

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%

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:

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

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:

- 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.

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.

Overheads-Activity Based Costing (ABC) Method

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 (₹)	300	500	700
Total cost per unit (₹)	890	1,360	1,670
Selling price (₹)	1,112.50	1,700	2,087.50

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:

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

Cost Sheet

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 scrap 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.

Cost Accounting Systems

6. As of 30th September, 2019, the following balances existed in a firm's cost ledger, which is maintained separately on a double entry basis:

	Debit (₹)	Credit (₹)
Stores Ledger Control A/c	15,00,000	—
Work-in-progress Control A/c	7,50,000	—
Finished Goods Control A/c	12,50,000	—
Manufacturing Overhead Control A/c	—	75,000
Cost Ledger Control A/c	—	34,25,000
	35,00,000	35,00,000

During the next quarter, the following items arose:

	(₹)
Finished Product (at cost)	11,25,000
Manufacturing overhead incurred	4,25,000
Raw material purchased	6,25,000
Factory wages	2,00,000
Indirect labour	1,00,000
Cost of sales	8,75,000
Materials issued to production	6,75,000

Sales returned (at cost)	45,000
Materials returned to suppliers	65,000
Manufacturing overhead charged to production	4,25,000

Required:

PREPARE the Cost Ledger Control A/c, Stores Ledger Control A/c, Work-in-progress Control A/c, Finished Stock Ledger Control A/c, Manufacturing Overhead Control A/c, Wages Control A/c, Cost of Sales A/c and the Trial Balance at the end of the quarter.

Contract Costing

7. GVL Ltd. commenced a contract on April 1, 2018. The total contract was for ₹ 1,08,50,000. It was decided to estimate the total profit and to take to the credit of Costing P & L A/c the proportion of estimated profit on cash basis which work completed bear to the total contract. Actual expenditure in 2018-19 and estimated expenditure in 2019-20 are given below:

	2018-19	2019-20
	Actual (₹)	Estimated (₹)
Material issued	18,24,000	32,56,000
Labour : Paid	12,20,000	15,20,000
: Outstanding at end	96,000	1,50,000
Plant purchased	9,00,000	-
Expenses : Paid	4,00,000	7,00,000
: Outstanding at the end	-	1,00,000
: Prepaid at the end	90,000	-
Plant returned to stores (a historical stores)	3,00,000	6,00,000 (on Sep. 30, 2019)
Material at site	1,20,000	3,00,000
Work-in progress certified	51,00,000	Full
Work-in-progress uncertified	1,60,000	----
Cash received	40,00,000	Full

The plant is subject to annual depreciation @ 20% of WDV cost. The contract is likely to be completed on September 30, 2019.

Required:

- (i) PREPARE the Contract A/c for the year 2018-19.
- (ii) ESTIMATE the profit for the contract.

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.

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.

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

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

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.

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:

- (a) The budgeted and actual production for the month of September 2019 is 1,000 units.
- (b) 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.
- (c) 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.

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 P/V 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..

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.

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.

SUGGESTED HINTS/ANSWERS

1. Working Notes:

- (a) Annual purchase quantity for material X and Y:

Annual demand for product M- 20,000 units × 4 = 80,000 units

Particulars	Mat-X	Mat-Y
Quantity required for per unit of product M	3 kg.	4 kg.
Net quantity for materials required	2,40,000 kg.	3,20,000 kg.
Add: Loss in transit	-	6,881 kg.
Add: Loss in process	10,000 kg.	17,204 kg.
Purchase quantity	2,50,000 kg.	3,44,085 kg.

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

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

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.

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

Time Allowed	Time taken	Wages (₹)	Bonus (₹)		Total Wages (₹)		Earning per hour (₹)	
			Halsey*	Rowan**	Halsey	Rowan	Halsey	Rowan
(1)	(2)	(3) = (2) × ₹ 80	(4)	(5)	(6) = (3) + (4)	(7) = (3) + (5)	(8) = (6)/(2)	(9) = (7)/(2)
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.

3. (i) Amount of over/ under absorption of production overheads during the period of first six months of the year 2019-20:

	Amount (₹)	Amount (₹)
Total production overheads actually incurred during the period		34,08,000
Less: Amount paid to worker as per court order	4,50,000	
Expenses of previous year booked in the current year	1,00,000	
Wages paid for the strike period under an award	4,20,000	
Obsolete stores written off	36,000	10,06,000
		24,02,000
Less: Production overheads absorbed as per machine hour rate (3,000 hours × ₹840*)		25,20,000
Amount of over absorbed production overheads		1,18,000

*Budgeted Machine hour rate (Blanket rate) = $\frac{₹ 50,40,000}{6,000 \text{ hours}} = ₹840 \text{ per hour}$

- (ii) **Accounting treatment of over absorbed production overheads:** As, 40% of the over absorbed overheads were due to defective production policies, this being abnormal, hence should be credited to Costing Profit and Loss Account.

Amount to be credited to Costing Profit and Loss Account

= ₹1,18,000 × 40% = ₹47,200.

Balance of over absorbed production overheads should be distributed over Works in progress, Finished goods and Cost of sales by applying supplementary rate*.

