

[LAST MINUTE - REVISION]

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DANI KI COSTING FOR CA FINAL

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[DKC - L.M.R]

CHAPTER 1.1 (T.Q.M)

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Q101

A company manufactures a single product, which requires two components. The company purchases one of the components from two suppliers: X Limited and Y Limited. The price quoted by X Limited is Rs. 180 per hundred units of the component and it is found that on an average 3 per cent of the total receipt from this supplier is defective. The corresponding quotation from Y Limited is Rs. 174 per hundred units, but the defective would go up to 5 per cent. If the defectives are not detected, they are utilised in production causing a damage of Rs. 180 per 100 units of the component.

The company intends to introduce a system of inspection for the components on receipt. The inspection cost is estimated at Rs. 24 per 100 units of the component. Such an inspection will be able to detect only 90 per cent of the defective components received. No payment will be made for components found to be defective in inspection.

Required:

- (i) Advise whether inspection at the point of receipt is justified?
- (ii) Which of the two suppliers should be asked to supply?

(Assume total requirement is 10,000 units of the component).

Q102

Your company plans to operate department D at normal capacity next year producing one lakh units of product P. Assuming no defective works, these units can be manufactured in 2.5 lakhs labour hours at a cost of Re. 0.50 per hour. Factory overhead would amount to Rs.1,50,000 of which Rs.50,000 would be fixed. every unit requires Five units of materials can be purchased in two qualities; a high quality at Rs.1.05 per unit or a lower quality at Re.0.80 per unit.

Under expected conditions, using high quality materials, 10% of the work will be defective requiring complete replacement of the materials, additional labour costs and variable overhead. Scrap materials recovered from defective production could be sold at Re. 0.30 per unit of high quality material used.

As an alternative to this arrangement, the use of the lower quality material is being considered but this would require an extra operation to be performed on it. An additional machine and tooling would be needed at a cost of Rs. 3,000 per annum. The additional operation would take half an hour for each unit of product P produced, not taking defective work into account.

It is estimated that 20% of the work would be defective all of which would require complete replacement. Scrap material from the lower quality material could be sold for Rs. 5,000.

Present information to management indicating the more profitable course of action.

①

Thomson Ltd. makes and sells a single product; the unit specifications are as follows:

Direct Materials X	: 8 sq. metre at ₹ 40 per square metre
Machine Time	: 0.6 Running hours
Machine cost per gross hour	: ₹ 400
Selling price	: ₹ 1,000

Thomson Ltd. requires to fulfil orders for 5,000 product units per period. There are no stock of product units at the beginning or end of the period under review. The stock level of material X remains unchanged throughout the period.

Thomson Ltd. is planning to implement a Quality Management Programme (QMP). The following additional information regarding costs and revenues are given as of now and after implementation of Quality Management Programme.

Before the implementation of QMP	After the implementation of QMP
5% of incoming material from suppliers scrapped due to poor receipt and storage organisation.	Reduced to 3%.
4% of material X input to the machine process is wasted due to processing problems.	Reduced to 2.5%
Inspection and storage of Material X costs ₹ 1 per square metre purchased.	No change in the unit rate
Inspection during the production cycle, calibration checks on inspection equipment vendor rating and other checks cost ₹ 2,50,000 per period	Reduction of 40% of the existing cost.
Production Qty. is increased to allow for the downgrading of 12.5% of the production units at the final inspection stage. Down graded units are sold as seconds at a discount of 30% of the standard selling price.	Reduction to 7.5%
Production Quantity is increased to allow for return from customers (these are replaced free of charge) due to specification failure and account for 5% of units actually delivered to customer.	Reduction to 2.5%
Product liability and other claims by customers is estimated at 3% of sales revenue from standard product sale.	Reduction to 1%.
Machine idle time is 20% of Gross machine hrs used (i.e. running hour = 80% of gross/hrs.).	Reduction to 12.5%.
Sundry costs of Administration, Selling and Distribution total – ₹ 6,00,000 per period.	Reduction by 10% of the existing.
Prevention programme costs ₹ 2,00,000	Increase to ₹ 6,00,000.

The Total Quality Management Programme will have a reduction in Machine Run Time required per product unit to 0.5 hr.

cont →

- (a) Prepare summaries showing the calculation of (i) Total production units (pre inspection), (ii) Purchase of Materials X (square metres), (iii) Gross Machine Hours.
- (b) In each case, the figures are required for the situation both before and after the implementation of the Quality Management Programme so that orders for 5,000 product units can be fulfilled.

Prepare Profit and Loss Account for Thomson Ltd. for the period showing the profit earned both before and after the implementation of the Total Quality Programme.

1.2- A.B. COSTING

Question 9

ONLY

A company produces four products viz. P, Q, R and S. The data relating to production activity are as under :-

Product	Quantity of Production	Materials cost/unit Rs.	Direct Labour hours/unit	Machine hours/unit	Direct Labour Cost /unit Rs.
P	1,000	10	1	0.50	6
Q	10,000	10	1	0.50	6
R	1,200	32	4	2.00	4
S	14,000	34	3	3.00	18

Production overhead are as under :-

	Rs.
1) Overhead applicable to machine oriented activity	1,49,700
2) Overhead relating to ordering materials	7,680
3) Set up costs	17,400
4) Administration overheads for spare parts	34,380
5) Material handling costs	30,294

The following further information have been compiled :-

Product	Number of Set up	Number of materials orders	Number of times materials handled	Number of spare parts
P	3	3	6	6
Q	18	12	30	15
R	5	3	9	3
S	24	12	36	12

Required :

- Select a suitable cost driver for each item of overhead expense and calculate the cost per unit of cost driver.
- Using the concept of Activity Based Costing, compute the factory cost per unit of each product.

/C.A.FINAL/ADVANCED MANAGEMENT ACCOUNTING

(4)

1.2 A.B.C. COSTING

(Q No 5)

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

Particulars	Product	Product	Product	
	A	B	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 hours. A newly appointed management accountant has suggested that the company should introduce ABC system and has identified cost drivers 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	Orders Executed	2,10,000
Machine Setup	Number of Setups	12,00,000

The following information is also supplied:

Details	Product A	Product B	Product C
No. of Setups	360	390	450
No. of Orders 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.

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QNO-6

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1.3 TARGET COSTING

Question

Sterling Enterprises has prepared a draft budget for the next year as follows:

Quantity	10,000 units
Sales price per unit	30
Variable costs per unit: Direct Materials	8
Direct Labour	6
Variable overhead (2 hrs x Re. 0.50)	1
Contribution per unit	15
Budgeted Contribution	1,50,000
Budgeted Fixed costs	1,40,000
Budgeted Profit	10,000

The Board of Directors is dissatisfied with this budget, and asks a working party to come with an alternate budget with higher target profit figures. The working party reports back with the following suggestions that will lead to a budgeted profit of Rs. 25,000. The company should spend Rs. 28,500 on advertising, & to the target sales price up to Rs. 32 per unit. It is expected that the sales volume will also rise, in spite of the price rise, to 12,000 units. In order to achieve the extra production capacity, however, the work force must be able to reduce the time taken to make each unit of the product. It is proposed to offer a pay and productivity deal in which the wage rate per hour is increased to Rs. 4. The hourly rate for variable overhead will be unaffected. Ascertain the target labour time required to achieve the target profit.

(6)

Q1057

Page No.	
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IBM Ltd. Manufactures and sells computers peripherals to several retail outlets throughout the country. Amar is the manager of the printer division. Its two largest-selling printers are P1 & P2.

The manufacturing cost of each printer is calculated using IBM's activity based costing system. IBM has one direct manufacturing cost category (direct materials) and the following five indirect manufacturing cost pools.

