

## Activity Based Costing

### Question 1 - Study Material

ABC Ltd. is a multiproduct company, manufacturing three products A, B and C. The budgeted costs and production for the year ending 31st March, 20X8 are as follows:

Particulars	A	B	C
Production quantity (units)	4,000	3,000	1,600
Resources per unit			
- Direct material (kg.)	4	6	3
- Direct labour (minutes)	30	45	60

The budgeted direct labour rate was ₹ 10 per hour, and the budgeted material cost was ₹ 2 per kg. Production overheads were budgeted at ₹ 99,450 and were absorbed to products using the direct labour hour rate. ABC Ltd. followed an Absorption Costing System. ABC Ltd. is now considering to adopt an Activity Based Costing system. The following additional information is made available for this purpose.

- Budgeted overheads were analyzed into the following: in (₹)
  - Material handling - 29,100
  - Storage costs - 31,200
  - Electricity - 39,150
- The cost Driver identified were as follows:
  - Material handling - Weight of material handled
  - Storage costs - Number of batches of material
  - Electricity - Number of Machine operations
- Data on Cost Driver was as follows:

Particulars	A	B	C
For completion production:			
Batches of material	10	5	15
Per unit of production:			
Number of machine operators	6	3	2

You are requested to:

- PREPARE a statement for management showing the unit costs and total costs of each product using the absorption costing method.
- PREPARE a statement for management showing the product costs of each product using the ABC approach.
- STATE what are the reasons for the different product costs under the two approaches?

### Question 2 - Study Material

MST Limited has collected the following data for its two activities. It calculates activity cost rates based on cost driver capacity.

Activity	Cost Driver	Capacity	Cost
Power	Kilowatt hour	5,000 kilowatt hour	₹ 2,00,000
Quality inspections	Number of inspections	10,000 inspections	₹ 3,00,000

The company makes three products M, S and T. For the year ended March 31, 20X9, the following consumption of cost Driver was reported:

Product	Kilowatt hour	Quality inspections
M	10,000	3,500
S	20,000	2,500
T	15,000	3,000

Required:

- COMPUTE the costs allocated to each product from each activity.
- CALCULATE the cost of unused capacity for each activity.
- DISCUSS the factors the management Consider in choosing a capacity level to compute the budgeted fixed overhead cost rate.

**Question 3 - Study Material**

ABC Ltd. Manufactures two types of machinery equipment Y and Z and applies/absorbs overheads on the basis of direct-labour hour. The budgeted overheads and direct-labour hour for the month of December, 20X8 are ₹ 12,42,500 and 20,000 hour respectively. The information about Company's products is as follows:

Particulars	Equipment Y	Equipment Z
Budgeted Production volume	2,500 units	3,125 units
Direct material cost	₹ 300 per unit	₹ 450 per unit
Direct labour cost		
Y : 3 hour @ ₹ 150 per hour		
X : 4 hour @ ₹ 150 per hour	₹ 450	₹ 600

ABC Ltd.'s overheads of ₹ 12,42,500 can be identified with three major activities: Order Processing ( ₹ 2,10,000), machine processing ( ₹ 8,75,000), and product inspection ( ₹ 1,57,500). These activities are driven by number of order processed, machine hour worked, and inspection hour, respectively. The data relevant to these activities is as follows:

Particulars	Order processed	Machine hour worked	Inspection hour
X	350	23,000	4,000
Y	250	27,000	11,000
Total	600	50,000	15,000

Required:

- Assuming use of direct-labour hour to absorb/apply overheads to production, COMPUTE the unit manufacturing cost of the equipment Y and Z, if the budgeted manufacturing volume is attained.
- Assuming use of activity-based costing, COMPUTE the unit manufacturing costs of the equipment Y and Z, if the budgeted manufacturing volume is achieved.
- ABC Ltd.'s selling prices are based heavily on cost. By using direct-labour hour as an application base, CALCULATE the amount of cost distortion (under-costed or over-costed) for each equipment.

**Question 4 - Study Material**

T Limited specializes in the distribution of pharmaceutical products. It buys from the pharmaceutical companies and resells to each of the three different markets.

- General Supermarket Chains
- Drugstore Chains
- Chemist Shops

The following data for the month of April, 20X9 in respect of ₹T Limited has been reported:

Particulars	General Supermarket Chains (₹)	Drugstore Chains (₹)	Chemist Shops (₹)
Average revenue per delivery	84,975	28,875	5,445
Average cost of goods sold per delivery	82,500	27,500	4,950
Number of deliveries	330	825	2,750

In the past, ₹T Limited has used gross margin percentage to evaluate the relative profitability of its distribution channels. The company plans to use activity –based costing for analyzing the profitability of its distribution channels. The Activity analysis of ₹T Limited is as under:

Activity Area	Cost Driver
Customer purchase order processing	Purchase order by customers
Line-item ordering	Line-items per purchase order
Store delivery	Store deliveries
Cartons dispatched to stores	Cartons dispatched to a store per delivery
Shelf-stocking at customer store	hour of shelf-stocking

The April, 20X9 operating costs (other than cost of goods sold) of ₹T Limited are ₹ 8,27,970. These operating costs are assigned to five activity areas. The cost in each area and the quantity of the cost allocation basis used in that area for April, 20X9 are as follows:

Activity Area	Total costs in April, 20X9 (₹)	Total Units of Cost Allocation Base used in April, 20X9
Customer purchase order processing	2,20,000	5,500 order
Line-item ordering	1,75,560	58,520 line items
Store delivery	1,95,250	3,905 store deliveries
Cartons dispatched to store	2,09,000	2,09,000 cartons
Shelf-stocking at customer store	28,160	1,760 hour

Other data for April, 20X9 include the following:

Particulars	General Supermarket Chains	Drugstore Chains	Chemist Shops
Total number of order	385	990	4,125
Average number of line items per order	14	12	10
Total number of store deliveries	330	825	2,750
Average number of cartons shipped per store delivery	300	80	16
Average number of hour of shelf-stocking per store delivery	3	0.6	0.1

Required:

- COMPUTE for April, 20X9 gross-margin percentage for each of its three distribution channels and compute T Limited's operating income.
- COMPUTE the April, 20X9 rate per unit of the cost-allocation base for each of the five activity areas.
- COMPUTE the operating income of each distribution channel in April, 20X9 using the activity-based costing information. Comment on the results. What new insights are available with the activity-based cost information?
- DESCRIBE four challenges one would face in assigning the total April, 20X9 operating costs of ₹ 8,27,970 to five activity areas.

