M.COM Part-II
Semi.IV
Advanced Cost Accounting and Cost Systems Paper NO.4
CASE STUDIES
(Specimen cases)

CASE NO.1

Case: EBQ

A contractor has' to supply 10,000 paper cones per day to a Textile unit. He finds that, when he starts a production run, he can produce 25000 paper cones per day. The cost of holding a paper cone in stock for one year is 2 paise and setup cost of production run is Rs. 18. Working days of the factory are 300 in a year. If he runs a factory for all 365 days of the year, what would be your comment?

CASE NO.2

ABC Ltd. is a software company. The salary package of the
Company for its employee is as under

Basic Pay	Rs. 20,000 per month
Dearness Allowance	Rs. 15,000 per' month
Fringe	Rs. 10,000 per month

Number of working days in a year are 300. 30 Days full pay and 20 days half pay leave in a year is availed and allowed to each employee. An employee has to work for 8 hours in a day.

The company has to quote for an assignment on hourly rate basis. What labour hour rate should be considered on the basis of above data?

CASE NO. 3

IDRAYANI ENGINEERING COMPANY

Indrayani Engineering Company produces electrical accessories like meters, transformers, switchgears and automobile accessories like taximeters and speedometers.

lndrayani buys the electrical components but manufactures all mechanical parts within its factory which is divided into four production departments. Machining, Fabrication. Assembly and Painting and three services departments - Stores, Maintenance, and Works Office.

Though the company prepared annual budgets and monthly financial statements, it had no formal cost accounting system. Prices were fixed on the basis of what the market can bear. Inventory of finished stocks was valued at 90 percent of the market price assuming a profit margin of 10 percent.

In March the company received a trial order from a government department for a sample transformer on cost-plus-fixed-fee basis. They took up the job (numbered by the company as Job No.879) in early April and completed all manufacturing operator before the end of the month.

Since Job No. 879 was very different from the type of transformers they had manufactured in the past. The company did not have a comparable market price for the product. The purchasing officer of the government department asked the company to submit a detailed cost sheet for the job giving as much details as possible regarding material labour and overhead costs.

Indrayani, as part of its routine financial accounting system had collected the actual expenses for the month of April, by 5th of May. Some of the relevant data are given in Exhibit I.

The company tried to assign directly, as many expenses as possible to the production departments. However, it was not possible in all cases. In many cases an overhead cost, which was common to all departments had to be allocated to the various departments using some rational basis. Some of the possible bases were collected by company's accountant. These are presented in exhibit II.

He also designed a format to allocate the overhead to all the production and service departments. It was realized that the expenses of the service departments on some rational basis. The accountant thought of distributing the service department's costs on the following basis.

a. Works office costs on the basis of direct labour hours.
b. Maintenance costs on the basis of book value of plant and machinery.
c. Stores department costs on the basis of direct and indirect materials used.

The accountant, who had to visit the company's banker, passed on the papers to you for the required analysis and cost computations.

REQUIRED

Based on the data given in Exhibits I and II you are required to:

1. Complete the attached "overhead cost distribution sheet" (Exhibit III).
   Note: wherever possible, identify the overhead costs charged directly to the production and service departments. If such direct identification is not possible distribute the costs on some "rational" basis.
2. Calculate the overhead cost (per direct labour hour for each of the four prosing departments. This should include share of the service department's costs.
3. Do you agree with :
   a) The procedure adopted by the company for the distribution of overhead costs?
   b) The choice of the base of overhead absorption, i.e. labour hour rate?
4. Job No. 879 was expected to be cleared by the Inspection Department in the first week of May. The actual materials cost applicable to Job NO.879 was Rs 4879~. Labour time spent on the job was estimated to be 50 hours in Machining: 10 hours in Fabrication and 20 hours each in Assembly and Painting Department, total Rs. 460.10 Calculated the total cost of this

job including overhead costs.