Amount to be distributed = ₹1,18,000 × 60% = ₹70,800

$$\text{Supplementary rate} = \frac{\text{₹ } 70,800}{2,40,000 \text{ units}} = \text{₹ } 0.295 \text{ per unit}$$

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

	Equivalent completed units	Amount (₹)
Work-in-Progress (80,000 units × 50% × 0.295)	40,000	11,800
Finished goods (1,10,000 units × 0.295)	1,10,000	32,450
Cost of sales (90,000 units × 0.295)	90,000	26,550
Total	2,40,000	70,800

4. Workings:

Total labour hours and overhead cost:

Particulars	Product X	Product Y	Product Z	Total
Production units	45,000	52,500	30,000	1,27,500
Hour per unit	3	5	7	
Total hours	1,35,000	2,62,500	2,10,000	6,07,500
Rate per hour				₹80.00
Total overhead				₹4,86,00,000

Cost per activity and driver

Activity	Machine Set-up	Customer order processing	Customer complaint management	Total
Total overhead (₹)	1,45,80,000	1,45,80,000	1,94,40,000	4,86,00,000
No. of drivers	600	2,400	8,000	
Cost per driver (₹)	24,300	6,075	2,430	

- (i) **Computation of Overhead cost per unit:**

Particulars	Product X	Product Y	Product Z
No. of machine set-ups	40	160	400
Cost per driver (₹)	24,300	24,300	24,300
Total Machine set-up cost (₹) [A]	9,72,000	38,88,000	97,20,000
No. of purchase orders	400	800	1,200

Cost per driver (₹)	6,075	6,075	6,075
Total order processing cost (₹) [B]	24,30,000	48,60,000	72,90,000
No. of customers	1,000	2,200	4,800
Cost per driver (₹)	2,430	2,430	2,430
Total customer complaint management cost (₹) [C]	24,30,000	53,46,000	1,16,64,000
Total Overhead cost (₹) [A+B+C]	58,32,000	1,40,94,000	2,86,74,000
Production units	45,000	52,500	30,000
Cost per unit (₹)	129.60	268.46	955.80

(ii) Determination of Selling price per unit

Particulars	Product X (using machine A)	Product Y (using machine B)	Product Z (using machine C)
Material cost per unit (₹)	350.00	460.00	410.00
Wages per unit @ ₹80 per hour	240.00	400.00	560.00
Overhead cost per unit (₹)	129.60	268.46	955.80
Total cost per unit (₹)	719.60	1,128.46	1,925.80
Profit (25% profit mark-up) (₹)	179.90	282.11	481.45
Selling price (₹)	899.50	1,410.57	2,407.25

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.	Prime Cost	5,23,500	523.50
5.	Factory Overheads: Depreciation on machines	16,500	16.50

	{(₹22,00,000×90%)÷120 months}		
	Apportion cost of factory rent	98,000	98.00
6.	Works/ Factory Cost	6,38,000	638.00
7.	Less: Realisable value of cuttings (₹150×35 kg.)	(5,250)	(5.25)
8.	Cost of Production	6,32,750	632.75
9.	Add: Opening stock of bags	0	
10.	Less: Closing stock of bags (100 bags × ₹632.75)	(63,275)	
11.	Cost of Goods Sold	5,69,475	632.75
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.	Cost of Sales (18+19+20)	7,26,475	800.86

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

Dr.		Cr.	
	(₹)		(₹)
To Cost Ledger Control A/c	4,25,000	By Opening Balance	75,000

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To Wages Control A/c	1,00,000	By WIP Control A/c	4,25,000
		By Under recovery c/d	2,50,000
	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

7.

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

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

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 :**

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

$$= 1,14,775 \text{ bottles}$$

(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 × 1/2 × 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

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
Production cost	1,93,72,000
Selling and administration overheads $\left(\frac{₹18,00,000}{₹36,00,00,000} \times ₹1,93,72,000 \right)$	96,860
Total cost of sales	1,94,68,860
Profit mark-up @ 20%	38,93,772
Price for the job	2,33,62,632

10. (i) Annual Cost Statement of four vehicles

	(₹)
Diesel $\{(4,21,632 \text{ km.} \div 4 \text{ km}) \times ₹ 60\}$ (Refer to Working Note 1)	63,24,480
Oil & sundries $\{(4,21,632 \text{ km.} \div 100 \text{ km.}) \times ₹ 525\}$	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 × 4 trucks)	60,000
Insurance	80,000
Depreciation $\{(₹29,00,000 \div 10 \text{ years}) \times 4 \text{ trucks}\}$	11,60,000
General overhead	1,10,840
Total annual cost	1,13,39,112

(ii) Cost per km. run

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

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

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

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

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

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	4	384	6	1,152
2	120	1	240	9	1,080
3	90	2	360	8	1,440
4	60	4	480	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:

$$\begin{aligned} \text{Variable maintenance cost per km} &= \frac{\text{Difference in maintenance cost}}{\text{Difference in distance travelled}} \\ &= \frac{\text{₹} 1,38,150 - \text{₹} 1,35,525}{1,60,200 \text{ kms} - 1,56,700 \text{ kms}} \\ &= \text{₹} 0.75 \end{aligned}$$

$$\begin{aligned} \text{Fixed maintenance cost} &= \text{Total maintenance cost} - \text{Variable maintenance cost} \\ &= \text{₹}1,38,150 - 1,60,200 \text{ kms} \times \text{₹} 0.75 = \text{₹} 18,000 \end{aligned}$$