### Question 5 - Study Material

Alpha Limited has decided to analyze the profitability of its five new customers. It buys bottled water at ₹ 90 per case and sells to retail customers at a list price of ₹ 108 per case. The data pertaining to five customers are:

Particulars	customers				
	A	B	C	D	E
Cases sold	4,680	19,688	1,36,800	71,550	8,775
List Selling Price	₹ 108	₹ 108	₹ 108	₹ 108	₹ 108
Actual Selling Price	₹ 108	₹ 106.20	₹ 99	₹ 104.40	₹ 97.20
Number of Purchase order	15	25	30	25	30
Number of Customer visits	2	3	6	2	3
Number of deliveries	10	30	60	40	20
Kilometre travelled per delivery	20	6	5	10	30
Number of expedited deliveries	0	0	0	0	1

Its five activities and their cost Driver are:

Activity	Cost Driver rate
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Order taking	₹ 750 per purchase order
Customer visits	₹ 600 per customer visit
Deliveries	₹ 5.75 per delivery Km travelled
Product handling	₹ 3.75 per case sold
Expedited deliveries	₹ 2,250 per expedited delivery

Required:

- (i) COMPUTE the customer-level operating income of each of five retail customers now being examined (A, B, C, D and E). Comment on the results.
- (ii) STATE what insights are gained by reporting both the list selling price and the actual selling price for each customer?

### Question 6 - May 2018

PQR Pens Ltd. manufactures two products - 'Gel Pen' and 'Ball Pen'. It furnishes the following data for the year 2017:

Product	Annual Output (units)	Total machine hour	Total number of purchase order	Total number of set ups
Gel Pen	5,500	24,000	240	30
Ball Pen	24,000	54,000	448	56

The annual overheads are as under:

Particulars	₹
Volume related activity costs	4,75,020
Set up related costs	5,79,988
Purchase related costs	5,04,992

Calculate the overhead cost per unit of each product - Gel Pen and Ball Pen on the basis of:

- (i) Traditional method of charging overheads
- (ii) Activity based costing method and
- (iii) Find out difference in cost per unit between both the methods.

### Question 7 - Nov 2018

M/s. HMB Limited is producing a product in 10 batches each of 15,000 units in a year and incurring following overheads there on (amount in ₹) :

Material procurement	- 22,50,000
Maintenance	- 17,30,000
Set - up	- 6,84,500
Quality control	- 5,14,800

The prime costs for the year amounted to ₹ 3,01,39,000.

The company is using currently the method of absorbing overheads on the basis of prime cost. Now it wants to shift to activity based costing. Information relevant to activity Driver for a year are as under:

Activity driver - Activity volume

No. of purchase order	- 1,500
Maintenance hour	- 9,080
No. of set ups	- 2,250
No. of inspections	- 2,710

The company has produced a batch of 15,000 units and has incurred ₹ 26,38,700 and ₹ 3,75,200 on material and wages respectively. The usage of activities of the said batch are as follows:

Material order	- 48 order
Maintenance hour	- 810 hour
No. of set ups	- 40
No. of inspections	- 25

You are required to:

- (i) Find out cost of product per unit on absorption costing basis for the said batch.
- (ii) Determine cost driver rate, total cost and cost per unit of output of the said batch on the basis of activity based costing.

**Question 8 - May 2019**

MNO Ltd. manufactures two types of equipment A and B and absorbs overheads on the basis of direct labour hour. The budgeted overheads and direct labour hour for the month of March 2019 are ₹ 15,00,000 and 25,000 hour respectively. The information about the company's products is as follows:

Particulars	Equipment	
	A	B
Budgeted production volume	3,200 units	3,850 units
Direct material cost	₹ 350 per unit	₹ 400 per unit
Direct labour cost		
A: 3 hour @ 120 per hour	₹ 360	
B: 4 hour @ 120 per hour		₹ 480

Overheads of ₹ 15,00,000 can be identified with the following three major activities:

Order processing - ₹ 3,00,000

Machine processing - ₹ 10,00,000

Product inspection - ₹ 2,00,000

These activities are driven by the number of order processed, machine hour worked and inspection hour respectively. The data relevant to these activities is as follows:

Particulars	order processed	Machine hour worked	Inspection hour
A	400	22,500	5,000
B	200	27,500	15,000
Total	600	50,000	20,000

Required:

(i) Prepare a statement showing the manufacturing cost per unit of each product using the absorption costing method assuming the budgeted manufacturing volume is attained.

(ii) Determine cost driver rates and prepare a statement showing the manufacturing cost per unit of each product using activity based costing, assuming the budgeted manufacturing volume is attained.

(iii) MNO Ltd's selling prices are based heavily on cost. By using direct labour hour as an application base, calculate the amount of cost distortion (under costed or over costed) for each equipment.

**Question 9 - Rtp May 2018**

G-2020 Ltd. is a manufacturer of a range of goods. The cost structure of its different products is as follows:

Particulars	Product A	Product B	Product C	
Direct materials	50	40	40	₹ / u
Direct labour @ ₹ 10/hour	30	40	50	₹ / u
Production overheads	30	40	50	₹ / u
Total cost	110	120	140	₹ / u
Quantity produced	10,000	20,000	30,000	Units

G-2020 Ltd. was absorbing overheads on the basis of direct labour hour. A newly appointed management accountant has suggested that the company should introduce ABC system and has identified cost Driver and cost pools as follows:

Activity cost pool	Cost driver	Associated cost (₹)
Stores receiving	Purchase requisitions	2,96,000
Inspection	Number of production runs	8,94,000
Dispatch	order executed	2,10,000
Machine set up	Number of set ups	12,00,000

The following information is also supplied:

Particulars	Product A	Product B	Product C
No. of set ups	360	390	450
No. of order executed	180	270	300
No. of production runs	750	1,050	1,200
No. of purchase requisitions	300	450	500

Required:

CALCULATE activity based production cost of all the three products.

**Question 10 - Rtp - Nov 2018**

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 20X7-X8 for each product line:

Particulars	Soft drinks	Fresh produce	Packaged food
Revenue	₹ 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 order placed	360	840	360
Number of deliveries received	300	2,190	660
hour 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 20X7-X8:

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

Required:

- 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.
- 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.

**Question 11 - Rtp - May 2019**

MST Limited has collected the following data for its two activities. It calculates activity cost rates based on cost driver capacity.

Activity	Cost driver	Capacity	Cost (₹)
Power	Kilowatt hour	50,000 kilowatt hour	40,00,000
Quality inspections	No. of inspections	10,000 inspections	60,00,000

The company makes three products M, S and T. For the year ended March 31, 20X9, the following consumption of cost Driver was reported:

Product	Kilowatt hour	Quality inspections
M	10,000	3,500
S	20,000	2,500
T	15,000	3,000

Required:

- PREPARE a statement showing cost allocation to each product from each activity.
- CALCULATE the cost of unused capacity for each activity.
- STATE the factors the management Consider in choosing a capacity level to compute the budgeted fixed overhead cost rate.