5. If a Job No. 879 is a cost-plus-fixed fees (CPFF) contract with the government. Fixed fee being Rs. 200 what would be the total charges recoverable from the client?
6. Evaluate the cost accounting system adopted by the accountant and suggest improvement, if any, in it.

Exhibit I

Indrayani Engineering Company

Actual Expenses (Manufacturing Overhead) for April

	Rs.	Rs.
Indirect Labour and Supervisions:		
Machining	33,000	--
Fabrication	22,000	--
Assembly	11,000	--
Painting	7,000	--
Stores	44,000	--
Maintenances	32,700	1,49,000
Indirect Materials and Supplies:		
Machining	2,200	--
Fabrication	1,100	--
Assembly	3,300	--
Painting	3,400	--
Maintenances	2,800	12,800
Others		
Factory Rent	1,68,000	--
Depreciation of Plant and Machinery	44,000	--
Building Rates and Taxes	2,400	--
Welfare Expenses	19,494	--
(At 2 percent of direct labour Wages and indirect labour and Supervision)	--	--
Power (Maintenance- Rs. 366; Works Office Rs. 2,220. Balance to Producing Departments)	68,586	--
Works Office Salaries and Expenses	1,30,260	--
Miscellaneous Stores Department Expenses	1,190	4,33,930
Total		Rs. **5,96,430**

Exhibit II

Indrayani Engineering Company

Projected Operation Data for the Year

Department	Area (sq.m)	**Original** Book **Value** of Plant **Machinery** Rs.	**Direct Materials** Budget· Rs.	**Horse Power Rating** Rs.	**Direct Labour Hours**	**Direct Labour Budget**
Machining	13.000	26.40.000	62.40.000	20.000	14.40.000	52.80.000
Fabrication	11.000	13.20.000	21.60.000	10.000	5.28.000	26,40.000
Assembly	8.800	6.60.000	–	1.000	7.20.000	13.20,000
Painting	6.400	2.64.000	10.80.000	2.000	3.30.000	6.60.000
Stores	4.400	1.32,000				
Maintenances	2.200	1,98.000				
Works Office	2.200	66,000				
Total	48,000	52.80,000	94,80,000	33.000	30.18,000	99,00,000

Note:

The estimates given in this exhibit are for the budgeted year January to December where as the actual given in Exhibit I are for just one month - April of the budgeted year.

Exhibit III

Indrayani Engineering Company

Actual Overhead Distribution Sheet for April

Department	Production Department				Service Department			Total Amount Actual Rs.	Basis for Distri.
Overhead Costs	Machining	Fabrication	Assembly	Painting	Stores	Maintenance	Works Office		
A Allocation of overhead to all Departments	-	-	-	-	-	-	-	1,49,700	-
A.1 Indirect labour and supervision									-
A. 2 Indirect materials and supplies	-	-	-	-	-	-	-	12,800	-
A. 3 Factory Rent	-	-	-	-	-	-	-	1,68,000	-
A. 4 Depreciation of Plant & Machinery	-	-	-	-	-	-	-	44,000	-
A. 5 Building Rates & Taxes	-	-	-	-	-	-	-	2,400	-
A. 6 Welfare Expenses	-	-	-	-	-	-	-	19,484	-
A. 7 Power	-	-	-	-	-	-	-	68,586	-
A. 8 Works Office Salaries & Exp.	-	-	-	-	-	-	-	1,30,260	-
A.9 Miscellaneous Stores Expenses	-	-	-	-	-	-	-	1,190	-
A Total (A1 to A9)	-	-	-	-	-	-	-	5,96,430	-

Department	Production Department				Service Department			Total Amount Actual Rs.	Basis fir Distri.
Overhead Costs	Machining	Fabrication	Assembly	Painting	Stores	Maintenance	Works Office		
B Reallocation of Service Department cost to production Dept.	-	-	-	-	-	-	-	-	-
B.1 Distribution of work office works	--	-	-	-	-	-	-	-	-
B. 2 Distribution of maintenance Departments costs	-	-	-	-	-	-	-	-	-
B. 3 Distribution of Stores Department Costs	-	-	-	-	-	-	-	-	-
Total charged to producing C. Departments (A+B)	-	-	-	-	-	-	-	5,96,430	-
D. Labour Hours Actual for April	1,20,000	44,000	60,000	27,500	-	-	-	-	-
E. Overhead Rate per Hour (D)	-	-	-	-	-	-	-	-	-