Indirect manufacturing cost pool	Allocation Base	Allocation Rate (Rs.)
1. Materials handling	No. of parts	Rs. 1.20 per part
2. Assembly management hour of assembly time	Hours of assembly time	Rs. 40 per
3. Machine insertion of parts machine inserted part	No. of machine inserted parts.	Rs. 0.70 per
4. Manual insertion of parts manually inserted part	No. of manually inserted parts.	Rs. 2.10 per
5. Quality testing testing hour.	Hours of quality testing time	Rs. 25 per

Product characteristics of P1 and P2 are as follows:

Product	P1	P2
Direct materials costs	Rs. 407.50	Rs. 292.10
Number of parts	85	46
Hours of assembly time	3.2	1.9
Number of machine – inserted parts	48	31
Number of manually inserted parts	36	15
Hours of quality testing time	1.4	1.1

A foreign competitor has introduced products very similar to P1 and P2. Given their announced selling prices, to maintain the company's market share and profits. Amar estimated the P1 to have manufacturing cost of approximately Rs. 680 and P2 to have a manufacturing cost of approximately Rs. 390. he calls a meeting of product designers and manufacturing personnel at the printer division. They all agreed to have the Rs. 680 and Rs. 390 figures become target costs for designed version of P1 and P2 respectively. Product designers examine alternative ways of designing printer with comparable performance but lower costs. They come up with the following revised designs for P1 and P2 (termed P1 – REV and P2 – REV, respectively)

7

A company is considering the possibility manufacturing a particular component which at present is being bought from outside. The manufacture of the component would call for an investment of Rs. 7,50,000 in a new machine besides an additional investment of Rs. 50,000 in working capital. The life of the machine would be 10 year with a salvage value of Rs. 50,000. The estimated savings (before tax) would be Rs. 1,80,000 p.a. The income-tax rate is 50%. The company's required rate of return is 10%. Depreciation is considered on straight line system.

Should the company make this investment? Workings should form part of your answer. Note: The present value of Re. 1 at 10% discount rate is as follows:-

Year	1	2	3	4	5	6	7	8	9	10
P.V.	.91	.83	.75	.68	.62	.56	.51	.47	.42	.39

The present value (at 10% discount rate) of an annuity of Re. 1 payable each year for different year's is as follows :-

Year	1	2	3	4	5	6	7	8	9	10
P.V.	0.91	1.74	2.49	3.17	3.79	4.35	4.87	5.33	5.76	6.14

Ignore impact of income-tax for the system of depreciation followed.

Solve the above problem by Life Cycle Costing.

Question

Modern Enterprises Ltd. is considering the purchase of a new computer system for its Research and Development Division, which would cost Rs. 35 lakhs. The operation and maintenance costs (excluding depreciation) are expected to be Rs. 7 lakhs per annum. It is estimated that the useful life of the system would be 6 years, at the end of which the disposal value is expected to be Rs. 1 lakh

The tangible benefits expected from the system in the form of reduction in design and draughtsmanship costs would be Rs. 12 lakhs per annum. Besides, the disposal of used drawing office equipment and furniture, initially, is anticipated to net Rs. 9 lakhs.

Capital expenditure in research and development would attract 100% write-off for tax purposes. The gains arising from disposal of used assets may be considered tax-free. The company's effective tax rate is 50%.

The average cost of capital to the company is 12%. The present value factors at 12% discount rate are:

Year	PVF
1	0.892
2	0.79
3	0.711
4	0.63
5	0.56
6	0.50

After appropriate analysis of cash flows, please advise the company of the financial viability of the proposal.

Solve the above problem by Life Cycle Costing.

1.5 COSTING CONTROL AND COST REDUCTION**Question**10

Even Forward Ltd. is manufacturing and selling two products: Splash and Flash at selling price of Rs 3 and Rs. 4 respectively. The following sales strategy has been outlined for the year :—

- (i) Sales planned for year will be Rs. 7.20 lakhs in the case of Splash and Rs. 3.50 lakhs in the case of Flash.
- (ii) To meet competition, the selling price of Splash will be reduced by 20% and that of Flash by 12 ½ %.
- (iii) Break- even is planned at 60% of the total sale of each product.
- (iv) Profit for the year to be achieved is planned as Rs 69,120 in the case of Splash and Rs. 17,500 in the case of Flash. This would be possible by launching a cost reduction programme and reducing the present annual fixed expenses of Rs. 1,35,000 allocated as Rs. 1,08,000 to Splash and Rs. 27,000 to Flash.

You are required to present the proposal in financial terms giving clearly the following information:

Number of units to be sold of Splash and Flash to break-even as well as the total number of units of Splash and Flash to be sold during the year.

Reduction in fixed expenses product-wise that is envisaged by the Cost Reduction Programme.

9

1.6 - J.I.T

1.6 JUST IN TIME

Question

11

X Video Company sells package of blank video tapes to its customer. It purchases video tapes from Y Tape Company @ Rs. 140 a packet. Y Tape Company pays all freight to X Video Company. No incoming inspection is necessary because Y tape Company has a superb reputation for delivery quality merchandise. Annual demand of X Video Co. is 13,000 packages. X Video Co. requires 15% annual return on investment. The purchase order lead time is two weeks. The purchase order is passed through Internet and it costs Rs. 2 per order. The relevant insurance, material handling etc. Rs. 3.10 per package per year. X Video Co. has to decide whether or not to shift JIT purchasing. Y tape Company agrees to deliver 100 packages of video tapes 130 times per year (5 times every two weeks) instead of existing delivery system 1,000 packages 13 times a year with additional amount of Rs. 0.02 per package. X Video Co. incurs no stockout under its current purchasing policy. It is estimated X Video Co. incurs stockout cost on 50 video tape packages under a J IT purchasing policy. In the event of a stockout X Video Co. has to rush order tape packages which costs Rs. 4 per package.

Comment whether X Video Company to implement JIT purchasing system.

Z Co. also supply video tapes. It agrees to supply Rs. 136 per packages under JIT delivery system. If video tape purchased from Z Co., relevant carrying cost would be Rs. 3 per package against Rs. 3.10 in case of purchasing from Y tape Co. However Z Co. doesn't enjoy so sterling reputation for quality. X Video Co. anticipates following negative aspects of purchasing tapes from Z Co.

- To incur additional inspection cost of 5 paise per package.
- Average stockout of 360 tapes packages per year would occur, largely resulting from late deliveries. Z Co. cannot rush order at short notice, X Video Co. anticipates lost contribution margin per package of Rs. 8 from stockout.
- Customer would likely return 2% of all packages due to poor quality of the tape and to handle this return a additional cost of Rs.25 per package.

Comment whether X Video Co. places order to Z Co.

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DEVELOPMENTS IN THE BUSINESS ENVIRONMENT

Question

12

HG plc manufactures four products. The unit cost, selling price and bottleneck resource details per unit are as follows:

	Product W	Product X	Product Y	Product Z
Selling price	56	67	89	96
Materials	22	31	38	46
Labour	15	20	18	24
Variable overhead	12	15	18	15
Fixed overhead	4	2	8	7
	Minutes	Minutes	Minutes	Minutes
Bottleneck resource time	10	10	15	15

- (a) Assuming the labour is a unit variable cost, if the products are ranked according to their contribution, the most profitable product is
- (A) W (B) X (C) Y (D) Z
- (b) Assuming that labour is a unit variable cost, if budgeted unit sales are in the ratio W:2;X:3; Y:3; Z:4 and monthly fixed costs are budgeted to be Rs. 15,000, the number of units of W that would be sold at the budgeted breakeven point is nearest to
- (A) 106 units (B) 142 units. (C) 212 units (D) 283 units
- (c) If the company adopted throughput accounting and the products were ranked according to 'product return per minute', the highest ranked product would be
- (A) W (B) X (C) Y (D) Z

1.7 THROUGHOUT ACCOUNTING

Question

13

Vikram Ltd. produces 4 products using 3 different machines. Machine capacity is limited to 3,000 hours for each machine. The following information is available for February 2009:

Products	A	B	C	D
Contribution (Sales - Direct Material)	1,500	1,200	1,000	600
Machine hours required/unit:				
Machine 1	10	6	2	1
Machine 2	10	9	3	1.5
Machine 3	10	3	1	0.5
Estimated Demand (units)	200	200	200	200

From the above information you are required to identify the bottleneck activity and allocate the machine time.