**Question 12 - Rtp - Nov 2019**

SMP Pvt. Ltd. manufactures three products using three different machines. At present the overheads are charged to products using labour hour. 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 Driver.

Cost driver	Product X	Product Y	Product Z	Total
No. of machine set ups	40	160	400	600
No. of purchase order	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. worker 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.

**Question 13 - May 2005**

A B C D Co. Ltd. produces and sells four products A, B, C and D. These products are similar and usually produced in production runs of 10 units and sold in a batch of 5 units. The production details of these products are as follows:

Product	A	B	C	D
Production (Units)	100	110	120	150
Cost per unit:				
Direct material (₹)	30	40	35	45
Direct labour (₹)	25	30	30	40
Machine hour (per unit)	5	4	3	4

The production overheads during the period are as follows:

Particulars	(₹)	(₹)
Factory works expenses	22,500	
Stores receiving costs	8,100	
Machine set up costs	12,200	
Cost relating to quality control	4,600	
Material handling and dispatch	9,600	57,000

The cost Driver for these overheads are detailed below:

Cost	Cost Driver
Factory works expenses	Machine hour
Stores receiving costs	Requisitions raised
Machine set up costs	No. of production runs
Cost relating to quality control	No. of production runs

Material handling and dispatch	No. of order executed
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The number of requisitions raised on the stores was 25 for each product and number of order executed was 96, each order was in a batch of 05 units.

Required:

- Total cost of each product assuming the absorption of overhead on machine hour basis;
- Total cost of each product assuming the absorption of overhead by using activity base costing; and
- Show the differences between (i) and (ii) and comment.

#### Question 14 - Nov 2005

ABC Limited manufactures two radio models, the Nova which has been produced for five year and sells for ₹ 900, and the Royal, a new model introduced in early 2004, which sells for ₹ 1,140. Based on the following Income statement for the year 2004-05, a decision has been made to concentrate ABC Limited's marketing resources on the Royal model and to begin to phase out the Nova model.

ABC Limited - Income Statement for the year ending March 31, 2005

Particulars	Royal Model (₹)	Nova Model (₹)	Total (₹)
Sales	45,60,000	1,98,00,000	2,43,60,000
Cost of Goods sold	31,92,000	1,25,40,000	1,57,32,000
Gross margin	13,68,000	72,60,000	86,28,000
Selling & Administrative Expenses	9,78,000	58,30,000	68,08,000
Net Income	3,90,000	14,30,000	18,20,000
Unit Produced and sold	4,000	22,000	
Net Income per unit sold	97.50	65	

The standard unit costs for the Royal and Nova models are as follows:

Particulars	Royal Model (₹)	Nova Model (₹)
Direct materials	584	208
Direct Labour		
Royal (3.5 h₹ x ₹ 12)	42	
Nova (1.5 h₹ x ₹ 12)		18
Machine usage		
Royal (4 h₹ x ₹ 18)	72	
Nova (8 h₹ x ₹ 18)		144
Manufacturing overheads (applied on the basis of machine hour at a pre-determined rate of ₹ 25 per hour)	100	200
Standard Cost	798	570

ABC Ltd.'s Controller is advocating the use of activity-based costing and activity-based cost management and has gathered the following information about the company's manufacturing overheads cost for the year ending March 31, 2005.

Activity centre (Cost driver)	Traceable Costs (₹)	Number of Events		
		Royal	Nova	Total
Soldering (Number of solder joints)	9,42,000	3,85,000	11,85,000	15,70,000
Shipments (Number of shipments)	8,60,000	3,800	16,200	20,000
Quality control (Number of Shipments)	12,40,000	21,300	56,200	77,500
Purchase order (Number of order)	9,50,400	1,09,980	80,100	1,90,080
Machine Power (Machine hour)	57,600	16,000	1,76,000	1,92,000
Machine setups (Number of setups)	7,50,000	14,000	16,000	30,000

Total Traceable costs	48,00,000			
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Required:

- Prepare a Statement showing allocation of manufacturing overheads using the principles of activity-based costing.
- Prepare a Statement showing product cost profitability using activity-based costing.
- Should ABC Ltd. continue to emphasize the Royal model and phase out the Nova model? Discuss.

#### Solution 14:

Statement Showing Allocation of Manufacturing Overheads Using Principles of Activity Based Costing.

Activity Centre	Traceable cost ₹	Cost allocation basis	Cost allocation basis	
			Royal (₹)	Nova (₹)
Soldering	9,42,000	385 : 1185	2,31,000	7,11,000
Shipments	8,60,000	38 : 162	1,63,400	6,96,600
Quality control	12,40,000	213 : 562	3,40,800	8,99,200
Purchase order	9,50,400	109980 : 80100	5,49,900	4,00,500
Machine lower	57,600	16 : 176	4,800	52,800
Machine set ups	7,50,000	14 : 16	3,50,000	4,00,000
	48,00,000		16,39,900	31,60,100
Units produced and sold			4,000	22,000
Manufacturing Overheads Cost per unit			₹ 409.98	₹ 143.64

(ii) Statement Showing Product Cost and Profitability using Activity Based Costing

Particulars	Royal (per unit cost ₹)	Nova (per unit cost ₹)	Total ₹
Standard cost other than manufacturing OHs cost	698	370	
Manufacturing OHs using activity-based costing	409.98	143.64	
Cost	1,107.98	513.64	
Selling Price/unit	1,140	900	
Gross Margin / unit	32.02	386.36	
Gross Margin	1,28,080	84,99,920	86,28,000
Selling & Adm. Expenses	9,78,000	58,30,000	68,08,000
Net Income	(8,49,920)	26,69,920	18,20,000

(iii) Novo Model should continue to be bread and butter product and Royal model should not be over-emphasized; rather it's pricing is required to be corrected.

#### Question 15 - May 2006

ABC Bank is examining the profitability of its Premier Account, a combined Savings and Cheque account. Depositor receive a 7% annual interest on their average deposit. ABC Bank earns an interest rate spread of 3% (the difference between the rate at which it lends money and rate it pays to depositor) by lending money for home loan purpose at 10%.

The Premier Account allows depositor unlimited use of services such as deposits, withdrawals, cheque facility, and foreign currency drafts. Depositor with Premier Account balances of ₹ 50,000 or more receive unlimited free use of services. Depositor with minimum balance of less than ₹ 50,000 pay ₹ 1,000-a-month service fee for their Premier Account.