11. (i) Statement of Equivalent Production

Particulars	Input Units	Particulars	Output Units	Equivalent Production			
				Material		Conversion cost	
				%	Units	%	Units
Opening WIP	1,000	Completed and transferred to Process-2	35,000	100	35,000	100	35,000
Units introduced	40,000	Normal Loss (10% of 40,000)	4,000	--	--	--	--
		Abnormal loss (Balancing figure)	500	100	500	60	300
		Closing WIP	1,500	100	1,500	60	900
	41,000		41,000		37,000		36,200

(ii) Calculation of value of output transferred to Process-2 & Closing WIP

	Amount (₹)	Amount (₹)
1. Value of units completed and transferred (35,000 units × ₹ 320.25) (Refer working note)		1,12,08,750
3. Value of Closing W-I-P:		
- Materials (1,500 units × ₹ 268.51)	4,02,765	
- Conversion cost (900 units × ₹ 51.74)	46,566	4,49,331

Workings:

Cost for each element

Particulars	Materials (₹)	Conversion (₹)	Total (₹)
Cost of opening work-in-process	2,55,000	31,020	2,86,020
Cost incurred during the month	96,80,000	18,42,000	1,15,22,000
Total cost: (A)	99,35,000	18,73,020	1,18,08,020
Equivalent units: (B)	37,000	36,200	
Cost per equivalent unit: (C) = (A ÷ B)	268.51	51.74	320.25

12. Working:

Quantity of material purchased and used.

No. of units produced	1,000 units
Std. input per unit	30kg.
Std. quantity (Kg.)	30,000 kg.
Add: Excess usage	7,200 kg.
Actual Quantity	37,200 kg.

Add: Closing Stock	10,000 kg.
Less: Opening stock	5,000 kg.
Quantity of Material purchased	42,200 kg.

(i) Direct Material Price Variance:

$$= \text{Actual Quantity purchased (Std. Price – Actual Price)}$$

$$= 42,200 \text{ kg.} (\text{₹}350 - \text{₹}365) = 6,33,000 \text{ (Adverse)}$$

Direct Material Usage Variance:

$$= \text{Std. Price (Std. Quantity – Actual Quantity)}$$

$$= \text{₹}350 (30,000 \text{ kg.} - 37,200 \text{ kg.}) = \text{₹}25,20,000 \text{ (Adverse)}$$

(ii) Direct Labour Rate Variance:

$$= \text{Actual hours (Std. Rate – Actual Rate)}$$

$$= 5,300 \text{ hours} (\text{₹}80 - \text{₹}82) = \text{₹}10,600 \text{ (Adverse)}$$

Direct Labour Efficiency Variance:

$$= \text{Std. Rate (Std. hours – Actual hours)}$$

$$= \text{₹}80 (1,000 \text{ units} \times 5 \text{ hours} - 5,300 \text{ hours}) = \text{₹}24,000 \text{ (Adverse)}$$

13. (i) Contribution = ₹375 - ₹175 = ₹200 per unit.

$$\text{Break even Sales Quantity} = \frac{\text{Fixed cost}}{\text{Contribution margin per unit}} = \frac{\text{₹} 65,00,000}{\text{₹} 200} = 32,500 \text{ units}$$

$$\text{Cash Break even Sales Qty} = \frac{\text{Cash Fixed Cost}}{\text{Contribution margin per unit}} = \frac{\text{₹}50,00,000}{\text{₹}200} = 25,000 \text{ units.}$$

$$(ii) \text{ P/V ratio} = \frac{\text{Contribution/unit}}{\text{Selling Price/unit}} \times 100 = \frac{\text{₹}200}{\text{₹}375} \times 100 = 53.33\%$$

(iii) No. of units that must be sold to earn an Income (EBIT) of ₹5,00,000

$$\frac{\text{Fixed cost} + \text{Desired EBIT level}}{\text{Contribution margin per unit}} = \frac{65,00,000 + 5,00,000}{200} = 35,000 \text{ units}$$

(iv) After Tax Income (PAT) = ₹5,00,000

Tax rate = 40%

$$\text{Desired level of Profit before tax} = \frac{\text{₹}5,00,000}{60} \times 100 = \text{₹}8,33,333$$

$$\text{Estimate Sales Level} = \frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{P/V ratio}}$$

$$\text{Or, } \left(\frac{\text{Fixed Cost} + \text{Desired Profit}}{\text{Contribution per unit}} \times \text{Selling Price per unit} \right)$$

$$= \frac{\text{₹}65,00,000 + \text{₹}8,33,333}{53.33\%} = \text{₹}1,37,50,859$$

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

Variable cost per unit = ₹20 – ₹3 = ₹17

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:

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

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.