Question

14

Illustration

A company produces 3 products A, B and C. The following information is available for a period.

	Production		
	A	B	C
Contribution (Sales - Direct Materials)	Rs. 24	Rs. 20	Rs. 12
Machine hours required per			
Machine 1	12	4	2
Machine 2	18	6	3
Machine 3	6	2	1
Estimated sales demand	200	200	200

It is given that machine capacity is limited to 3,200 hours for each machine, you are required to analyze the above information and apply TOC process to remove the constraint.

12

60

DEVELOPMENTS IN THE BUSINESS ENVIRONMENT

Question

Q10(1.5)

Illustration

A company produces three products A, B and C. The following information is available for a period:

	A	B	C
Contribution	30	25	15

(Rupees pre unit)

(Sales – Direct Materials)

Machine hours required per unit of production :

	Hours			
ratio	A	B	C	Throughout accounting
Machine 1	10	2	4	133.33%
Machine 2	15	3	6	200%
Machine 3	5	1	2	66.67%

Estimated sales demand for A, B and C are 500 units each and machine capacity is limited to 6,000 hours for each machine.

You are required to analyse the above information and apply theory of constraints process to remove the constraints.

How many units of each product will be made?

1.8- SHUT DOWN & INVESTMENT

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Shut Down or Continue QNo-16

(70)

Paints Ltd. manufactures 2,00,000 tins of paint at normal capacity. It incurs the following manufacturing costs per unit:

	(₹)
Direct material.....	7.80
Direct labour.....	2.10
Variable overhead.....	2.50
Fixed overhead.....	4.00
Production cost / unit.....	16.40

Each unit is sold for ₹ 21, with an additional variable selling overhead incurred at ₹ 0.60 per unit.

During the next quarter, only 10,000 units can be produced and sold. Management plans to shut down the plant estimating that the fixed manufacturing cost can be reduced to ₹ 74,000 for the quarter.

When the plant is operating, the fixed overheads are incurred at a uniform rate throughout the year. Additional costs of plant shut down for the quarter are estimated at ₹ 14,000.

Required

- To advise whether it is more economical to shut down the plant during the quarter rather than operate the plant.
- Calculate the shut down point for the quarter in terms of numbering units.

QNo-17

G Ltd. produces and sells 95,000 units of 'X' in a year at its 80% production capacity. The selling price of product is ₹ 8 per unit. The variable cost is 75% of sales price per unit. The fixed cost is ₹ 3,50,000. The company is continuously incurring losses and management plans to shut-down the plant. The fixed cost is expected to be reduced to ₹ 1,30,000. Additional costs of plant shut-down are expected at ₹ 15,000.

Should the plant be shut-down? What is the capacity level of production of shut-down point?

14

2- COST-CONCEPT IN DECISION MAKING

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QNo-18

S Limited is engaged in manufacturing activities. It has received a request from one of its important customers to supply a product which will require conversion of material 'M', which is a non-moving item.

The following details are available:

Book value of material M..... ₹ 60

Realisable value of material M..... ₹ 80

Replacement cost of material M..... ₹ 100

It is estimated that conversion of one unit of 'M' into one unit of the finished product will require one labour hour. At present, labour is paid at the rate of ₹ 20 per hour. Other costs are as follows:

Out-of-pocket expenses..... ₹ 30 per unit

Allocated overheads..... ₹ 10 per unit

The labour will be re-deployed from other activities. It is estimated that the temporary redeployment will not result in loss of contribution. The employees to be re-deployed are permanent employees of the company.

Required

Estimate the minimum price to be charged from the customer so that the company is not worse off by executing the order.

15

Tiptop Textiles manufactures a wide range of fashion fabrics. The company is considering whether to add a further product the "Superb" to the range. A market research survey recently undertaken at a cost of Rs.50,000 suggests that demand for the "Superb" will last for only one year, during which 50,000 units could be sold at Rs.18 per unit. Production and sale of "Superb" would take place evenly throughout the years. The following information is available regarding the cost of manufacturing "Superb".

Raw Materials: Each "Superb" would require 3 types of raw material Posh, Flash and Splash. Quantities required, current stock levels and cost of each raw material are shown below. Posh is used regularly by the company and stocks are replaced as they are used. The current stock of Flash is the result of overbuying for an earlier contract. The material is not used regularly by Tiptop Textiles and any stock that was not used to manufacture "Superb" would be sold. The company does not carry a stock of Splash and the units required would be specially purchased.

Raw Material	Quantity required per unit of Superb (metres)	Current stock level (metres)	Costs per metre of raw material		
			Original cost	Current replacement cost	Current resale value
			Rs.	Rs.	Rs.
Posh	1.00	1,00,000	2.10	2.50	1.80
Flash	2.00	60,000	3.30	2.80	1.10
Splash	0.5	0	—	5.50	5.00

Labour: Production of each "Superb" would require a quarter of an hour of skilled labour and two hours of unskilled labour. Current wage rates are Rs.3 per hour for skilled labour and Rs.2 per hour for unskilled labour. In addition, one foreman would be required to devote all his working time for one year in supervision of the production of Superb. He is currently paid an annual salary of Rs.15,000. Tiptop Textiles is currently finding it very difficult to get skilled labour. The skilled workers needed to manufacture "Superb" would be transferred from another job on which they are earning a contribution surplus of Rs.1.50 per labour hour, comprising sales revenue of Rs.10.00 less skilled labour wages of Rs.3.00 and other variable costs of Rs.5.50. It would not be possible to employ additional skilled labour during the coming year. Because the company intends to expand in the future, it has decided not to terminate the services of any unskilled worker in the foreseeable future. The foreman is due to retire immediately on an annual pension of Rs.6,000 payable by the company. He has been prevailed upon to stay on for a further year and to defer his pension for one year in return for his annual salary.

Machinery: Two machines would be required to manufacture "Superb" MT 4 and MT 7. Details of each machine are as under:

		Start of the year Rs.	End of the year Rs.
MT 4	Replacement cost	80,000	65,000
	Resale value	60,000	47,000
MT 7	Replacement cost	13,000	9,000
	Resale value	11,000	8,000

Straight line depreciation has been charged on each machine for each year of its life. Tiptop Textiles owns a number of MT 4 machines, which are used regularly on various products. Each MT 4 is replaced as soon as it reaches the end of its useful life. MT 7 machines are no longer used and the one which would be used for "Superb" is the only one the company now has. If it was not used to produce "Superb", it would be sold immediately.

Overheads: A predetermined rate of recovery for overhead is in operation and the fixed overheads are recovered fully from the regular production at Rs.3.50 per labour hour. Variable overhead costs for "Superb" are estimated at Rs.1.20 per unit produced.

For the decision-making, incremental costs based on relevant costs and opportunity costs are usually computed.

You are required to compute such a cost sheet for "Superb" with all details of materials, labour, overhead etc., substantiating the figures with necessary explanations.

Question

QNo-20

The Aylett and Co., Ltd has been offered a contract, if accepted would significantly increase next year's activity levels. The contract requires the production of 20,000 kg. of product X and specifies a contract price of Rs.100 per kg. The resources used in the production of each kg. of X include the following:

Resources per kg. of Product X

Labour Grade 1	2 hours
Grade 2	6 hours
Materials A	2 units
B	1 litre

Grade 1 labour is highly skilled and although it is currently under utilised in the firm it is Aylett's policy to continue to pay grade 1 labour in full. Acceptance of the contract would reduce the idle time of grade 1 labour. Idle time payments are treated as nonproduction overheads.