CASE NO.4

Case: - Job Costing

You are asked to bring the following incomplete account of a printing plant up to date 3st January, 2004. Also consider the data that appear The Accounts

Materials Costs

31/12/2003 Balance 30,000

Wages Liability

31/12/2004 Balance 6000

Work in progress control

Factory Department overhead control

Total January
Charges 1,14,000

Factory overheads Applied

Cost' of Goods Sold

Finished Goods Control

31/12/2003 Balance 40,000

Cost of Goods Sold

Additional Information

I. The overhead is applied using a budgeted rate that is set every December by forecasting the following years overheads and relating it to forecast direct labour cost. The budget for 2004 called for Rs. 8,00,000 of Direct Labour and Rs. 12,00,000 'of Factory overhead.
2. The only Job unfurnished on 31st January 2004 was NO.,819, on when total direct Labour costs were Rs. 4000 (125 direct labour hours) and total direct material costs were Rs. 16,000,
3. Total Material placed into production during January were Rs. 1,80,000
4. Cost of goods completed during January were Rs. 3,60,000
5. Material in stock of January 31 was -Rs: 40,000
6. Finished Goods inventory as of January 31 was Rs. 30,000
7. All Factory workers earn the same rate of pay. Direct labour Hours for January total 5000 other labour and supervision totalled Rs. 20,000.
8. Gross factory wages on January pay days totalled Rs. 1,04,000.
   Ignore with holidays.
9. All 'actual' Factory overheads incurred during January has already been posted.

REQUIRED

a. Material purchased during January.
b. Cost of Goods sold during January.
c. Direct labour costs incurred during January.
d. Overhead applied during January.
e. Balance, Wages Liability, 31" December 2003.
f. Balance, work-in Progress control, 31" December 2003.
g. Balance, work-in Progress control, 31" December 2004.
h. Overhead applied or unapplied overhead for January.

CASE NO.5

As a result of an expansion programme, Pidilite Industries has excess capacity which is expected to be absorbed by the domestic market in a few years. Twenty five thousand machine hours are available for the next year.

It has received inquiries from two firms located abroad. One offers to buy 2000000 units of product A at Rs. 3.80 per unit, the second offers to buy 5000000 units of product B at Rs; 5.00 per unit. Standard costs for these products are given below:

Items of cost	Product A	Product B
Material	Rs. 1.20	Rs. 1.30
Labour	Rs.0.60	Rs.0.80
Overhead	Rs.0.12	Rs. 0.16
Total	Rs. 1.92	Rs. 2.26

Overhead is applied on a Machine-hour basis at the rate of Rs. 2 per hour. Seventy five percent of the overhead is estimated to be fixed. No selling and administrative expenses would be allocated to either order, transportation charges are to be paid by the buyer.

One of the orders will be accepted. Which should it be? Why?

CASE NO.6
Case: -Budgeting Control

In its round of talks with the representatives of the Trade Union, Arun Ltd. is faced with union demand for an increase of 15% an hourly wage rates, in response to a management offer of 5%.

The management is most reluctant to agree to such a demand but is willing to consider making an increased offer provided that it influences productivity. The suggestion to offer 5% on basis hourly rate plus Rs. 0.15 for every standard hour of output produced. If this is agreed to, it is expected that production would increase by 10% within the budgeted hours (normal factory capacity)
In order to sell the increased output, it would become necessary to effect reduction of 2½% OR 2.5% in the selling price.

