

Chapter 01: Section 2

Strategic Management Accounting Techniques: Questions

1. Activity Based Management (ABM)

Practice Question 01:

XYZ Limited makes three main products, mainly using the same production methods and equipment for each. A conventional product costing system is used at present. However, an Activity based Costing (ABC) system is being considered. Budgeted details of three products for a typical period are:

	Hours per Unit		Materials cost per unit	Volumes in Units
	Labour hours	Machine hours	Rs.	
<i>Product X</i>	$\frac{1}{2}$	$1 \frac{1}{2}$	20	750
Product Y	$1 \frac{1}{2}$	1	12	1,250
Product Z	1	3	25	7,000

Direct labour costs Rs.6 per hour and production overheads are absorbed on machine hour basis. The absorption rate for the period is Rs. 28 per machine hour based on budgeted overhead cost of Rs.654,500.

Requirement:

Calculate the cost per unit for each product using conventional overhead absorption methods.

Further analysis shows that the total of production overheads can be divided as follows:

	%
Costs relating to set-ups	35
Costs relating to machinery	20
Costs relating to materials handling	15
Costs relating to inspection	30
Total production overhead	100

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

	Number of set-ups	Number of movements of materials	Number of Inspections
<i>Product X</i>	75	12	150
<i>Product Y</i>	115	21	180
<i>Product Z</i>	480	87	670
	670	120	1,000

Requirement:

Calculate the cost per unit for each product using ABC principles.

Practice Question 02:

BlueGem Textiles produces two product lines, Standard Garments and Premium Garments. The company's total estimated manufacturing overhead for the period is Rs. 2,000,000. The company has traditionally allocated overheads based on direct labour hours. Total direct labour hours are estimated at 100,000 for the period.

Additional data:

- Standard Garments: Requires 60,000 direct labour hours, production volume is 20,000 units.
- Premium Garments: Requires 40,000 direct labour hours, production volume is 50,000 units.

The management accountant has identified three major activities that drive overhead costs:

- **Machine Setups:** Total cost Rs. 600,000. Cost driver is number of setups.
- **Quality Inspections:** Total cost Rs. 900,000. Cost driver is number of inspections.
- **Order Processing:** Total cost Rs. 500,000. Cost driver is number of orders.

Activity consumption data:

Activity	Standard Garments	Premium Garments	Total
Number of Setups	400	200	600
Number of Inspections	1,200	300	1,500
Number of Orders	800	1,200	2,000

Task: Calculate the overhead cost per unit for each product line using (a) Traditional Costing and (b) Activity-Based Costing.

3. Life Cycle Costing

Practice Question 03:

Zenith Logistics is deciding between two models of delivery vehicles, Vehicle A and Vehicle B, for its expanding fleet. The company's cost of capital (discount rate) is 10%. The vehicles have a useful life of 5 years.

Cost data is as follows:

Cost Category	Vehicle A	Vehicle B
Initial Purchase Price	Rs. 5,000,000	Rs. 6,500,000
Annual Operating Costs (Fuel, etc.)	Rs. 1,200,000	Rs. 800,000
Annual Maintenance Costs	Rs. 300,000	Rs. 200,000
Major Overhaul (End of Year 3)	Rs. 600,000	Rs. 400,000
Disposal Value (End of Year 5)	Rs. 800,000	Rs. 1,200,000

Task: Determine which vehicle the company should purchase based on the lowest total life cycle cost in Net Present Value (NPV) terms.

Practice Question 04:

ABC Manufacturing Ltd is planning to purchase a new machine for its production line and is considering two alternatives: Machine X and Machine Y. The company's cost of capital is 12% per annum. Both machines have an expected useful life of 4 years.

The estimated costs and benefits are as follows:

Cost / Benefit Item	Machine X (Rs.)	Machine Y (Rs.)
Initial Purchase Cost (Year 0)	4,800,000	6,000,000
Annual Operating Cost (Years 1–4)	1,000,000	700,000
Annual Maintenance Cost (Years 1–4)	250,000	180,000
Major Repair (End of Year 2)	500,000	300,000
Scrap Value (End of Year 4)	600,000	900,000

Required:

Using the Net Present Value (NPV) approach, calculate the total life cycle cost of each machine and advise which machine should be selected based on the lower discounted life cycle cost.