Grade 2 is unskilled labour with a high turnover and may be considered a variable cost.

The costs to Aylett of each type of labour are:

Grade 1 Rs.4 per hour

Grade 2 Rs.2 per hour

The materials required to fulfil the contract would be drawn from those materials already in stock. Materials A is widely used within the firm and any usage for this contract will necessitate replacement. Materials B was purchased to fulfil an expected order that was not received, if material B is not used for the contract, it will be sold. For accounting purposes FIFO is used. The various values and costs for A and B are:

	A	B
	Per Unit	Per Litre
	Rs.	Rs.
Book value	8	30
Replacement cost	10	32
Net realisable value	9	25

17

A single recovery rate for fixed factory overheads is used throughout the firm even though some fixed production overheads could be attributed to single products or Departments. The overhead is recovered per productive labour hour and initial estimates of next year's activity, which excludes the current contract, show fixed production overheads of Rs.6,00,000 and productive labour hours of 3,00,000. Acceptance of the contract would increase fixed production overheads by Rs.2,28,000. Variable production overheads are accurately estimated at Rs.3/- per productive hour.

Acceptance of the contract would be expected to encroach on the sale and production of another product, Y which is also made by Aylett Ltd. It is estimated that sales of Y, would then decrease by 5,000 units in the next year only. However this forecast reduction in sales of Y would enable attributable fixed factory overheads of Rs.58,000 to be avoided. Information on Y is as follows:

	Per unit
Sales price	Rs.70
Labour - Grade 2	4 hours
Materials -relevant variable costs	Rs.12

All activity undertaken by Aylett is job costed using full, absorption, costing in order to derive a profit figure for each contract. If the contract for X is accepted it will be treated as a separate job for routine costing purposes. The decision to accept or reject the contract will be taken in sufficient time to enable its estimated, effects to be incorporated in the next year's budgets and also in the calculations carried out to derive the overhead recovery rate to be used in the forthcoming year.

Required:

(a) Advise Aylett on the desirability of the contract

Question 6

21

An item of finished goods inventory that cost Rs.200 per unit to make is facing the danger of becoming obsolete. There are two following alternative ways of disposing of it:

Sell the stock to P for Rs.200; or to Q for Rs.216. Q's place is twice as far away as that of P though due to favourable transport conditions the delivery time will be the same. The cost accountant has prescribed the following cost estimates for delivery:

P - Petrol and oil Rs.10, wages Rs.12, share of licence, insurance and depreciation (based on mileage) Rs.14.

Q - Petrol and oil Rs.20, wages Rs.12, share of licence, insurance and depreciation Rs.28.

You are required to recommend whether the stock should be sold to P or Q.

Q10-22

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A company had nearly completed a job relating to construction of a specialised equipment, when it discovered that the customer had gone out of business. At this stage, the position of the job was as under:

	(₹)
Original cost estimate	1,75,200
Costs incurred so far	1,48,500
Costs to be incurred	29,700
Progress payment received from original customer	1,00,000

After searches, a new customer for the equipment has been found. He is interested to take the equipment, if certain modifications are carried out. The new customer wanted the equipment in its original condition, but without its control device and with certain other modifications. The costs of these additions and modifications are estimated as under:

Direct Materials (at cost)	₹ 1,050
Direct Wages Dept.: A	15 men days
Dept.: B	25 men days
Variable Overheads	25% of Direct Wages in each Dept.
Delivery Costs	₹ 1,350

The following additional information is available:

- (1) The direct materials required for the modification are in stock and if not used for modification of this order, they will be used in another job in place of materials that will now cost Rs. 2,250.
- (2) Department A is working normally and hence any engagement of labour will have to be paid at the direct -wage rate of Rs. 120 per man day.
- (3) Department B is extremely busy. Its direct wages rate is Rs. 100 per man day and it is currently yielding a contribution of Rs.3.20 per rupee of direct wages.
- (4) Supervisory overtime payable for the modification is Rs. 1,050.
- (5) The cost of the control device that the new customer does not require is Rs. 13,500. If it is taken out, it can be used in another job in place of a different mechanism. The latter mechanism has otherwise to be bought for Rs. 10,500. The dismantling and removal of the control mechanism will take one man day in department A.
- (6) If the convention is not carried out, some of the materials in the original equipment can be used in another contract in place of materials that would have cost Rs. 12,000. It would have taken 2 man days of work in department A to make them suitable for this purpose. The remaining materials will realise Rs. 11,400 as scrap. The drawings, which are included as part of the job can be sold for Rs. 1,500.

You are required to calculate the minimum price, which the company can afford to quote for the new customer as stated above.

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QNO 23

Anuradha Enterprises manufactures and sells black phenyl worth Rs. 20,000, white phenyl worth Rs. 25,000, scented phenyl worth Rs. 10,000 and naphthalene balls worth Rs. 5,000 every month. The firm's total fixed costs per month are Rs. 14,700. The variable costs are: on black phenyl 60%, on white phenyl 68%, on scented phenyl 80% and on naphthalene balls 40%.

The proprietress, Ms. Anuradha Shah, being basically a science graduate, wonders at what combined sales volume does she really start earning profit. Please help her in arriving at such a sales volume.

Question /

24

From the undermentioned figures calculate :

- P/V ratio and the total fixed expense;
- Profit or loss arising from the sales of Rs. 12,000;
- Sales required to earn a profit of Rs. 2,000;
- Sales required to break-even.

	Sales	Profit
	Rs.	Rs.
First Period	14,433	385
Second Period	18,203	1,139

Question

25

Zed Ltd. manufactures two products P and Q and sells them at Rs. 215 and Rs. 320 per unit respectively. The variable costs per unit are as under:

	Product - P (Rs.)	Product - Q (Rs.)
Raw Materials:		
Material - X	22.00	28.00
Material - Y	8.00	32.00
Direct Wages (Rs. 6 per labour hour):		
Department - A	36.00	54.00
Department - B	18.00	36.00
Department - C	54.00	-
Department - D	-	72.00
Variable Overheads	23.00	14.30

The company procures raw materials against import license. The company operates at single shift a day of 8 hours for 300 days in a year. The number of workmen engaged are 30, 16, 18 and 24 in departments A, B, C and D respectively.

Neither the workers are subject to transfer from one department to another nor any new recruitment is possible at present. Fixed costs are Rs. 12,000 per month.

You are required to find out the following :

- The product-mix to yield maximum profit.
- The most profitable product if only one product is to be manufactured. Whether the answer will differ if license to import raw materials is released only for Rs. 1,80,000?

Q10-26

Page No.			
Date			

X Ltd. supplies spare parts to an air craft company Y Ltd. The production capacity of X Ltd. facilitates production of any one spare part for a particular period of time. The following are the cost and other information for the production of the two different spare parts A and B:

Per unit	Part A	Part B
Alloy usage.....	1.6 kgs.	1.6 kgs.
Machine Time: Machine A.....	0.6 hrs.	0.25 hrs.
Machine Time: Machine B.....	0.5 hrs.	0.55 hrs.
Target Price (₹).....	145	115
Total hours available:.....	Machine A 4,000 hours Machine B 4,500 hours	
Alloy available is 13,000 kgs. @ ₹ 12.50 per kg.		
Variable overheads per machine hours:.....	Machine A: ₹ 80 Machine B: ₹ 100	

Required

- Identify the spare part which will optimize contribution at the offered price.
- If Y Ltd. reduces target price by 10% and offers ₹ 60 per hour of unutilized machine hour, what will be the total contribution from the spare part identified above?

