
	3,00,000		3,00,000

**Cost of Sales Account**

Dr.		Cr.	
	(₹)	(₹)	
To Finished Stock Ledger Control A/c	8,75,000	By Finished Stock Ledger Control A/c (Sales return)	45,000
		By Balance c/d	8,30,000
	8,75,000		8,75,000

**Trial Balance**

	(₹)	(₹)
Stores Ledger Control A/c	13,85,000	
WIP Control A/c	9,25,000	
Finished Stock Ledger Control A/c	15,45,000	
Manufacturing Overhead Control A/c	25,000	
Cost of Sales A/c	8,30,000	

Cost ledger control A/c	—	47,10,000
	47,10,000	47,10,000



GVL Ltd.  
Contract A/c  
(April 1, 2018 to March 31, 2019)

Particulars	Amount (₹)	Particulars	Amount (₹)
To Materials Issued	18,24,000	By Plant returned to Stores (Working Note 1)	2,40,000
To Labour 12,20,000		By Materials at Site	1,20,000
Add: Outstanding 96,000	13,16,000	By W.I.P.	
To Plant Purchased	9,00,000	Certified 51,00,000	
To Expenses 4,00,000		Uncertified 1,60,000	52,60,000
Less: Prepaid 90,000	3,10,000	By Plant at Site (Working Note 2)	4,80,000
To Notional Profit	17,50,000		
	61,00,000		61,00,000

GVL Ltd.  
Contract A/c  
(April 1, 2018 to September 30, 2019)  
(For Computing estimated profit)

Particulars	Amount (₹)	Particulars	Amount (₹)
To Materials Issued (₹ 18,24,000 + ₹32,56,000)	50,80,000	By Material at Site	3,00,000
To Labour Cost (₹12,20,000 + ₹96,000 + ₹14,24,000* + ₹1,50,000)	28,90,000	By Plant returned to Stores on 31.03.2019.	2,40,000
To Plant purchased	9,00,000	By Plant returned to Stores on 30.09.2019 (Working Note 3)	4,32,000
To Expenses (₹3,10,000 + ₹7,90,000 + ₹1,00,000)	12,00,000	By Contractee A/c	1,08,50,000
To Estimated profit	17,52,000		
	1,18,22,000		1,18,22,000

\* Labour paid in 2019-20: ₹15,20,000 – ₹96,000 = ₹14,24,000

**Working Notes**

	(₹)
<b>1. Value of the Plant returned to Stores on 31.03.2019</b>	
Historical Cost of the Plant returned	3,00,000
Less: Depreciation @ 20% of WDV for one year	(60,000)
	<u>2,40,000</u>
<b>2. Value of Plant at Site 31.03.2019</b>	
Historical Cost of Plant at Site (₹9,00,000 – ₹3,00,000)	6,00,000
Less: Depreciation @ 20% on WDV for one year	(1,20,000)
	<u>4,80,000</u>
<b>3. Value of Plant returned to Stores on 30.09.2019</b>	
Value of Plant (WDV) on 31.3.2019	4,80,000
Less: Depreciation @ 20% of WDV for a period of 6 months	(48,000)
	<u>4,32,000</u>
<b>4. Expenses Paid for the year 2018-19</b>	
Total expenses paid	4,00,000
Less: Pre-paid at the end	(90,000)
	<u>3,10,000</u>



### Batch Costing

8. BTL LLP. manufactures glass bottles for HDL Ltd., a pharmaceutical company, which is in ayurvedic medicines business.

BTL can produce 2,00,000 bottles in a month. Set-up cost of each production run is ₹ 5,200 and the cost of holding one bottle for a year is ₹ 1.50.

As per an estimate HDL Ltd. can order as much as 19,00,000 bottles in a year spreading evenly throughout the year.

At present the BTL manufactures 1,60,000 bottles in a batch.

Required:

- (i) COMPUTE the Economic Batch Quantity for bottle production.
- (ii) COMPUTE the annual cost saving to BTL by adopting the EBQ of a production.