4. Target Costing

Practice Question 05:

Trident Logic Ltd. is developing a new enterprise resource planning (ERP) software module for small businesses.

Market research indicates that a competitive selling price for a software licence with the planned features is Rs. 25,000 per licence. The company requires a profit margin of 24% on the selling price to meet its financial objectives.

The development and operations teams have provided a preliminary cost estimate for delivering each software licence:

- Direct Development Costs (amortised): Rs. 9,500
- Direct Support Labour: Rs. 4,000
- Cloud Hosting and Infrastructure Overhead: Rs. 5,500
- Selling & Admin Costs: Rs. 2,200

Task: 1. Calculate the target cost for the new software module. 2. Calculate the current estimated cost. 3. Determine the cost gap that the company must close.

5. Cost Behaviour and Breakeven Analysis

Practice Question 06:

Selling price per unit = Rs 100, Variable cost per unit = Rs 60, Fixed cost per month = Rs 100,000

Calculate breakeven units and revenue per month.

Practice Question 07:

A company produces a single product. The following data show the relationship between monthly units produced and total production cost:

Units Produced	Total Cost (Rs.)
1,000	420,000
2,000	560,000
3,000	700,000
4,000	840,000

Required:

- Using the high-low method, calculate the variable cost per unit and the fixed cost.
- Develop the total cost equation in the form:

$$\text{Total Cost} = \text{Fixed Cost} + (\text{Variable Cost per Unit} \times \text{Units})$$
- Estimate the total cost of producing 3,500 units.
- Calculate the breakeven units and sales value if the selling price is Rs 220

Practice Question 08:

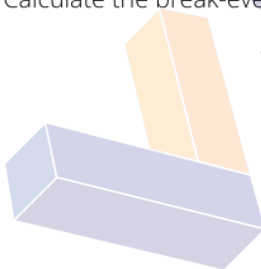
BlueGem Textiles wants to determine its mixed factory overhead cost behaviour. The following data for the last six months has been collected:

Month	Machine Hours (X)	Total Overhead Cost (Y) in Rs.
January	3,500	1,450,000
February	4,500	1,700,000
March	5,000	1,800,000
April	2,500	1,200,000
May	4,000	1,550,000
June	3,000	1,350,000

Task: Use the high-low method to determine the variable cost per machine hour and the total fixed cost, and state the cost formula.

Using the cost structure from the previous example, assume BlueGem Textiles produces a single product line. Each garment requires 2 machine hours to produce. The selling price per garment is Rs. 1,000. The direct material and direct labour costs (variable) are Rs. 300 per garment.

Task: Calculate the break-even point in units.



6. Ensuring Strategic Resource Allocation / Capital Budgeting

Practice Question 09:

Taprobane Finance has a capital budget of Rs. 20,000,000 for the upcoming year to invest in expansion projects across its branch network and digital platforms. The company is evaluating four independent projects. The financial analyst has already calculated the Present Value (PV) of future cash inflows for each project.

Project	Initial Investment (Rs.)	PV of Cash Inflows (Rs.)
A	8,000,000	9,600,000
B	11,000,000	12,650,000
C	6,000,000	7,800,000
D	5,000,000	6,250,000

Task: Calculate the Net Present Value (NPV) and Profitability Index (PI) for each project. Then, determine the optimal combination of projects the company should accept.

(Assume the projects are non divisible)

Practice Question 10:

Serendib Holdings PLC has a capital budget of Rs. 18,000,000 for the coming year to invest in several independent projects. The company is currently evaluating four projects, and the finance manager has estimated the Present Value (PV) of future cash inflows for each project.

Project	Initial Investment (Rs.)	PV of Cash Inflows (Rs.)
P	7,000,000	8,750,000
Q	9,500,000	11,400,000
R	5,500,000	6,600,000
S	4,000,000	5,200,000

Task:

- Calculate the Net Present Value (NPV) and Profitability Index (PI) for each project.
- Based on the capital budget constraint, determine the optimal combination of projects the company should undertake to maximize total NPV.