The draft budget for forthcoming year, excluding the wages and sales increase are:

	Rs. (In lakhs)	
Sales (1,50,000 units)	--	60
Direct Material	12	--
Direct Wages	18	--
Variable production overhead	3	--
Fixed production overhead	10	--
Variable sales overhead (5% of Turnover)	3	--
Fixed sales overhead	6	--
Variable distribution overhead	1	--
Fixed distribution overhead	1	--
Fixed administration overhead	2	56
Profit		4

You are required to work-out the alternations in the budget:

i. If trade unions demand is accepted by management.
ii. If the management proposal of wage increase linked to productivity is accepted by the trade union.
iii. Also work out minimum output necessary for the management proposal to be more rewarding to the labour force than 115% wage increase.

CASE NO.7

Nashik Warehousing Ltd. is considering the purchase of power trucks to replace the hand trucks in use now. By such replacement, it is estimated that the effective storage capacity of the water house space can be increased by 50%.

For use of the power trucks will require the floor of the warehouse to be reinforced at an estimated cost of Rs. 1,00,000, this amount can be written off over the remaining life of 10 years of the building; The warehouse building was acquired on I" July 1974 for Rs. 10,00,000 and depreciation has been provided in the accounts each years at 2'/, % p.a. on straight line basis.

The power trucks will cost Rs. 1,30,000 and will have a service life of 10 years and will have an estimated salvage value of Rs.20,000. The maintenance cost of these trucks is estimated at Rs. 20000 p.a.

The land trucks were acquired on 1st July 1991 for Rs. 60,000.

Depreciation has been provided in the accounts at 5% p.a. on straight line basis. These trucks can be sold for Rs. 24000.

Labour costs vary proportionately to the volume of business.

However, the use of power trucks in place of hand trucks will reduce the labour cost by 25%.

The company has 25000 preference shares in Mahindra and Mahindra ltd. It is proposed to dispose off 20000 shares to provide funds for the cost of purchase of .new power trucks.

With additional effective warehousing capacity the company has two alternatives.

a. Reduce storage racks by 14% and secure an estimated 20% increase in the volume of business.

OR

b. To enter into a contract with a company which will use 80% of the additional capacity at 50% of present rates.

Fire insurance premium will increase by Rs. 4000 p.a. Other expenses wil1 remain the same except where indicated.

The following is the condensed statement· of profit and loss of the Nashik warehousing Ltd. for the year ended 30'" June 2004.

	Rs.	Rs.
Income : Warehousing rent	6,00,000	–
Dividend from M&M Ltd.	25,000	6,25,000
Expenses:		
Warehousing wages	2,08,200	–
Depreciation : Building	25,000	–
Hand Trucks	3,000	–
Maintenance of Hand Trucks	5,000	–
Insurance	14,000	–
Other Expenses	1,091800	3,66,000
Net Profit	–	2,59,000

The company wants your advice whether to replace the Hand Trucks and if so which of the two alternative opportunities be' availed during the year ended June 2005. Assume replacement will be on 1 July 2004.

CASE NO.8

Cost Control

The Hindustan Heavy Engineering Ltd. Requires 4000 units of a particular raw material per year. At the beginning of the current year the purchase department excepts the purchase price @ Rs. 90 per unit while the accounting department estimated the incremented cost processing ·an order is Rs. 135 and the cost of storage is estimated to be Rs. 12 per unit. But the costing department is against the incremental processing cost of Rs. 135 per unit rather according to it, this should have been Rs. 80. At the commencement the supplier offers 4000 units @ Rs. 86 per unit. The material will be delivered immediately and placed in the stores. One of the directors of the directors of the company saw that 'due to present communication system the incremental cost of placing an order .is zero but the accounting department's original estimate of Rs. 135 for placing an order for economic batch is correct. After a series of discussions .of the departmental heads company reached to decision not to buy 4000 units at a time.

REQUIRED:-

(a) Do you agree with the company's decision? Why?

(b) What is the total cost, when incremental cost process on order is Rs. 135 per unit?

(c) What is the total cost, when incremental cost processing an order is Rs. 86?