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

Where, D = Annual demand for the product

S = Setting up cost per batch

C = Carrying cost per unit of production

- (i) Computation of EBQ :

$$= \sqrt{\frac{2 \times 19,00,000 \times ₹5,200}{₹1.5}}$$

= 1,14,775 bottles

- (ii) Computation of savings in cost by adopting EBQ:

Batch Size	No. of Batch	Set-up cost	Carrying cost	Total Cost
1,60,000 bottles	12	62,400 (₹5,200 × 12)	1,20,000 (₹1.5 × ½ × 1,60,000)	1,82,400
1,14,775 bottles	17	88,400 (₹5,200 × 17)	86,081.25 (₹1.5 × ½ × 1,14,775)	1,74,481.25
Saving				7,918.75

### Job Costing

9. Ispat Engineers Limited (IEL) undertook a plant manufacturing work for a client. It will charge a profit mark-up of 20% on the full cost of the jobs. The following are the information related to the job:

Direct materials utilised – ₹1,87,00,000

Direct labour utilised – 2,400 hours at ₹80 per hour

Budgeted production overheads are Rs. 48,00,000 for the period and are recovered on the basis of 24,000 labour hours.

Budgeted selling and administration overheads are ₹18,00,000 for the period and recovered on the basis of total budgeted total production cost of ₹36,00,00,000.

**Required:**

CALCULATE the price to be charged for the job.

### 9. Calculation of job price

Particulars	Amount (₹)
Direct materials	1,87,00,000
Direct wages (₹80 × 2,400 hours)	1,92,000
Production overheads $\left( \frac{₹48,00,000}{24,000\text{hrs}} \times 2,400\text{hrs} \right)$	4,80,000
<b>Production cost</b>	<b>1,93,72,000</b>
Selling and administration overheads $\left( \frac{₹18,00,000}{₹36,00,00,000} \times ₹1,93,72,000 \right)$	96,860
<b>Total cost of sales</b>	<b>1,94,68,860</b>
Profit mark-up @ 20%	38,93,772
<b>Price for the job</b>	<b>2,33,62,632</b>

### Service Costing

10. A transport company has a fleet of four trucks of 10 tonne capacity each plying in different directions for transport of customer's goods. The trucks run loaded with goods and return empty. The distance travelled, number of trips made and the load carried per day by each truck are as under:

Truck No.	One way Distance Km	No. of trips per day	Load carried per trip / day tonnes
1	48	4	6
2	120	1	9
3	90	2	8
4	60	4	8

The analysis of maintenance cost and the total distance travelled during the last two years is as under

Year	Total distance travelled	Maintenance Cost ₹
1	1,60,200	1,38,150
2	1,56,700	1,35,525

The following are the details of expenses for the year under review:

Diesel	₹ 60 per litre. Each litre gives 4 km per litre of diesel on an average.
Driver's salary	₹ 22,000 per truck per month
Licence and taxes	₹ 15,000 per annum per truck
Insurance	₹ 80,000 per annum for all the four trucks
Purchase Price per truck	₹ 30,00,000, Life 10 years. Scrap value at the end of life is ₹ 1,00,000.
Oil and sundries	₹ 525 per 100 km run.
General Overhead	₹ 1,10,840 per annum

The trucks operate 24 days per month on an average.

#### Required

- PREPARE an Annual Cost Statement covering the fleet of four trucks.
- CALCULATE the cost per km. run.
- DETERMINE the freight rate per tonne km. to yield a profit of 30% on freight.

#### 10. (i) Annual Cost Statement of four vehicles

	(₹)
Diesel $\{(4,21,632 \text{ km.} + 4 \text{ km}) \times ₹ 60\}$ (Refer to Working Note 1)	63,24,480
Oil & sundries $\{(4,21,632 \text{ km.} + 100 \text{ km.}) \times ₹ 525\}$	22,13,568
Maintenance $\{(4,21,632 \text{ km.} \times ₹ 0.75) + ₹ 18,000\}$ (Refer to Working Note 2)	3,34,224
Drivers' salary $\{(₹ 22,000 \times 12 \text{ months}) \times 4 \text{ trucks}\}$	10,56,000
Licence and taxes $(₹ 15,000 \times 4 \text{ trucks})$	60,000
Insurance	80,000
Depreciation $\{(₹ 29,00,000 + 10 \text{ years}) \times 4 \text{ trucks}\}$	11,60,000
General overhead	1,10,840
<b>Total annual cost</b>	<b>1,13,39,112</b>