ABC Bank recently conducted an activity-based costing study of its services. The use of these services in 2005-06 by three customers is as follows:

Particulars	Activity- Based Cost Per Transaction	Account usage		
		Customer X	Customer Y	Customer Z
Deposits/withdrawal with teller	₹ 125	40	50	5
Deposits/withdrawal with automatic teller machine (ATM)	₹ 40	10	20	16
Deposits/withdrawal on prearranged monthly basis	₹ 25	0	12	60
Bank Cheques written	₹ 400	9	3	2
Foreign Currency drafts	₹ 600	4	1	6
Inquiries about Account balance	₹ 75	10	18	9
Average Premier Account balance for 2005-06		₹ 55,000	₹ 40,000	₹ 12,50,000

Assume Customer X and Z always maintains a balance above ₹ 50,000, whereas Customer Y always has a balance below ₹ 50,000.

Required:

- Compute the 2005-06 profitability of the customers X, Y and Z Premier Account at ABC Bank.
- What evidence is there of cross-subsidisation among the three Premier Accounts? Why might ABC Bank worry about this Cross-subsidisation, if the Premier Account product offering is Profitable as a whole?
- What changes would you recommend for ABC Bank's Premier Account?

#### Question 16 - Nov 2006

ABC Ltd. Manufactures two types of machinery equipments Y and Z and applies/absorbs overheads on the basis of direct-labour hour. The budgeted overheads and direct-labour hour for the month of December, 2006 are ₹ 12,42,500 and 20,000 hour respectively. The information about Company's products is as follows:

Particulars	Equipment Y	Equipment Z
Budgeted Production volume	2,500 units	3,125 units
Direct material cost	₹ 300 per unit	₹ 450 per unit
Direct labour cost		
Y : 3 hour @ ₹ 150 per hour		
X : 4 hour @ ₹ 150 per hour	₹ 450	₹ 600

ABC Ltd.'s overheads of ₹ 12,42,500 can be identified with three major activities: Order Processing ( ₹ 2,10,000), machine processing ( ₹ 8,75,000), and product inspection ( ₹ 1,57,500). These activities are driven by number of order processed, machine hour worked, and inspection hour, respectively. The data relevant to these activities is as follows:

Particulars	order processed	Machine hour worked	Inspection hour
Y	350	23,000	4,000
Z	250	27,000	11,000
Total	600	50,000	15,000

Required:

- Assuming use of direct-labour hour to absorb/apply overheads to production, compute the unit manufacturing cost of the equipments Y and Z, if the budgeted manufacturing volume is attained.
- Assuming use of activity-based costing, compute the unit manufacturing costs of the equipments Y and Z, if the budgeted manufacturing volume is achieved.
- ABC Ltd.'s selling prices are based heavily on cost. By using direct-labour hour as an application base, calculate the amount of cost distortion (under-costed or over-costed) for each equipment.
- Discuss, how an activity-based costing might benefit ABC Ltd.

**Question 17 - Study Material**

Humara - Apna' bank offer three products, viz., deposits, Loans and Credit Cards. The bank has selected 4 activities for a detailed budgeting exercise, following activity based costing methods. The bank wants to know the product wise total cost per unit for the selected activities, so that prices may be fixed accordingly. The following information is made available to formulate the budget:

Activity	Present Cost (₹)	Estimation for the budget period
ATM Services:		
a) Machine Maintenance	4,00,000	All fixed, no change.
b) Rents	2,00,000	Fully fixed, no change.
c) Currency Replenishment	1,00,000	Expected to double during budget period.
Cost	7,00,000	(This activity is driven by no. of ATM transactions)
Computer Processing	5,00,000	Half this amount is fixed and no change is expected. The variable portion is expected to increase to three times the current level. (This activity is driven by the number of computer transactions)
Issuing Statements	18,00,000	Presently, 3 lakh statements are made. In the budget period, 5 lakh statements are expected. For every increase of one lakh statement, one lakh rupees is the budgeted increase. (This activity is driven by the number of statements)
Computer Inquiries	2,00,000	Estimated to increase by 80% during the budget period. (This activity is driven by telephone minutes)

The activity Driver and their budgeted quantifies are given below:

Activity Driver	Deposits	Loans	Credit Cards
No. of ATM Transactions	1,50,000	---	50,000
No. of Computer Processing Transactions	15,00,000	2,00,000	3,00,000
No. of Statements to be issued	3,50,000	50,000	1,00,000
Telephone Minutes	3,60,000	1,80,000	1,80,000

The bank budgets a volume of 58,600 deposit accounts, 13,000 loan accounts, and 14,000 Credit Card Accounts.

Required:

- CALCULATE the budgeted rate for each activity.
- PREPARE the budgeted cost statement activity wise.
- COMPUTE the budgeted product cost per account for each product using (i) and (ii) above.

**Question 18 - Study Material**

Woolmark Ltd. manufactures three types of products namely P, Q and R. The data relating to a period are as under:

Particulars	P	Q	R
Machine hour per unit	10	18	14
Direct Labour hour per unit	4	12	8
Direct Material per unit (₹)	90	80	120
Production (units)	3,000	5,000	20,000

Currently the company uses traditional costing method and absorbs all production overheads on the basis of machine hour. The machine hour rate of overheads is ₹ 6 per hour. Direct labour hour rate is ₹ 20 per hour. The company proposes to use activity based costing system and the activity analysis is as under:

Particulars	P	Q	R
Batch size (units)	150	500	1,000
Number of purchase order per batch	3	10	8
Number of inspections per batch	5	4	3

The total production overheads are analysed as under:

Machine set up costs.....	20%
Machine operation costs.....	30%
Inspection costs.....	40%
Material procurement related costs.....	10%

Required

- (i) CALCULATE the cost per unit of each product using traditional method of absorbing all production overheads on the basis of machine hour.  
(ii) CALCULATE the cost per unit of each product using activity based costing principles.

### Question 19 - Study Material

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 2019-20 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 order placed	360	840	360
Number of deliveries received	300	2,190	660
hour 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 2019-20:

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 order for purchases	₹ 7,80,000	1,560 purchase order
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 hour of shelf-stocking time
Customer Support	Assistance provided to customers including check-out	₹ 15,36,000	15,36,000 items sold

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.