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Q10-27

Page No.			
Date			

The relevant data of X Ltd. for its three products A, B and C is as under :

	A	B	C
Direct Material (Rs./Unit)	260	300	250
Direct Labour (Rs./Unit)	130	270	260
Variable Overheads (Rs. Unit)	110	230	180
Selling Price (Rs./Unit)	860	1,040	930
Machine Hours Required (Per Unit)	12	6	3

The estimated fixed overheads at four different levels of 3,600; 6,000; 8,400; and 10,800 machine hours are Rs. 1,00,000; Rs. 1,50,000; Rs. 2,20,000 and Rs. 3,00,000 respectively. The maximum demand of A, B and C in a cost period are 500; 300 and 1,800 units respectively. You are required to find out (1) the most profitable product mix at each level and (2) the level of activity where the profit would be maximum.

Question 28

The total cost of a manufactured component is as under:

Prime cost Rs. 15 Fixed overhead Rs. 4

Variable overhead Rs. 7 Total cost Rs. 26

The same part is available in the market at Rs. 23. Should the firm make it or buy it?

Question 29

(a) Alcos Ltd., manufactures and sells four types of products under the brand names A, B, C and D. The sales mix in value comprises $33\frac{1}{3}\%$, $41\frac{2}{3}\%$, $16\frac{2}{3}\%$ and $8\frac{1}{3}\%$ of A, B, C and D respectively. The total budgeted sales (100%) are Rs. 60,000 per month.

Operating costs are :

Variable costs:

A	60% of selling price
B	68% of selling price
C	80% of selling price
D	40% of selling price

Fixed costs – Rs. 14,700 per month:

Calculate the break-even point for the products on an overall basis.

(b) It has been proposed to change the sales mix as follows, the total sales per month remaining Rs. 60,000.

A	25%
B	40%
C	30%
D	5%

Assuming that the proposal is implemented.

Calculate the new break-even point.

22

QNO-30

V.C. Ltd. makes and sells two products, P and Q. The budgeted selling price of P is ₹ 1,800 and that of Q is ₹ 2,160. Variable costs associated with producing and selling the P are ₹ 900 and with Q ₹ 1,800. Annual fixed production and selling costs of V.C. Ltd. are ₹ 88,000.

The company has two production/ sales options. The P and Q can be sold either in the ratio of two P to three Q or in the ratio of one P to two Q.

Required

What will be the optimal mix and why?

QNO-31

N.P. Ltd. produces two products P and Q. The draft budget for the next month is as under:

	P	Q
Budgeted Production and Sales (units)	40,000	80,000
Selling Price ₹/ unit	25	50
Total Costs ₹/ unit	20	40
Machine Hours / unit	2	1
Maximum Sales Potential (units)	60,000	1,00,000

The fixed expenses are estimated at ₹ 9,60,000 per month. The company absorbs fixed overheads on the basis of machine hours which are fully utilised by the budgeted production and cannot be further increased.

When the budget was discussed, the Managing Director stated that the product mix should be altered to yield optimum profit.

The Marketing Director suggested that he would introduce a new Product-C, each unit of which will take 1.5 machine hours. However, a processing vat involving a capital outlay of ₹ 2,00,000 is to be installed for processing Product -C. The additional fixed overheads relating to the processing vat was estimated at ₹ 60,000 per month. The variable cost of Product- C was estimated at ₹ 21 per Unit.

Required

- Calculate the profit as per draft budget for the next month.
- Revise the product mix based on data given for P and Q to yield optimum profit.
- The company decides to discontinue either Product- P or Q whichever is giving lower profit and proposes to substitute Product- C instead. Fix the selling price of product- C in such a way as to yield 15% return on additional capital employed besides maintaining the same overall profit as envisaged in (ii) above.

23

Agro caps Ltd., engaged in manufacturing agricultural machinery, is preparing its annual budget for the coming year. The company has a metal pressing capacity of 20,000 hours, which will be insufficient for manufacture of all requirements of components A, B, C and D.

The company has the following choices-

- (i) Buy the components entirely from outside suppliers.
- (ii) Buy from outside suppliers and / or use a partial second shift.

The data for the current year are given below-

Standard Production Cost per unit-

	A (₹)	B (₹)	C (₹)	D (₹)
Requirement (in units)	2,000	3,500	1,500	2,800
Variable Cost				
Direct Materials	37	27	25	44
Direct Wages	10	8	22	40
Direct Expenses	10	20	10	60
Fixed Overhead	5	4	11	20
Total Production Cost	62	59	68	164

Direct expenses relate to the use of the metal presses which cost ₹ 10 per hour, to operate. Fixed overheads are absorbed as a percentage of direct wages.

Supply of all or any part of the total requirement can be obtained following prices, each delivered to the factory-

Component	(₹)
A.....	60
B.....	59
C.....	52
D.....	168

Second shift operations would increase direct wages by 25 percent over the normal shift and fixed overhead by ₹ 500 for each 1,000 (or part thereof) second shift hours worked.

Required

- (i) Which component, and in what quantities should be manufactured in the 20,000 hours of press time available?
- (ii) Whether it would be profitable to make any of the balance of components required on a second shift basis instead of buying them from outside suppliers.

Future Ltd. manufactures product N using one unit each of three components named P, Q & R and sells it at ₹ 37.50 per unit. It has two divisions. In production division it produces all the types of components by using its full capacity of 42,000 machines hours. In assembly division the remaining job is performed by the workers manually before N is ready for sale:

Product N is manufactured in batches of 100 units and the data relating to the current production per batch are:

	Machine Hours	Variable Cost (₹)	Fixed Cost (₹)	Total Cost (₹)
Production Division:				
Component – P	15	375	150	525
Component – Q	25	450	175	625
Component – R	30	450	450	900
Assembly Division:				
Assembly---		800	325	1,125
		2,075	1,100	3,175

For the next year the company has estimated that its sale would go up by 50% more than the present sales and probably even by 75% if the production capacity is made available.

The machine capacity cannot be increased during the next year even though the workers in the assembly division can be increased as per requirement without any increase in fixed costs. To meet the increased demand, production can be taken up and processed in assembly division by procuring the components from the open market. The company has received the following price quotations for the purchase of components:

	P	Q	R
Price offered per component (₹)	5.55	7.00	8.40

Required

- Determine the production and profits being earned at present.
- Indicate which of the component (s) should be purchased and in what quantities at the two estimated levels of output viz. increase by 50% and 75% of existing production.
- Prepare a statement showing the company's profitability at both the estimated levels of output.

CHAPTER 488 PRICING DECISION & T.P QNO-34

Page No.	
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Division A is a profit centre, which produces four products P, Q, R and S. Each product is sold in the external market also. Data for the period is as follows:

	P	Q	R	S
Market Price per unit (₹)	350	345	280	230
Variable Cost of Production per unit	330	310	180	185
Labour Hours Required per unit	3	4	2	3

Product S can be transferred to Division B but the maximum quantity that might be required for transfer is 2,000 units of S.

The maximum sales in the external market are:

P	3,000 units
Q	3,500 units
R	2,800 units
S	1,800 units

Division B can purchase the same product at a slightly cheaper price of ₹ 225 per unit instead of receiving transfers of product S from Division A.

What should be transfer price for each unit for 2,000 units of S, if the total labour hours available in Division A are:

- 24,000 hours?
- 32,000 hours?

QNO-35

AB Cycles Ltd. has 2 divisions. A and B which manufacture bicycle. Division A produces bicycle frame and Division B assembles rest of the bicycle on the frame. There is a market for sub-assembly and the final product. Each division has been treated as a profit centre. The transfer price has been set at the long-run average market price. The following data are available to each division :

Estimated selling price of final product

Rs. 3,000 p.u.

Long run average market price of sub-assembly

Rs. 2,000 p.u.

Incremental cost of completing sub-assembly in division B Rs. 1,500 p.u.

Incremental cost in Division A

Rs. 1,200 p.u.

Required :

- If Division A's maximum capacity is 1,000 p.m. and sales to the intermediate are now 800 units, should 200 units be transferred to B on long-term average price basis.
- What would be the transfer price, if manager of Division B should be kept motivated.
- If outside market increases to 1,000 units, should Division A continue to transfer 200 units to Division B or sell entire production to outside market.