#### (ii) Cost per km. run

$$\text{Cost per kilometer run} = \frac{\text{Total annual cost of vehicles}}{\text{Total kilometre travelled annually}} \quad (\text{Refer to Working Note 1})$$

$$= \frac{1,13,39,112}{4,21,632 \text{ Kms}} = ₹ 26.89$$

(iii) Freight rate per tonne km (to yield a profit of 30% on freight)

$$\begin{aligned} \text{Cost per tonne km.} &= \frac{\text{Total annual cost of three vehicles}}{\text{Total effective tonnes kms. per annum}} \quad (\text{Refer to Working Note 1}) \\ &= \frac{₹ 1,13,39,112}{16,10,496 \text{ kms}} = ₹ 7.04 \end{aligned}$$

$$\text{Freight rate per tonne km.} \left( \frac{₹ 7.04}{0.7} \right) \times 1 = ₹ 10.06$$

Working Notes:

1. Total kilometre travelled and tonnes kilometre (load carried) by four trucks in one year

Truck number	One way distance in kms	No. of trips	Total distance covered in km per day	Load carried per trip / day in tonnes	Total effective tonnes km
1	48 × 2	× 4	384 $\frac{1}{1}$	2 × 6	1,152
2	120 × 2	× 1	240 $\frac{1}{1}$	2 × 9	1,080
3	90 × 2	× 2	360 $\frac{1}{1}$	2 × 8	1,440
4	60 × 2	× 4	480 $\frac{1}{1}$	2 × 8	1,920
Total			1,464		5,592

Total kilometre travelled by four trucks in one year

$$(1,464 \text{ km.} \times 24 \text{ days} \times 12 \text{ months}) = 4,21,632$$

Total effective tonnes kilometre of load carried by four trucks during one year

$$(5,592 \text{ tonnes km.} \times 24 \text{ days} \times 12 \text{ months}) = 16,10,496$$

2. Fixed and variable component of maintenance cost

$$\text{Variable maintenance cost per km} = \frac{\text{Difference in maintenance cost}}{\text{Difference in distance travelled}}$$

$$\begin{aligned} &= \frac{₹ 1,38,150 - ₹ 1,35,525}{1,60,200 \text{ kms} - 1,56,700 \text{ kms}} \\ &= ₹ 0.75 \end{aligned}$$

$$\text{Fixed maintenance cost} = \text{Total maintenance cost} - \text{Variable maintenance cost}$$

$$= ₹ 1,38,150 - 1,60,200 \text{ kms} \times ₹ 0.75 = ₹ 18,000$$

**Process Costing**

11. A product is manufactured in two sequential processes, namely Process-1 and Process-2. The following information relates to Process-1. At the beginning of June 2019, there were 1,000 WIP goods (60% completed in terms of conversion cost) in the inventory, which are valued at ₹2,86,020 (Material cost ₹2,55,000 and Conversion cost ₹31,020). Other information relating to Process-1 for the month of June 2019 is as follows;