### Question 20 - Study Material

BABYSOFT is a global brand created by Bio-organic Ltd. The company manufactures three ranges of beauty soaps i.e. BABYSOFT- Gold, BABYSOFT- Pearl, and BABYSOFT- Diamond. The budgeted costs and production for the month of December, 2020 are as follows:

	BABYSOFT- Gold		BABYSOFT- Pearl		BABYSOFT- Diamond	
Production of soaps (Units)	4,000		3,000		2,000	
Resources per Unit:	Qty	Rate	Qty	Rate	Qty	Rate
Essential Oils	60 ml	₹ 200 / 100 ml	55 ml	₹ 300 / 100 ml	65 ml	₹ 300 / 100 ml
Cocoa Butter	20 g	₹ 200 / 100 g	20 g	₹ 200 / 100 g	20 g	₹ 200 / 100 g
Filtered Water	30 ml	₹ 15 / 100 ml	30 ml	₹ 15 / 100 ml	30 ml	₹ 50 / 100 ml
Chemicals	10 g	₹ 30 / 100 g	12 g	₹ 50 / 100 g	15 g	₹ 60 / 100 g
Direct Labour	30 minutes	₹ 10 / hour	40 minutes	₹ 10 / hour	60 minutes	₹ 10 / hour

Bio-organic Ltd. followed an Absorption Costing System and absorbed its production overheads, to its products using direct labour hour rate, which were budgeted at ₹ 1,98,000.

Now, Bio-organic Ltd. is considering adopting an Activity Based Costing system. For this, additional information regarding budgeted overheads and their cost Driver is provided below:

Particulars	(₹)	Cost Driver
Forklifting cost	58,000	Weight of material lifted
Supervising cost	60,000	Direct labour hour
Utilities	80,000	Number of Machine operations

The number of machine operations per unit of production are 5, 5, and 6 for BABYSOFT- Gold, BABYSOFT- Pearl, and BABYSOFT- Diamond respectively.

(Consider (i) Mass of 1 litre of Essential Oils and Filtered Water equivalent to 0.8 kg and 1 kg respectively (ii) Mass of output produced is equivalent to the mass of input materials taken together.)

You are requested to:

- PREPARE a statement showing the unit costs and total costs of each product using the absorption costing method.
- PREPARE a statement showing the product costs of each product using the ABC approach.
- STATE what are the reasons for the different product costs under the two approaches?

### Question 21 - Rtp May 2021

The following budgeted information relates to N Ltd. for the year 2021:

	Products X	Products Y	Products Z
Production and Sales (units)	1,00,000	80,000	60,000
	(₹)	(₹)	(₹)
Selling price per unit	90	180	140
Direct cost per unit	50	90	95
	hour	hour	hour
Machine department (machine hour per unit)	3	4	5
Assembly department (direct labour hour per unit)	6	4	3

The estimated overhead expenses for the year 2021 will be as below:

Machine Department ₹ 73,60,000

Assembly Department ₹ 55,00,000

Overhead expenses are apportioned to the products on the following basis:

Machine Department On the basis of machine hour

Assembly Department On the basis of labour hour

After a detailed study of the activities the following cost pools and their respective cost Driver are found:

Cost Pool	Amount (₹)	Cost Driver	Quantity
Machining services	64,40,000	Machine hour	9,20,000 hour

Assembly services	44,00,000	Direct labour hour	11,00,000 hour
Set-up costs	9,00,000	Machine set-ups	9,000 set-ups
Order processing	7,20,000	Customer order	7,200 order
Purchasing	4,00,000	Purchase order	800 order

As per an estimate the activities will be used by the three products:

	Product	Product	Product
	X	Y	Z
Machine set-ups	4,500	3,000	1,500
Customer order	2,200	2,400	2,600
Purchase order	300	350	150

You are required to PREPARE a product-wise profit statement using:

- Absorption costing method;
- Activity-based method.

### Question 22 - Rtp Nov 2020

KD Ltd. is following Activity based costing. Budgeted overheads, cost Driver and volume are as follows:

Cost pool	Budgeted overheads (₹)	Cost driver	Budgeted volume
Material procurement	18,42,000	No. or order	1,200
Material handling	8,50,000	No. of movement	1,240
Maintenance	24,56,000	Maintenance hour	17,550
Set-up	9,12,000	No. of set-ups	1,450
Quality control	4,42,000	No. of inspection	1,820

The company has produced a batch of 7,600 units, its material cost was ₹ 24,62,000 and wages ₹ 4,68,500. Usage activities of the said batch are as follows:

Material order	56
Material movements	84
Maintenance hour	1,420 hour
Set-ups	60
No. of inspections	18

Required:

- CALCULATE cost driver rates.
- CALCULATE the total and unit cost for the batch.

### Question 23 - Rtp May 2020

Following are the data of three product lines of a departmental store for the year 2019 -20:

	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 order placed	360	840	360
Number of deliveries received	300	2,190	660
hour of shelf-stocking time	540	5,400	2,700
Items sold	1,26,000	11,04,000	3,06,000

Additional information related with the store are as follows:

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 order for purchases	₹ 7,80,000	1,560 purchase order

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 hour of shelf-stocking time
Customer Support	Assistance provided to customers including check-out	₹ 15,36,000	15,36,000 items sold

Required:

CALCULATE the total cost and operating income using Activity Based Costing method.

#### Question 24 - Mtp April 2021

RVP Cinema provides the following data for the year 2020-21:

Particulars	Premium Hall (₹)	Recliner Hall (₹)	7D Hall (₹)	Cafeteria (₹)
Revenue	11,55,000	18,75,000	9,30,000	5,25,000
Cost of Goods sold	-	-	-	4,51,125
Digital media cost	6,19,800	9,46,875	4,02,900	-
Number of Credit Card transactions	75,000	90,000	60,000	45,000
Number of Tests	12,000	18,000	15,000	7,500
Number of Setups	225	450	150	75
Area in Square feet	3,000	4,500	2,250	750
Number of Customer contacts	2,62,500	3,00,000	1,50,000	37,500
Number of Customer online order	2,10,000	2,47,500	1,20,000	22,500

Cost analysis has revealed the following:

Activity	Activity Cost (₹)	Activity Driver	Activity Capacity
Marketing Expenses	2,25,000	Number of Customer contacts	7,50,000
Website Maintenance Expenses	1,50,000	Number of Customer online order	6,00,000
Credit Card Processing Fees	1,35,000	No. of Credit Card Transactions	2,70,000
Cleaning Equipment Cost	3,15,000	Number of square feet	10,500
Inspecting and testing costs	2,62,500	Number of tests	52,500
Setting up machine's costs	4,50,000	Number of set-ups	900

Required:

(i) If RVP Cinema allocates all costs (other than Cost of Goods sold and Digital Media costs) to the departments on the basis of Activity Based Costing system, CALCULATE the operating income and percentage of operating income of each department.