CASE NO.9

Profit Planning

The Sparkle Soap Manufacturing Company produces several varieties of soaps having different brand names and characteristics. Different perfumes, appearances, hygienic and luxury propertial make the difference in product quality, although all the varieties of the product investigated are the same or similar use to customers in a very brand sense. The raw material used for the manufacture of soaps is oils and fats, perfume, syrup, colours etc. Costlier raw materials, attractive packing's and improved method of production increase the cost as well as the value of the product, though in different proportions. The comparative economics of different varieties of products under study would be in varying cost of quality and value of quality. The basic problems to strike an acceptable balance between cost and value of quality. The cost of quality can be rather easily evaluated. But the value of quality as determined by the price to be paid by the customers at the specified quality level depends largely on numerous external factors. In the present context the value of quality is taken to be the prevailing market price. It is, of course, other important factors. It is, however, an indicator of the value remaining sensitive to some of the other factors several of which are but notional. The cost analysis of different varieties of the product under study which are designed as A,B and C in order to study the cost-quality-price behavior comparative unit cost and selling prices of those varieties are evaluated as follows.

	Soap C Rs.	Soap B Rs.	Soap A Rs.
Selling price per unit	0.925	1.033	2.16
Less Cost per unit	0.755	1.049	1..69
Profit per unit before excise duty and trade discount	0.170	(-) 0.016	0.47
Less excise duty per unit	0.116	0.130	0.27
Profit per unit before trade	0.054	(-) 0.146	0.20

It is obvious from the above calculation that product B, inspite of its superiority in quality to product C, is a losing one. The cost behavior of product B cannot be fully appraised by means of an analysis of average unit cost. This is more so because such an average hides different potent factors that require scrutiny for purpose 'of managerial decision making. In addition accretion of fixed cost in the average underplays the economics of manufacture of the individual products for instance, larger the number of units produced. Lower will be the incidence of fixed cost per unit of product. Specify for the purpose of management, the behavior fixed and variable costs would require to be studied more clearly than the average unit costs permits. It is also necessary to emphasize that in a certain range of output, fixed costs do not have much relevance for planning in the sense that these costs will have to be incurred any way. It will, however, present a different picture if this involved installation of new facilities or increase in the utilization of existing facility. Within the limited capacity range, therefore, a shift in quality of the product would not require any additional fixed cost due to the possible maneuvering in manufacturing process. It is here that marginal cost analysis becomes very relevant, marginal cost analysis can be suitably made in comparing product quality, given the existing facility and set-up in which different varieties of the product can be produced. Marginal cost

analysis would reflect the movement of variables in the given circumstances particularly the interaction among different variables. Variable or marginal cost analysis makes it imperative to distinguish between fixed and variable cost in view of the distinct pattern of behavior that can be discerned in the two. Here, for the purpose of the present analysis, the total costs have been divided into fixed and variables cost assumed for the purpose of approximation. The radius of contribution to sales prices are computed from the variable costs of different varieties of the product and the corresponding selling prices. The comparative profitability's are revealed from the following ratios:

	Soap C Rs.	Soap B Rs.	Soap A Rs.
Selling price per unit	0.925	1.033	2.16
Variable cost per unit	0.536	0.802	1.18
Contribution per unit before excise duty & trade discount	0.389	0.231	0.98
Less-Excise duty per unit	0.lJ6	0.130	0.27
Contribution per unit before Trade Discount	0.273	0.101	0.71
Contribution per unit as percentage to sales price per unit	29.5%	9.8%	32.9%'

The lower ratio of contribution to sales price of product B in comparison with those of A and C signifies the imbalance between the variable cost and selling price. The marginal increase in the cost of producing quality B instead of C is Rs. 0.266. It becomes clear that the additional amount of Rs. 0.266 per unit required to be incurred to achieve a change in quality of grade from C to B, in terms of raw material, attractive packing etc. against an increase in selling price of Rs. 0.18 only.

The lack of compatibility between cost and sellings price indicates two possibilities viz.