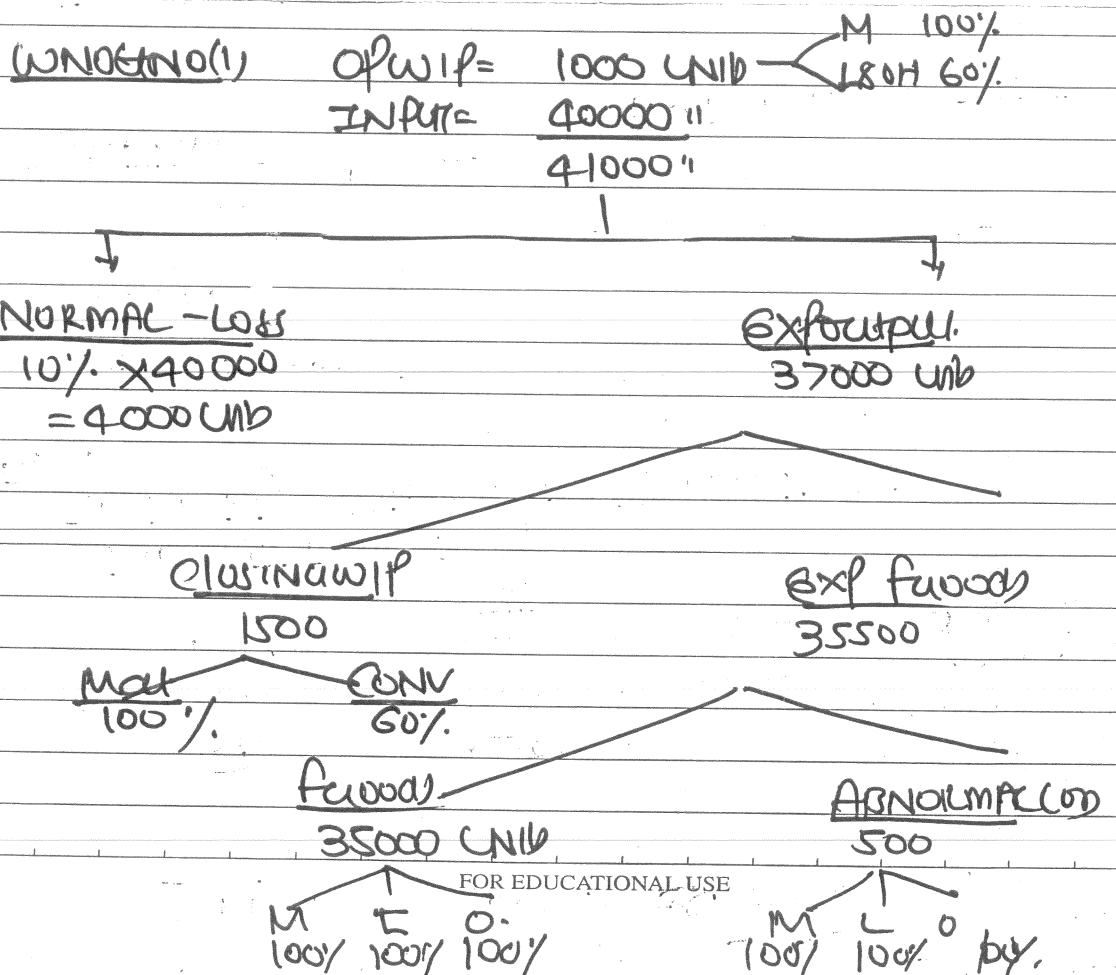
Cost of materials introduced- 40,000 units (₹)	96,80,000
Conversion cost added (₹)	18,42,000
Transferred to Process-2 (Units)	35,000

Closing WIP (Units) (60% completed in terms of conversion cost)	1,500
---	-------

100% of materials are introduced to Process-1 at the beginning. Normal loss is estimated at 10% of input materials (excluding opening WIP).

Required:

- (i) PREPARE a statement of equivalent units using the weighted average cost method and thereby calculate the following:
- (ii) CALCULATE the value of output transferred to Process-2 and closing WIP.



ANSNO(i)

SOBNO(i) STATEMENT SHOWING FAV PRODUON

INPUT	PARTICULARS	Output	MATERIALS		CONVERSION	
			%	Qty	%	Qty
1000	Opwif					
40000	INPUT					
	Food	35000	100%	35000	100%	35000
	WIP (Curing)	1500	100%	1500	60%	900
	NCO	4000	-	-	-	-
	ABNCO	500	100%	500	100%	500
<u>41000</u>		<u>41000</u>		<u>37000</u>		<u>36400</u>

WRONGLY SOLVED BY I.C.A.I.