QNO-36

Page No.	
Date	

Your company fixes the inter-divisional transfer prices for its products on the basis of cost, plus a return on investment in the division. The Budget for Division A for 1998-99 appears as under :

Investment in Division A

Rs.

Fixed Assets	5,00,000
Current Assets	3,00,000
Debtors	2,00,000
Annual fixed cost of the division	8,00,000
Variable cost per unit of product	10
Budgeted volume	4,00,000 units per year
Desired ROI	28%

Determine the transfer price for Division A.

QNO-37

Problem

A company produces a single product 'Impex'.

For an annual sales of 40,000 units of Impex, fixed overhead is ₹ 5,50,000. The variable cost per unit is ₹ 60. Capital employed in fixed assets is ₹ 8,00,000 and in current assets is 50% of net sales (i.e. sales less discount). The company sells goods at 20% discount on the maximum retail price (M.R.P.), which is ₹ X per unit. The company wants to earn a return of 25% before tax on capital employed in fixed and current assets.

Required

Calculate the value of X.

QNO-38

An organisation manufactures a product, particulars of which are detailed below:

Annual Production (Units)	20,000
Cost per annum (₹)	
Material	50,000
Other variable cost	60,000
Fixed cost	40,000
Apportioned Investment (₹)	1,50,000

Required

Determine the unit selling price under two strategies mentioned below. Assume that the organisation's Tax rate is 40%—

- 20% return on investment.
- 6% profit on list sales, when trade discount is 40%.

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PRICING DECISIONS & TRANSFER PRICING

SV Ltd. manufactures a product which is obtained basically from a series of mixing operations. The finished product is packaged in the company-made glass bottles and packed in attractive cartons.

The company is organised into two independent divisions viz. one for the manufacture of the end-product and the other for the manufacture of glass bottles. The product manufacturing division can buy all the bottle requirements from the bottle manufacturing division.

The General Manager of the bottle manufacturing division has obtained the following quotations from the outside manufacturers for the supply of empty bottles.

No. of empty bottles	Total purchase value (Rs.)
8,00,000	14,00,000
12,00,000	20,00,000

A cost analysis of the bottle manufacturing division for the manufacture of empty bottles reveals the following production costs :

No. of empty bottles	Total cost (Rs.)
8,00,000	10,40,000
12,00,000	14,40,000

The production cost and sales value of the end product marketed by the product manufacturing division are as under :

Volume (Bottles of end product)	Total cost of end product (excluding cost of empty bottles)	Sales value (Packed in bottles)
	Rs.	Rs.
8,00,000	64,80,000	91,20,000
12,00,000	96,80,000	1,27,80,000

There has been considerable discussion at the corporate level as to the use of proper price for transfer of empty bottles from the bottle manufacturing division to product manufacturing division. This interest is heightened because a significant portion of the Divisional General Manager's salary is in incentive bonus based on profit centre results.

As the corporate management accountant responsible for defining the proper transfer prices for the supply of empty bottles by the bottle manufacturing division to the product manufacturing division, you are required to show for the two levels of volumes of 8,00,000 and 12,00,000 bottles, the profitability by using (i) market price and (ii) shared profit relative to the costs involved basis for the determination of transfer prices. The profitability position should be furnished separately for the two divisions and the company as a whole under each method. Discuss also the effect of these methods on the profitability of the two divisions.

QNo-40

Page No.

Date

A company has two Divisions, Division 'A' and Division 'B'. Division 'A' has a budget of selling 2,00,000 nos. of a particular component 'x' to fetch a return of 20% on the average assets employed. The following particulars of Division 'A' are also known:

Fixed Overhead	₹ 5 lakhs
Variable Cost	₹ 1 per unit
Average Assets:	
Sundry Debtors	₹ 2 lakhs
Inventories	₹ 5 lakhs
Plant & Equipments	₹ 5 lakhs

However, there is constraint in Marketing and only 1,50,000 units of the component 'x' can be directly sold to the Market at the proposed price.

It has been gathered that the balance 50,000 units of component 'x' can be taken up by Division 'B'. Division 'A' wants a price of ₹ 4 per unit of 'x' but Division 'B' is prepared to pay ₹ 2 per unit of 'x'.

Division 'A' has another option in hand, which is to produce only 1,50,000 units of component 'x'. This will reduce the holding of assets by ₹ 2 lakhs and fixed overhead by ₹ 25,000.

You are required to advise the most profitable course of action for Division 'A'.

QNo-41

The two manufacturing divisions of a company are organized on profit centre basis. Division X is the only source of a component required by Division Y for their product 'P'. Each unit of P requires one unit of the said component. As the demand of the product is not steady, orders for increased quantities can be obtained by manipulating prices.

The manager of Division Y has given the following forecast:

Sales per Day (units)	Average Price per Unit of P (₹)
5,000	393.75
10,000	298.50
15,000	247.50
20,000	208.50
25,000	180.00
30,000	150.75

The manufacturing cost (excluding the cost of the component from Division X) of P in Division Y is ₹ 14,06,250 on first 5,000 units and ₹ 56.25 per-unit in excess of 5,000 units.

Division X incurs a total cost of ₹ 5,62,500 per day for an output upto 5,000 components and the total costs will increase by ₹ 3,37,500 per day for every additional 5,000 components manufactured. The Manager of Division X has set the transfer price for the component at ₹ 90 per unit to optimize the performance of his Division.

Required:

- Prepare a divisional profitability statement at each level of output, for Division X and Y separately;
- Find out the profitability of the company as a whole at the output level where:
 - Division X's net profit is maximum;
 - Division Y's net profit is maximum.
- Find out at what level of output, the company will earn maximum profit, if the company is not organized on profit centre basis.

A company is engaged in the manufacture of edible oil. It has three divisions as under:

- (i) Harvesting oil seeds and transportation thereof to the oil mill.
- (ii) Oil Mill, which processes oil seeds and manufactures edible oil.
- (iii) Marketing Division, which packs the edible oil in 2 kg. containers for sale at ₹ 150 each container.

The Oil Mill has a yield of 1,000 kgs of oil from 2,000 kg of oil seeds during a period. The Marketing Division has a yield of 500 cans of edible oil of 2 kg each from every 1,000 kg of oil. The net weight per can is 2 kgs of oil.

The cost data for each division for the period are as under:

Harvesting Division	
Variable cost per kg of oil seed	2.50
Fixed cost per kg of oil seed	5.00
Oil Mill Division	
Variable cost of processed edible oil	10.00 per kg
Fixed cost of processed edible oil	7.50 per kg
Marketing Division	
Variable cost per can of 2 kg of oil	3.75
Fixed cost per can of 2 kg of oil	8.75

The fixed costs are calculated on the basis of the estimated quantity of 2,000 kg of oil seeds harvested, 1,000 kg of processed oil and 500 cans of edible oil packed by the aforesaid divisions respectively during the period under review.

The other oil mills buy the oil seeds of same quality at ₹ 12.50 per kg in the market. The market price of edible oil processed by the oil mill, if sold without being packed in the marketing division is ₹ 62.50 per kg of oil.

Required:

- (i) Compute the overall profit of the company of harvesting 2,000 kg of oil seeds, processing it into edible oil and selling the same in 2 kg cans as estimated for the period under review.
- (ii) Compute the transfer prices that will be used for internal transfers from (1) Harvesting Division to Oil Mill Division and (2) from Oil Mill Division to Marketing Division under the following pricing methods:
 - (1) Shared contribution in relation to variable costs; and
 - (2) Market price.
- (iii) Which transfer pricing method will each divisional manager prefer to use?

Q16-43

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Date	

Tycoon Ltd. has two manufacturing departments organized into separate profit centres known as Textile unit and Process House. The Textile unit has a production capacity of 5 lacs metres cloth per month, but at present its sales is limited to 50% to outside market and 30% to process house.