(ii) RVP Cinema operated for year under the assumption that profitability can be increased by increasing net revenue from Cafeteria. However, the Supervisor of RVP Cinema wants to shut down Cafeteria. On the basis of (i) above, STATE whether the contention of the Supervisor is valid or not.

#### Question 25 - Mtp March 2021

ABY Ltd. manufactures four products, namely A, B, C and D using the same plant and process. The following information relates to production period December, 2020:

Product	A	B	C	D
Output in units	1,440	1,200	960	1,008

Cost per unit:				
Direct Materials	₹ 84	₹ 90	₹ 80	₹ 96
Direct Labour	₹ 20	₹ 18	₹ 14	₹ 16
Machine hour per unit	4	3	2	1

The four products are similar and are usually produced in production runs of 48 units per batch and are sold in batches of 24 units. Currently, the production overheads are absorbed using machine hour rate. The production overheads incurred by the company for the period December, 2020 are as follows:

	(₹)
Machine department costs:	
Rent, depreciation and supervision	2,52,000
Set-up Costs	80,000
Store receiving costs	60,000
Inspection	40,000
Material handling and dispatch	10,368

During the period December, 2020, the following cost Driver are to be used for allocation of overheads cost:

Cost	Cost driver
Set-up Costs	Number of production runs (batches)
Stores receiving	Requisition raised
Inspection	Number of production runs (batches)
Material handling and dispatch	order executed

It is also determined that:

- Machine department costs should be apportioned among set-up, stores receiving and inspection activities in proportion of 4 : 3 : 2.
- The number of requisitions raised on stores is 50 for each product. The total number of material handling and dispatch order executed during the period are 192 and each order being for a batch size of 24 units of product.

Required:

- CALCULATE the total cost of each product, if all overhead costs are absorbed on machine- hour rate basis.
- CALCULATE the total cost of each product using activity-based costing.

### Question 26 - Jan 2021

ABC Ltd. manufactures three products X, Y and Z using the same plant and resources. It has given the following information for the year ended on 31st March, 2020:

	X	Y	Z
Production Quantity (units) Cost per unit:	1200	1440	1968
Direct Material (₹)	90	84	176
Direct Labour (₹)	18	20	30

Budgeted direct labour rate was ₹ 4 per hour and the production overheads, shown in table below, were absorbed to products using direct labour hour rate. Company followed Absorption Costing Method. However, the company is now considering adopting Activity Based Costing Method.

	Budgeted Overheads (₹)	Cost Driver	Remarks
Material Procurement	50,000	No. of order	No. of order was 25 units for each product.
Set-up	40,000	No. of production Runs	All the three products are produced in production runs of 48 units.
Quality Control	28,240	No. of Inspections	Done for each production run.
Maintenance	1,28,000	Maintenance hour	Total maintenance hour were 6,400 and was allocated in the ratio of 1:1:2 between X, Y & Z.

Required:

- Calculate the total cost per unit of each product using the Absorption Costing Method.
- Calculate the total cost per unit of each product using the Activity Based Costing Method.

**Question 27 - Nov 2020**

ABC Ltd. is engaged in production of three types of Fruit Juices: Apple, Orange and Mixed Fruit. The following cost data for the month of March 2020 are as under:

Particulars	Apple	Orange	Mixed Fruit
Units produced and sold	10,000	15,000	20,000
Material per unit (₹)	8	6	5
Direct Labour per unit (₹)	5	4	3
No. of Purchase order	34	32	14
No. of Deliveries	110	64	52
Shelf Stocking hour	110	160	170

Overheads incurred by the company during the month are as under :

	(₹)
Ordering costs	64,000
Delivery costs	1,58,200
Shelf Stocking costs	87,560

Required:

- Calculate cost driver's rate.
- Calculate total cost of each product using Activity Based Costing.

**Question 28 - Nov 2019**

PQR Ltd has decided to analyse the profitability of its five new customers. It buys soft drink bottles in cases at ₹ 45 per case and sells them to retail customers at a list price of ₹ 54 per case. The data pertaining to five customers are given below:

Particulars	customers				
	A	B	C	D	E
Number of Cases Sold	9,360	14,200	62,000	38,000	9,800
List Selling Price (₹)	54	54	54	54	54
Actual Selling Price (₹)	54	53.40	49	50.20	48.60
Number of Purchase order	30	50	60	50	60
Number of customers visits	4	6	12	4	6
Number of Deliveries	20	60	120	80	40
Kilometer travelled per delivery	40	12	10	20	60
Number of expedite Deliveries	0	0	0	0	2

Its five activities and their cost Driver are:

Activity	Cost Driver
Order taking	₹ 200 per purchase order
Customer visits	₹ 300 per each visit
Deliveries	₹ 4.00 per delivery km travelled
Product Handling	₹ 2.00 per case sold
Expedited deliveries	₹ 100 per such delivery

You are required to :

- Compute the customer level operating income of each of five retail customers by using the Cost Driver rates.
- Examine the results to give your comments on Customer 'D' in comparison with Customer 'C' and on Customer 'E' in comparison with Customer 'A'.

**Question 29 - Rtp Nov 2021**

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 order placed	360	840	360
Number of deliveries received	300	2,190	660
hour 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 order for purchases	7,80,000	1,560 purchase order
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 hour of shelf-stocking time
Customer Support	Assistance provided to customers including check-out	15,36,000	15,36,000 items sold

Required:

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

**Question 30 - July 2021**

PQR Ltd. is engaged in the production of three products P, Q, R. The company calculates Activity Cost Rates on the basis of Cost Driver capacity which is provided as below:

Activity	Cost Driver	Cost Driver Capacity	Cost(₹)
Direct Labour hour	Labour hour	30,000 Labour hour	3,00,000
Production Runs	No. of Production Runs	600 Production Runs	1,80,000
Quality Inspections	No. of Inspection	8000 Inspection	2,40,000

The consumption of activities during the period is as under:

Activity/Products	P	Q	R
Direct Labour hour	10,000	8,000	6,000
Production Runs	200	180	160
Quality Inspections	3,000	2,500	1,500

You are required to:

- Compute the costs allocated to each Product from each activity.

(ii) Calculate the cost of unused capacity for each Activity.

(iii) A potential Customer has approached the company for the supply of 12,000 units of a new product 'S' to be delivered in lots of 1500 units per quarter. This will involve an initial design cost of ₹ 30,000 and per quarter production will involve the following :

Direct Material	₹ 18,000
Direct Labour hour	1,500 hour
No. of Production runs	15
No. of Quality Inspection	250

Prepare cost sheet segregating Direct and Indirect Costs and compute the Sale value per quarter of Product 'S' using ABC system considering a markup of 20% on Cost.