SOBNO(2) STATEMENT SHOWING COST PER UNIT

MATERIALS  
 $(255000 + 968000) \div 37000 = \text{C.P.U.} = 268.51$

CONVERSION COST  
 $(31020 + 184200) \div 36400 = 51.45$

ANSNO(ii)

STATEMENT SHOWING VALUATION OF:

(i) FINISHED Goods

	Unit		₹
MAT	35000	$35000 \times 268.51 =$	93,97,850
CONV	35000	$35000 \times 51.45 =$	18,00,750
			<u>11,98,600</u>

(ii) WIP

MAT	1500	$1500 \times 268.51 =$	4,02,765
CONV	900	$900 \times 51.45 =$	46,305
			<u>4,49,070</u>

# AS-PER-SINGLE PLAN

## Standard Costing

12. JVG Ltd. produces a product and operates a standard costing system and value material and finished goods inventories at standard cost. The information related with the product is as follows:

Particulars	Cost per unit (₹)
Direct materials (30 kg at ₹350 per kg)	10,500
Direct labour (5 hours at ₹80 per hour)	400

The actual information for the month just ended is as follows:

- The budgeted and actual production for the month of September 2019 is 1,000 units.
- Direct materials - 5,000 kg at the beginning of the month. The closing balance of direct materials for the month was 10,000 kg. Purchases during the month were made at ₹ 365 per kg. The actual utilization of direct materials was 7,200 kg more than the budgeted quantity.
- Direct labour - 5,300 hours were utilised at a cost of ₹ 4,34,600.

Required:

CALCULATE (i) Direct material price and usage variances (ii) Direct labour rate and efficiency variances.

<u>SOON (1) MATERIAL VARIANCE - Actual Output - 1000</u>			<u>ACTUAL CONSUMED</u>		
<u>STANDARD</u>			<u>ACTUAL</u>		
<u>Kg</u>	<u>Rate</u>	<u>Amount</u>	<u>Kg</u>	<u>Rate</u>	<u>Amount</u>
30000 X (1000 X 30)	350 =	10,50,000	37200 X * (30000 + 7200)	365 =	13578000

ACTUAL PURCHASE = 37200 + 10000 - 5000 = 42200

### LABOUR VARIANCE

<u>STANDARD</u>			<u>ACTUAL</u>		
<u>Hrs</u>	<u>Rate</u>	<u>Amount</u>	<u>Hrs</u>	<u>Rate</u>	<u>Amount</u>
5000 X (1000 X 5)	80 =	400000	5300 X	82 =	434600

~~MATERIAL COST VARIANCE~~  
~~(10500000 - 13578000) = 3078000 (A)~~

Material Usage Var  
 (30000 - 37200)  
 X 350  
 = 2520000 (A)

AS-PER-SINGLE PLAN.  
Material Purchase 42200  
 (350 - 365) X 42200  
 = 633000 (A)

## Labour Cost Variance

$$(400000 - 434600) = 34600 (A)$$

Labour Eff. Variance

$$\begin{aligned} & (5000 - 5300) \times 80 \\ & = 24000 (A) \end{aligned}$$

Labour Rate Variance

$$\begin{aligned} & (80 - 82) \times 5300 \\ & = 10600 (A) \end{aligned}$$



**Marginal Costing**

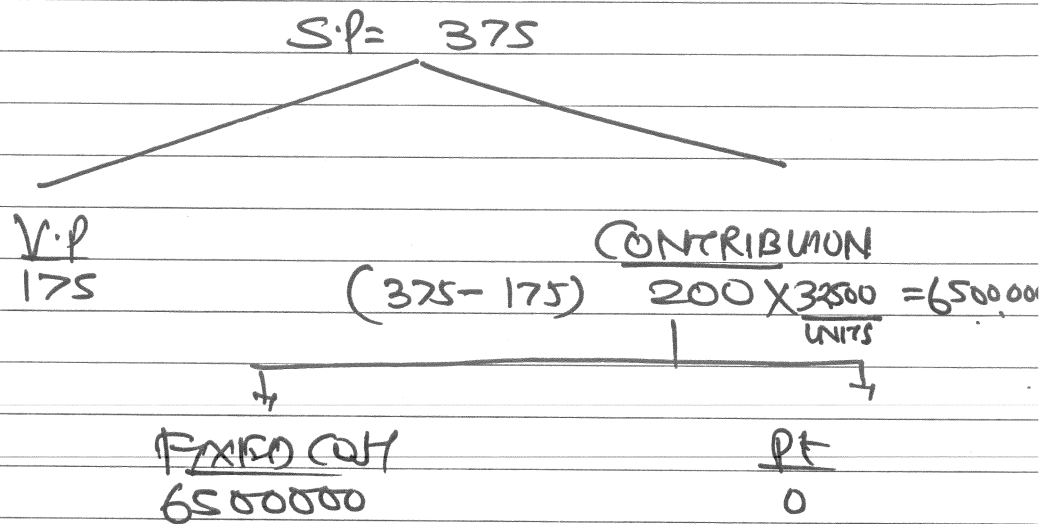
13. PVC Ltd sold 55,000 units of its product at ₹375 per unit. Variable costs are ₹175 per unit (manufacturing costs of ₹140 and selling cost ₹35 per unit). Fixed costs are incurred uniformly throughout the year and amount to ₹65,00,000 (including depreciation of ₹15,00,000). There is no beginning or ending inventories.