1. Adequate data on cost might not have been available for guidance on fixation prices.
2. Product cost of B has increased considerably since the original fixation of price to eat away a significant part of contribution but corresponding increase in the price could not be optioned due to external constraints.

Going through the above case, what logical courses of action can be suggested for the purpose of maximization of profit?

CASE NO. 10

P Ltd. Manufacture a single product. Its condensed profit and loss statement for the year ended 31" March 2004 is as follows:

	Rs.	Rs.
Sales		45,00,000
Less cost of sales		-28,00,000
		17,00,000
Less selling and distribution expenses:		
Variable	4,00,000	
Fixed	9,00,000	13,00,000
Net Profit		4,00,060

During the year ended 31" March 2004 the company, manufactured and sold 1 lakhs units. The cost of sales was as follows for the year:

	Total Cost Rs.	Unit Cost Rs.
Materials	12,00,000	12.00
Direct labour	6,00,000	6.00
Variable overhead	2,00,000	2.00
Fixed overhead.	8,00,000	8.00
	28,00,000	28.00

The co. is facing serious competition and wants to reduce the selling price by Rs. 5, as the competitions are selling the product at Rs, 42 in a meeting of all executives following proposals have been suggested.

The sales manager provided the estimate that sales can be increased by 60% if" selling price is reduced by Rs.5 per unit. The cost accountant advice that the fixed selling costs should be reduced by Rs.1,00,000 by reducing the budget of advertisements which is agreed by 'the sales manager.

The labour Union is not ready to reduce wage rates or to increase productivity. The union is demanding 25% increase in wage rates. In a time study undertaken to introduce piece rate system of payment of wages, it is noted that each workers production and hence total production can be increased by 60% of the present level. Considering the results of the time study the cost accountant recommended that piece rate system of payment of wages be introduced with 25% increase in the present average labour cost of Rs. 6 per unit, it will enable the workers to increase their earnings by more than 25% of the present earnings.

The purchase manager and the production manager are requested to economies on the use and expenses of material so as' to reduce material cost by 10% of the present per unit cost of Rs. 12 per unit. The production manager has assured for the

same.
The company seeks your advice whether the proposal should be implemented?
What will be the effect on cost and profit per unit and total profit if the price is reduced and other proposals are implemented?

CASE NO.11

Cost Auditor's Observations:

In the cost audit report under Para 14 cost auditors' observation and conclusions a cost auditor has to inter alia, furnish suggestion for improvement in performance and other observations. As a cost auditor of a manufacture company, furnish your suggestions and observations based on the following information (you may make necessary assumptions)

		2002-03	2003-04
1.	Profit (in Rs. Lakhs)	250	340
2.	Capacity utilization	90%	95%
3.	Consumption of electricity Tones of output (KWH)	4.07	3.98
4.	Capital Employed (in Rs. lakhs)	1200	1100
5.	Salaries & Wages (in Rs. lakhs)	lI7	98
6.	Production (M.T)	1.80,000	1,90,000

CASE NO. 12

Equipment has a purchase value of Rs. 70,000. Its running costs per year and resale values are given below.

Year	Running costs Rs.	Resale value Rs.
1	20,000	40,000
2	21,000	30,000
3	23,000	22,000
4	26,000	16,000
5	30,000	14,000
6	35,000	7,000
7	41,000	7,000
8	46,000	7,000

At which year is the replacement due?

Following additional cases be referred: -

Page No. 3.38 Case No.3.43: - Treatment of Various research expenses
Page No. 10.45 Case No. 10.46: - Constructing own toy mould Vs. Sub Contracting
Page No. 15.58 Case No. 15.58: - Replacement of existing machine by use of T-Distribution test

Page No.16.43 Case No. 16.41: - Whether or not to buy cars
Page No.16.53 Case No. 16.49: - Project Evaluation
Page No.A.13 Case No. 17:- Choice of supplier & customer

For above cases, please refer the book -
"ADVANCED COST AND MANAGEMENT ACCOUNTING" Problems & Solutions
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