The transfer price for the year 2014 was agreed at ₹ 6 per metre. This price has been fixed in line with the external wholesale trade price on 1st January, 2014. However, the price of yarn declined, which was the raw material of textile unit, with effect, that wholesale trade price reduced to ₹ 5.60 per metre with effect from 1st June, 2014. This price was however not made applicable to the sales made to the processing house of the company. The textile unit turned down the processing house request for revision of price.

The Process house refines the cloth and packs the output known as brand Rayon in bundles of 100 metres each. The selling price of the Rayon is ₹ 825 per bundle. The process house has a potential of selling a further quantity of 1,000 bundles of Rayon provided the overall prices is reduced to ₹ 725 per bundle. In that event it can buy the additional 1,00,000 metres of cloth from textile unit, whose capacity can be fully utilised. The outside market has no further scope.

The cost data relevant to the operations are:

	Textile unit (₹)	Process house (₹)
Raw material (per metre) on 1 st June, 2014	3.00	Transfer price
Variable cost	1.20 (per metre)	80 (per bundle)
Fixed cost (per month)	4,12,000	1,00,000

You are required to:

- (i) Prepare statement showing the estimated profitability for June, 2014 for Textile unit and Process house and company as a whole on the following basis:
 - (a) At 80% and 100% capacity utilisation of the Textile unit at the market price (external wholesale trade price on 1st January, 2014) and the transfer price to the Processing house of ₹ 6 per metre.
 - (b) At 80% capacity utilisation of the Textile unit at the market price of ₹ 5.60 per metre and the transfer price to the Processing house of ₹ 6 per metre.
 - (c) At 100% capacity utilisation of the Textile unit at the market price of ₹ 5.60 per metre and the transfer price to the Processing house of ₹ 5.60 per metre.
- (ii) Comment on the effect of the company's transfer pricing policy on the profitability of Processing house.

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CHAPTER- 5

QNO 44 BUDGET & BUDGETARY CONTROL

Page No.	
Date	

A factory which expects to operate 7,000 hours, i.e., at 70% level of activity, furnishes details of expenses as under :

Variable expenses	Rs. 1,260
Semi-variable expenses	Rs. 1,200
Fixed expenses	Rs. 1,800

The semi-variable expenses go up by 10% between 85% and 95% activity and by 20% above 95% activity. Construct a flexible budget for 80, 90 and 100 per cent activities.

QNO- 45

A single product company estimated its sales for the next year quarterwise as under :

Quarter	Sales (Units)
I	30,000
II	37,500
III	41,250
IV	45,000

The opening stock of finished goods is 10,000 units and the company expects to maintain the closing stock of finished goods at 16,250 units at the end of the year. The production pattern in each quarter is based on 80% of the sales of the current quarter and 20% of the sales of the next quarter.

The opening stock of raw materials in the beginning of the year is 10,000 kg. and the closing stock at the end of the year is required to be maintained at 5,000 kg. Each unit of finished output requires 2 kg. of raw materials.

The company proposes to purchase the entire annual requirement of raw materials in the first three quarters in the proportion and at the prices given below :

Quarter	Purchase of raw materials % to total annual requirement in quantity	Price per kg.
I	30%	2
II	50%	3
III	20%	4

You are required to present the following for the next year, quarterwise :

- Production budget (In units)
- Raw material consumption budget (in quantity)
- Raw material purchase budget (in quantity and value).
- Priced stores ledger card of the raw material using First in First out method.

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ONLY 46

Page No.			
Date			

Action Plan Manufacturers normally produce 8,000 units of their product in a month, in their Machine Shop. For the month of January, they had planned for a production of 10,000 units. Owing to a sudden cancellation of a contract in the middle of January, they could only produce 6,000 units in January.

Indirect manufacturing costs are carefully planned and monitored in the Machine Shop and the Foreman of the shop is paid a 10% of the savings as bonus when in any month the indirect manufacturing cost incurred is less than the budgeted provision.

The Foreman has put in a claim that he should be paid a bonus of Rs. 88.50 for the month of January. The Works Manager wonders how any one can claim a bonus when the Company has lost a sizeable contract. The relevant figures are as under :

Indirect manufacturing costs	Expenses for a normal month	Planned for January	Actual in January
	Rs.	Rs.	Rs.
Salary of foreman	1,000	1,000	1,000
Indirect labour	720	900	600
Indirect material	800	1,000	700
Repairs and maintenance	600	650	600
Power	800	875	740
Tools consumed	320	400	300
Rates and taxes	150	150	150
Depreciation	800	800	800
Insurance	100	100	100
5,290	5,875	4,990	

Do you agree with the Works Manager? Is the Foreman entitled to any bonus for the performance in January? Substantiate your answer with facts and figures.

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CHAPTER - 6 - STANDARD COSTING

QNO-47

Product	Budgeted Quantity Units	Actual quantity units	Budgeted sale price per unit Rs.	Actual sale price per unit Rs.	Standard cost per unit Rs.
X	240	400	50	45	30
Y	160	200	25	20	15

To obtain an output of 100 units of product X, 800 kgs of material is required at a budgeted price of Rs. 5 per kg. During the month, the actual output was 500 units. The actual material consumption was 4,400 kgs @ Rs. 5.30 per kg. You are required to calculate various material cost variances.

Question

48

The standard and actual figures of a firm are as under:

Standard time for the job	1,000 hours
Standard rate per hour	Re. 0.50
Actual time taken hours	1200
Actual wages paid	Rs. 360

Compute the variances
if abnormal ideal time is
100 hours

Question

QNO-49

To produce 100 units of a product, 3 types of workers are required as per following standards:

- 180 hours of skilled labour @ Rs. 5 per hour
- 120 hours of semi-skilled labour @ Rs. 3 per hour
- 300 hours of unskilled labour @ Rs. 2 per hour

Part A

During September 2005 following were the details of labour hours recorded for the output of 1600 units.

- 3000 hours of skilled labour @ Rs. 5.20 per hour
- 2000 hours of semi-skilled labour @ Rs. 2.50 per hour
- 5000 hours of unskilled labour @ Rs. 1.80 per hour

Q No-50

M Star Ltd uses standard costing system in manufacturing of its single product 'MGO'. The standard cost per unit of 'MGO' is as follows.

	₹
Direct Material – 2 metres @ ₹ 6 per metre	12.00
Direct Labour – 1 hour @ ₹ 4.40 per hour	4.40
Variable Overhead – 1 hour @ ₹ 3 per hour	3.00
	19.40

During July, 2013, 6,000 units of M were procured and the related data are as under:

Direct material acquired – 19,000 metres @ 5.70 per metre.

Material consumed 12,670 meters.

Direct labour - ? hours @ ₹ ? per hour ₹ 27,950

Variable overheads incurred ₹ 20,475

The variable overhead efficiency variance is ₹ 1,500 adverse. Variable overheads are based on direct labour hours. There was no stock of raw – material in the beginning.

You are required to compute the missing figures and work out all the relevant variances.

Q No-51

XYZ Ltd. has furnished you the following for the month of August:

	Budget	Actual
Output (units)	30,000	32,500
Hours	30,000	33,000
Fixed overhead Rs.	45,000	50,000
Working days	25	26

Calculate the fixed overhead variances.

Q QNO-52

The budget output of a single product manufacturing company for 2013-14 was 5,000 units. The financial results in respect of the actual output of 4,800 units achieved during the year were as under:-

Direct Material	₹
Direct Wages	29,700
Variable Overheads	44,700
Fixed Overheads	72,750
Profit	39,000
Sales	36,600
	2,22,750

The standard direct wage rate is ₹ 4.50 per hour and the standard variable overhead rate is ₹ 7.50 per hour.