Required:

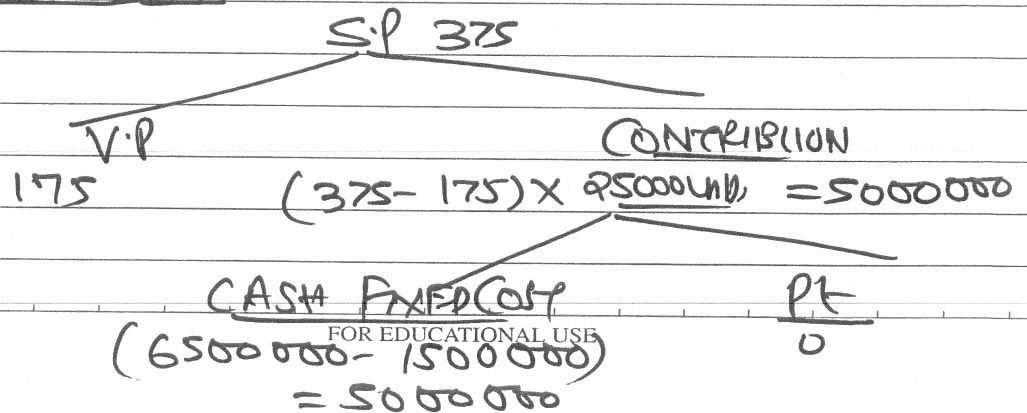
- (i) COMPUTE breakeven sales level quantity and cash breakeven sales level quantity.
- (ii) COMPUTE the PV ratio.
- (iii) COMPUTE the number of units that must be sold to earn an income (EBIT) of ₹5,00,000.
- (iv) COMPUTE the sales level, achieve an after-tax income (PAT) of ₹5,00,000, assume 40% corporate tax rate.

ANSNO (i)

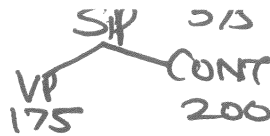
STATEMENT SHOWING (i) B.E.P. POINT



CASH B.E.P.:-



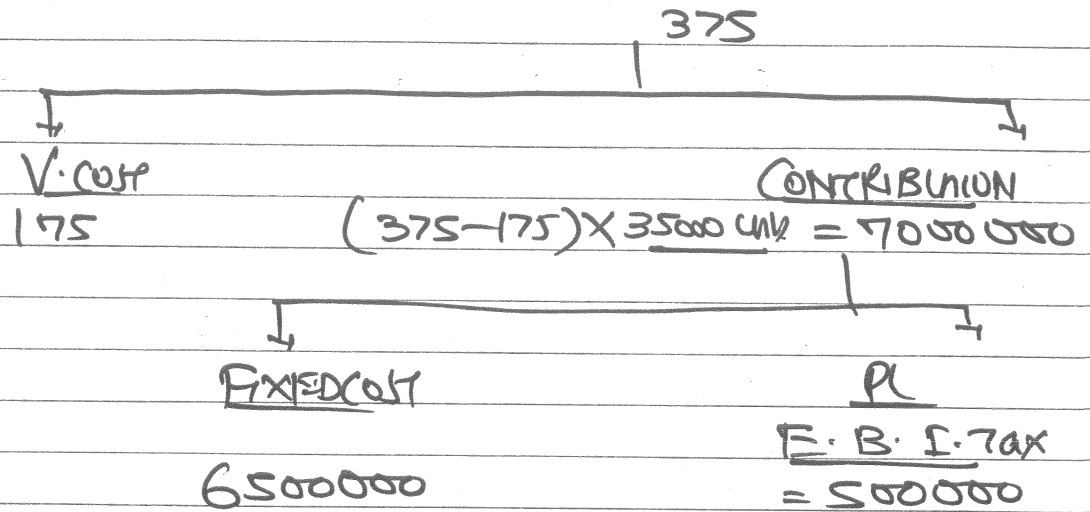
ANSNO (iii)