### Question 31 - Rtp May 2022

PCP Limited belongs to the apparel industry. It specializes in the distribution of fashionable garments. It buys from the industry and resells the same to the following two different supermarkets:

(i) Supermarket A dealing in Adults' garments (Age group 15 - 30)

(ii) Supermarket B dealing in Kids' garments (Age group 5 - 10)

The following data for the month of April in respect of PCP Limited has been reported:

	Supermarket A (₹)	Supermarket B (₹)
Average revenue per delivery	1,69,950	57,750
Average cost of goods sold per delivery	1,65,000	55,000
Number of deliveries	660	1,650

In the past, PCP Limited has used gross margin percentage to evaluate the relative profitability of its supermarket segments.

The company plans to use activity –based costing for analyzing the profitability of its supermarket segments.

The April month's operating costs (other than cost of goods sold) of PCP Limited are

₹ 16,55,995. These operating costs are assigned to five activity areas. The cost in each area and Activity analysis including cost driver for the month of April are as follows:

Activity Area	Total costs (₹)	Cost Driver
Store delivery	3,90,500	Store deliveries
Cartons dispatched to store	4,15,250	Cartons dispatched to a store per delivery
Shelf-stocking at customer store	64,845	hour of shelf-stocking
Line-item ordering	3,45,400	Line-items per purchase order
Customer purchase order processing	4,40,000	Purchase order by customers

Other data for the month of April include the following:

	Supermarket A	Supermarket B
Total number of store deliveries	1,100	2,805
Average number of cartons shipped per store delivery	250	50
Average number of hour of shelf-stocking per store delivery	6	1.5
Average number of line items per order	14	12
Total number of order	770	1,980

Required:

(i) COMPUTE gross-margin percentage for each of its supermarket segments and compute PCP Limited's operating income.

(ii) COMPUTE the operating income of each supermarket segments using the activity- based costing information.

### Question 32 - Dec 2021

A drug store is presently selling three types of drugs namely 'Drug A' 'Drug B' and 'Drug C'. Due to some constraints, it has decided to go for only one product line of drugs. It has provided the following data for the year 2020-21 for each product line:

	Drug Types		
	A	B	C
Revenues (in ₹)	74,50,000	1,11,75,000	1,86,25,000

Cost of goods sold (in ₹)	41,44,500	68,16,750	1,20,63,750
Number of purchase order placed (in nos)	560	810	630
Number of deliveries received	950	1,000	850
hour of shelf-stocking time	900	1,250	2,350
Units sold (in Nos)	1,75,200	1,50,300	1,44,500

Following additional information is also provided:

Activity	Description of Activity	Total Cost (₹)	Cost-allocation base
Drug license fee	Drug license fee	5,00,000	To be distributed in ratio 2:3:5 between A,B,C
Ordering	Placing of order for purchases	8,30,000	2,000 purchase order
Delivery	Physical delivery and receipts of goods	18,20,000	2,800 deliveries
Shelf stocking	Stocking of goods	32,40,000	4,500 hour of shelf-stocking time
Customer support	Assistance provided to customers	28,20,000	4,70,000 units sold

You are required to:

- (i) Calculate the operating income and operating income as a percentage (%) of revenue of each product line if:
  - (a) All the support costs (other than costs of goods sold) are allocated in the ratio of cost of goods sold.
  - (b) All the support costs (other than costs of goods sold) are allocated using the activity-based costing system.
- (ii) Give your opinion about choosing the product line on the basis of operating income as a percentage (%) of revenue of each product line under both the situations as above.

### Question 33 - Mtp Oct 2021

Breeze Ltd. Has decided to analyse the profitability of its five new customers. It buys soft drink bottles in cases at ₹. 54 per case and sells them to retail customers at a list price of ₹. 64.80 per case. The data pertaining to five customers are given below.

Particulars	customers				
	Aey	Bee	Cee	Dee	Eey
Number of cases sold	9,360	14,200	62,000	38,000	9,800
List Selling Price (₹)	64.80	64.80	64.80	64.80	64.80
Actual Selling Price (₹)	64.80	64.08	58.80	60.24	58.32
Number of purchase order	30	50	60	50	60
Number of customer visits	4	6	12	4	6
Number of deliveries	20	60	120	80	40
Kilometres travelled per delivery	40	12	10	20	60
Number of expediate deliveries	0	0	0	0	2

Its five activities and their cost Driver are:

Activity	Cost Driver
Order taking	₹ 240 per purchase order
Customer visits	₹ 360 per each visit
Deliveries	₹ 4.80 per delivery km travelled
Product Handling	₹ 2.40 per case sold
Expedited deliveries	₹ 120 per such delivery

You are required to:

- (i) Compute the customer level operating income of each of five retail customers by using the Cost Driver rates.
- (ii) Examine the results to give your comments on Customer 'Dee' in comparison with Customer 'Cee' and on Customer 'Eey' in comparison with Customer 'Aey'.

### Question 34 - Mtp Nov 2021

The following budgeted information relates to B Ltd. for the year 2021:

	Products

	X	Y	Z
Production and Sales (units)	1,00,000	80,000	60,000
	(₹)	(₹)	(₹)
Selling price per unit	45	90	70
Direct cost per unit	25	45	50
	hour	hour	hour
Machine department (machine hour per unit)	3	4	5
Assembly department (direct labour hour per unit)	6	4	3

The estimated overhead expenses for the year 2021 will be as below:

Machine Department ₹ 36,80,000

Assembly Department ₹ 27,50,000

Overhead expenses are apportioned to the products on the following basis:

Machine Department On the basis of machine hour

Assembly Department On the basis of labour hour

After a detailed study of the activities the following cost pools and their respective cost Driver are found:

Cost Pool	Amount (₹)	Cost Driver	Quantity
Machining services	32,20,000	Machine hour	9,20,000 hour
Assembly services	22,00,000	Direct labour hour	11,00,000 hour
Set-up costs	4,50,000	Machine set-ups	9,000 set-ups
Order processing	3,60,000	Customer order	7,200 order
Purchasing	2,00,000	Purchase order	800 order

As per an estimate the activities will be used by the three products:

	Products		
	X	Y	Z
Machine set-ups	4,500	3,000	1,500
Customer order	2,200	2,400	2,600
Purchase order	300	350	150

You are required to PREPARE a product-wise profit statement using:

- Absorption costing method;
- Activity-based method.

### Question 35 - May 2022

Star Limited manufacture three products using the same production methods. A conventional product costing system is being used currently. Details of the three products for a typical period are:

Product	Labour H₹. per unit	Machine H₹. per unit	Materials per Unit1	Volume in Units
AX	1.00	2.00	35	7,500
BX	0.90	1.50	25	12,500
CX	1.50	2.50	45	25,000

Direct Labour costs ₹. 20 per hour and production overheads are absorbed on a machine hour basis. The overhead absorption rate for the period is ₹. 30 per machine hour.

Management is considering using Activity Based Costing system to ascertain the cost of the products. Further analysis shows that the total production overheads can be divided as follows:

Particulars	%
Cost relating to set-ups	40
Cost relating to machinery	10
Cost relating to material handling	30
Costs relating to inspection	20
Total production overhead	100

The following activity volumes are associated with the product line for the period as a whole. Total activities for the period:

Product	No. of set-ups	No. of movements of Materials	No. of inspections
AX	350	200	200
BX	450	280	400
CX	740	675	900
Total	1,540	1,155	1,500

Required:

- Calculate the cost per unit for each product using the conventional method.
- Calculate the cost per unit for each product using activity based costing method.

### Question 36 - Mock Sept 2022

SMD Limited manufactures four products namely A, B, C and D using the same production and process facilities. The company has been following conventional method of costing and wishes to shift to activity-based costing system. The data pertaining to four products are:

Product	Units produced	Material per unit (₹)	Labour hour per unit	Machine hour per unit
A	1,500	140	1	3
B	2,500	90	3	2
C	10,000	180	2	6
D	6,000	150	1.5	4

The following activity volumes are associated to the production process for the relevant period -

	Number of Inspections	Number of Material Movements	Number of set-ups
A	200	15	100
B	250	20	125
C	900	100	600
D	650	85	400

The cost data also states that:

- Direct Labour cost: ₹ 60 per hour
- Machine hour rate: ₹ 280 per hour
- Production overheads are absorbed on machine hour basis.

For activity-based costing, a thorough, analysis of the production process revealed that:

Costs relating to set-ups and inspection bear the equal percentage while costs relating to machinery accounts for 20% of the production overhead.

Costs relating to material handling stands at 50% of costs relating to machinery.

You are required to:

- Prepare a statement showing the unit costs and total costs of each product using the absorption costing method.
- Prepare a statement showing the unit costs and total costs of each product using activity - based costing system.

### Question 37 - Mock Oct 2022

ANI Limited is a trader of a Product Z. It has decided to analyse the profitability of its five new customers. It buys Z article at ₹5,400 per unit and sells to retail customers at a listed price of ₹6,480 per unit. The data pertaining to five customers are:

	customers				
	A	B	C	D	E
Units sold	4,500	6,000	9,500	7,500	12,750
Listed Selling Price	₹6,480	₹6,480	₹6,480	₹6,480	₹6,480
Actual Selling Price	₹6,480	₹6,372	₹5,940	₹6,264	₹5,832
Number of Purchase order	15	25	30	25	30
Number of Customer visits	2	3	6	2	3

Number of deliveries	10	30	60	40	20
Kilometre travelled per delivery	20	6	5	10	30
Number of expedited deliveries	0	0	0	0	1

Its five activities and their cost Driver are:

Activity	Cost Driver Rate
Order taking	₹4,500 per purchase order
Customer visits	₹3,600 per customer visit
Deliveries	₹7.50 per delivery Km travelled
Product handling	₹22.50 per case sold
Expedited deliveries	₹13,500 per expedited delivery

Required:

1. COMPUTE the customer-level operating income of each of five retail customers (A, B, C, D and E).
2. STATE the factors ANI Limited should consider in deciding whether to drop a customer.

### Question 38 - Nov 2022

XYZ Ltd. is engaged in manufacturing two products- Express Coffee and Instant Coffee. It furnishes the following data for a year:

Product	Actual Output (units)	Total Machine hour	Total Number of Purchase order	Total Number of set ups
Express Coffee	5,000	20,000	160	20
Instant Coffee	60,000	1,20,000	384	44

The annual overheads are as under:

Particulars	₹.
Machine Processing costs Set up related costs	7,00,000
Purchase related costs	7,68,000
	6,80,000

You are required to:

- a. Compute the costs allocated to each product – Express Coffee and Instant Coffee from each activity on the basis of Activity- Based Costing (ABC) method.
- b. Find out the overhead cost per unit of each product – Express coffee and Instant coffee based on (a) above.

### Question 39 - May 2023

Beta Limited produces 50,000 Units, 45,000 Units and 62,000 Units of product 'A', 'B' and 'C' respectively. At present the company follows absorption costing method and absorbs overhead on the basis of direct labour hour. Now, the Company wants to adopt Activity Based Costing.

The information provided by Beta Limited is as follows:

	Product A	Product B	Product C
Floor Space Occupied	5,000 Sq. Ft.	4,500 Sq. Ft.	6,200 Sq. Ft.
Direct Labour hour	7,500 hour	7,200 hour	7,800 hour
Direct Machine hour	6,000 hour	4,500 hour	4,650 hour
Power Consumption	32%	28%	40%

Overhead for year are as follows:

Rent & Taxes	₹ 8,63,500
Electricity Expense	₹ 10,66,475
Indirect labour	₹ 13,16,250
Repair & Maintenance	₹ 1,28,775
	₹ 33,75,000

Required:

- a. Calculate the overhead rate per labour hour under Absorption Costing.
- b. Prepare a cost statement showing overhead cost per unit for each product – 'A', 'B' and 'C' as per Activity based Costing.

**Question 40 - Rtp May 2023**

Hygiene Care Ltd. is a manufacturer of a range of goods. The cost structure of its different products is as follows:

Particulars	Hand Wash	Detergent Powder	Dishwasher
Direct Materials (₹. / Pu)	150	120	120
Direct Labour @₹.10/ hour (₹. / Pu)	45	60	75
Production Overheads (₹. / Pu)	40	50	40
Total Cost (₹. / Pu)	235	230	235
Quantity Produced (Units)	30,000	60,000	90,000

Hygiene Care Ltd. was absorbing overheads on the basis of direct labour hour. Management accountant has suggested that the company should introduce ABC system and has identified cost Driver and cost pools as follows:

Activity Cost Pool	Cost Driver	Associated Cost
Goods Receiving	Number of Dispatch Order	8,88,000
Inspecting and Testing costs	Number of Production Runs	26,82,000
Dispatching	Number of dispatch order	6,30,000
Storage Cost	Number of Batches of material	36,00,000

The following information is also supplied:

Details	Hand Wash	Detergent Powder	Dishwasher
Batches of material	720	780	900
Number of dispatch order	360	540	600
No. of Production Runs	1,500	2,100	2,400
Number of Dispatch order	600	900	1,000

Required: CALCULATE activity-based production cost of all the three products.