Pr. Ratio =  $\left(\frac{200 \times 100}{375}\right)$   
53.33%

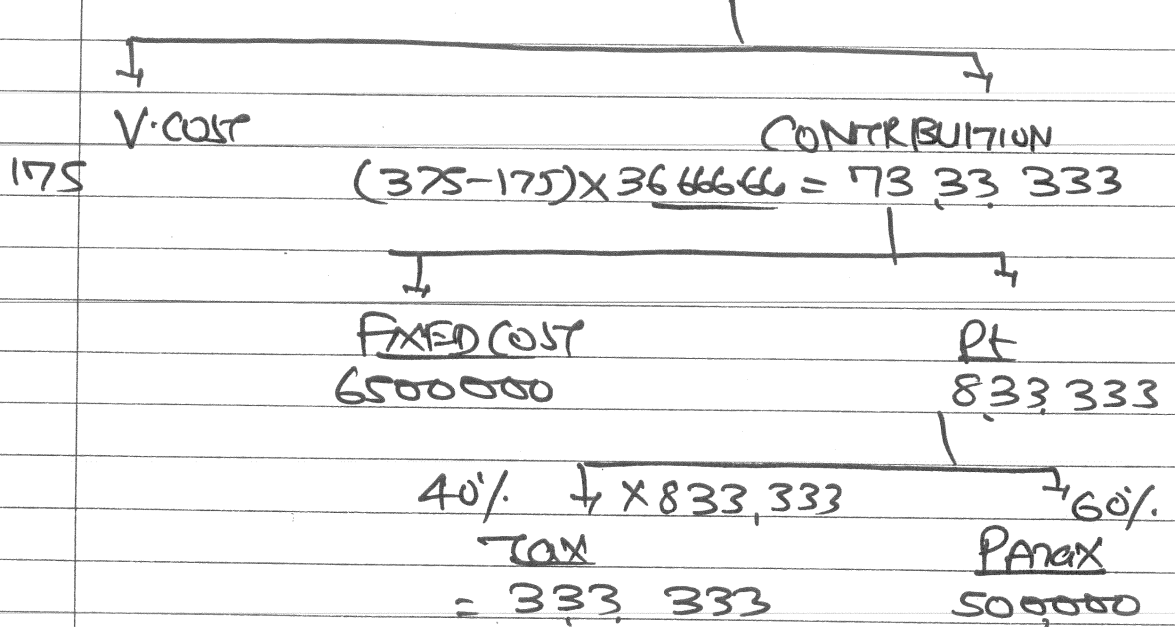
ANSNO (iii)

EXPECTED SALES FOR FIXED PT



ANSNO- (iv)

EXP. SALES - FOR - FIXED PT = 375



$\checkmark$   $36666.6666 \times 375 = 13750000$

### Budget and Budgetary Control

14. KLM Limited has prepared its expense budget for 50,000 units in its factory for the year 2019-20 as detailed below:

	(₹ per unit)
Direct Materials	125
Direct Labour	50
Variable Overhead	40
Direct Expenses	15
Selling Expenses (20% fixed)	25
Factory Expenses (100% fixed)	15
Administration expenses (100% fixed)	8
Distribution expenses (85% variable)	20
Total	298

PREPARE an expense budget for the production of 35,000 units and 70,000 units.

#### 14. Expense Budget of KLM Ltd.

Particulars	50,000 Units (₹)	35,000 Units (₹)	70,000 Units (₹)
Direct Material	62,50,000 (50,000 x 125)	43,75,000 (35,000 x 125)	87,50,000 (70,000 x 125)
Direct Labour	25,00,000 (50,000 x 50)	17,50,000 (35,000 x 50)	35,00,000 (70,000 x 50)
Variable Overhead	20,00,000 (50,000 x 40)	14,00,000 (35,000 x 40)	28,00,000 (70,000 x 40)
Direct Expenses	7,50,000 (50,000 x 15)	5,25,000 (35,000 x 15)	10,50,000 (70,000 x 15)
Selling Expenses (Variable)*	10,00,000 (50,000 x 20)	7,00,000 (35,000 x 20)	14,00,000 (70,000 x 20)
Selling Expenses (Fixed)* (5 x 50,000)	2,50,000	2,50,000	2,50,000
Factory Expenses (Fixed) (15 x 50,000)	7,50,000	7,50,000	7,50,000
Administration Expenses (Fixed) (8 x 50,000)	4,00,000	4,00,000	4,00,000
Distribution Expenses (Variable)**	8,50,000 (17 x 50,000)	5,95,000 (17 x 35,000)	11,90,000 (17 x 70,000)
Distribution Expenses (Fixed)** (3 x 50,000)	1,50,000	1,50,000	1,50,000
	1,49,00,000	1,08,95,000	2,02,40,000

\*Selling Expenses: Fixed cost per unit = ₹25 x 20% = ₹5

Fixed Cost = ₹5 x 50,000 units = ₹2,50,000

Variable Cost Per unit = ₹25 - ₹5 = ₹20

\*\*Distribution Expenses: Fixed cost per unit = ₹20 x 15% = ₹3

Fixed Cost = ₹3 x 50,000 units = ₹1,50,000

**Miscellaneous**

15. (i) DIFFERENTIATE between Cost Accounting and Management Accounting.  
 (ii) EXPLAIN the meaning of Budget Manual.  
 (iii) EXPLAIN the term Equivalent units used in process industries.

15. (i) Difference between Cost Accounting and Management Accounting

	Basis	Cost Accounting	Management Accounting
(i)	Nature	It records the quantitative aspect only.	It records both qualitative and quantitative aspect.
(ii)	Objective	It records the cost of producing a product and providing a service.	It Provides information to management for planning and co-ordination.
(iii)	Area	It only deals with cost Ascertainment	It is wider in scope as it includes financial accounting, budgeting, taxation, planning etc.
(iv)	Recording of data	It uses both past and present figures.	It is focused with the projection of figures for future.
(v)	Development	Its development is related to industrial revolution.	It develops in accordance to the need of modern business world.
(vi)	Rules and Regulation	It follows certain principles and procedures for recording costs of different products.	It does not follow any specific rules and regulations.

(ii) **Budget Manual:** A budget manual is a collection of documents that contains key information for those involved in the planning process. Typical contents could include the following:

- An introductory explanation of the budgetary planning and control process, including a statement of the budgetary objective and desired results.
- A form of organisation chart to show who is responsible for the preparation of each functional budget and the way in which the budgets are interrelated.
- A timetable for the preparation of each budget. This will prevent the formation of a 'bottleneck' with the late preparation of one budget holding up the preparation of all others.
- Copies of all forms to be completed by those responsible for preparing budgets, with explanations concerning their completion.
- A list of the organization's account codes, with full explanations of how to use them.
- Information concerning key assumptions to be made by managers in their budgets, for example the rate of inflation, key exchange rates, etc.

(iii) **Equivalent Units:** Equivalent units or equivalent production units, means converting the incomplete production units into their equivalent completed units. Under each process, an estimate is made of the percentage completion of work-in-process with regard to different elements of costs, viz, material, labour and overheads. It is important that the estimate of percentage of completion should be as accurate as possible. The formula for computing equivalent completed units is:

$$\text{Equivalent completed units} = \left( \frac{\text{Actual number of units in the process of manufacture}}{\text{the process of manufacture}} \right) \times \left( \frac{\text{Percentage of Work completed}}{\text{Work completed}} \right)$$

For instance, if 25% of work has been done on the average of units still under process, then 200 such units will be equal to 50 completed units and the cost of work-in-process will be equal to the cost of 50 finished units.

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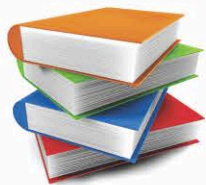
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