The cost accounts recorded the following variances for the year:-

Variances	Favourable (₹)	Adverse (₹)
Material Price	—	300
Material Usage	—	600
Wage Rate	750	—
Labour Efficiency	—	2,250
Variable Overhead Expense	3,000	—
Variable Overhead Efficiency	—	3,750
Fixed Overhead Expense	—	1,500
Selling Price	6,750	—

Required to:-

- Prepare a statement showing the original budget.
- Prepare the standard product cost sheet per unit.
- Prepare a statement showing the reconciliation of originally budgeted profit and the actual profit.

SAME - AS - DKC - QNO - 206

36

QNO-53

Young Chin Limited uses standard and marginal costing system. It provides the following details for the year 2012-13 relating to its production, cost and sales:

Particulars	Budget	Actual
Sales units	24,000	25,600
Sales value (₹)	6,000	6,784
Materials (₹)	960	1,080
Labour (₹)	1,440	1,664
Variable overheads (₹)	2,400	2,592

The sales budget is based on the expectation of the company's estimate of market share of 12%. The entire industry's sales of the same product for the year 2012-13 is 2,40,000 units. Further details are as follows:

Particulars	Standard (In ₹)	Actual (In ₹)
Material price per kg.	8.00	7.50
Labour rate per hour	6.00	6.40

You are required to:

- Prepare a statement reconciling the budgeted contribution with actual contribution on the basis of important material variances, labour variances, variable overhead variances and sales variances.
- Compute market size variance and market share variance also.

SAME - DKC QNO-203

37

Q No - 54

The following is the Operating Statement of a company for April 2013:

Budgeted Profit				(₹)
Variance		Favourable	Adverse	
		(₹)	(₹)	
Sales	Volume	---	4,000	
	Price	9,600	---	
Direct Material	Price	---	4,960	
	Usage	---	6,400	
Direct Labour	Rate	---	3,600	
	Efficiency	3,600	---	
Fixed Overheads	Efficiency	2,400	---	
	Capacity	---	4,000	
	Expense	1,400	---	
Actual Profit				5,960 (A)
				94,040

Additional information is as under:

Budget for the year

1,20,000 units

Budgeted fixed overheads

₹ 4,80,000 per annum

Standard cost of one unit of product is:

Direct Materials

5 Kg. @ ₹ 4 per Kg.

Direct Labour

2 hours @ ₹ 3 per hour

Fixed overheads are absorbed on direct labour hour basis.

Profit

25% on sales

You are required to prepare the Annual Financial Profit / Loss Statement for April, 2013 in the following format:

Account	Qty / Hours	Rate / Price (₹)	Actual Value (₹)
Sales	---	---	---
Direct Materials	---	---	---
Direct Labour	---	---	---
Fixed Overheads	---	---	---
Total Costs	---	---	---
Profit	---	---	---

CAMP - DKC - Q No - 184

38

Q No 55

Safron products Ltd. produces and sells a single product. Standard cost card per unit of the product is as follows:

Direct Material, A 10 kg @ ₹ 5 per kg	50.00
B 5 kg @ ₹ 6 per kg	30.00
Direct Wages, 5 hours @ ₹ 5 per hour	25.00
Variable Production Overheads, 5 hours @ 12 per hour	60.00
Fixed Production Overheads	25.00
Total Standard Cost	190.00
Standard Gross Profit	35.00
Standard Selling Price	225.00

A fixed production overhead has been absorbed on the expected annual output of 25,200 units produced evenly throughout the year. During the month of December, 2013, the following were the actual results for an actual production of 2,000 units:

Sales, 2,000 units @ ₹ 225	4,50,000
Direct Materials, A 18,900 kg	99,225
B 10,750 kg	61,275
Direct Wages, 10,500 hours (actually worked 10,300 hours)	50,400
Variable Production Overheads	1,15,000
Fixed Production Overheads	56,600
Gross Profit	67,500

The material price variance is extracted at the time of receipt of materials. Material purchase were a 20,000 kg. @ ₹ 5.25 per kg; B 11,500 kg @ ₹ 5.70 per kg.

Required:

- Calculate all Variances.
- Prepare a reconciliation statement showing Standard Gross Profit, Variances and Actual Gross Profit.
- Explain the reason for the difference in Actual Gross Profit given in the question and calculated in (ii) above.

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CHAPTER-7

COSTING OF SERVICE SECT

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QNo-
56

A manufacturing company runs its boiler on furnace oil obtained from X oil company and Y oil company whose depots are situated at a distance of 24 kms and 16 kms from the factory site.

Transportation of furnace oil is made by company's own tank lorries (two) of 8 ton capacity each. Onward trips are made only with full load and the lorries return empty. The filling time take an average of 40 minutes for X oil company and 30 minutes for Y oil company. The empty time in the factory is only 40 minutes for each. The average speed of lorries work out is 24 km per hour.

The varying operating charges average 80 paise per km covered and fixed charges gives an incidence of Rs. 7.50 per hour of operation.

Calculate the transportation cost per ton-km for each source of furnace oil.

40

Q10-57

A Multinational company runs a Public Medical Health Center. For this purpose, it has hired a building at a rent of ₹ 10,000 per month with 5% of total taking. Health center has three types of wards for its patients namely. General ward, Cottage ward and Deluxe ward. State the rent to be charged to each bed-day for different type of ward on the basis of the following information;

1. The number of beds of each type is General ward 100, Cottage ward 50, Deluxe ward 30.
2. The rent of cottage ward bed is to be fixed at 2.5 times of the General ward bed and that of Deluxe ward bed as twice of the Cottage ward bed.
3. The occupancy of each type of ward is as follows:
General ward 100%, Cottage ward 80% and Deluxe ward 60%. But, in General ward there were occasions when beds are full, extra beds were hired at a charges of ₹ 20 per bed. The total hire charges for the extra beds incurred for the whole year amount to ₹ 12,000.
4. The Health center engaged a heart specialist from outside and on an average fees paid to him was ₹ 15,000 per trip. He makes three trips in the whole year.
5. The other expenses for the year were as under:

	(₹)
Salary of Supervisors, Nurses, Ward Boys	4,25,000
Repairs and Maintenance	90,000
Salary of Doctors	13,50,000
Food Supplied to Patients	40,000
Laundry Charges for their Bed Linens	80,500
Medicines Supplied	74,000
Cost of Oxygen, X-Ray etc. (other than directly borne for treatment of Patients)	49,500
General Administration Charges	63,000

6. Provide profit @ 20% on total taking.
7. The Health center imposes 8% service tax on rent received
8. 360 days may be taken in a year.

Fuji Ltd. is considering three alternative proposals for conveyance facilities for its sales personnel who have to do considerable travelling, approximately 20,000 kilometres every year. The proposals are as follows:

- (i) Purchase and maintain its own fleet of cars. The average cost of a car is ₹ 1,00,000.
- (ii) Allow the Executive to use his own car and reimburse expenses at the rate of ₹ 1.60 per kilometre and also bear insurance costs.
- (iii) Hire cars from an agency at ₹ 20,000 per year per car. The company will have to bear costs of petrol, taxes and tyres.

The following further details are available:

Petrol..... ₹ 0.60 per km

Repairs and maintenance..... ₹ 0.20 per km

Tyres..... ₹ 0.12 per km

Insurance..... ₹ 1,200 per car per annum

Taxes..... ₹ 800 per car per annum

Life of the car..... 5 years with annual mileage of 20,000 kms

Resale value..... ₹ 20,000 at the end of the fifth year

Required

Work out the relevant costs of three proposals and rank them.

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Chapter - 9

COST SHEET, PROFITABILITY ANALYSIS & REPORTING

QNo- 59

A manufacturing organisation has four different customers A, B, C and D. A single product is sold to them at different prices because of trade discount offered. Data is give for cost per unit of business activity. You are required to prepare customer profitability statement.

Information on four customers

Customers	A	B	C	D
No. of units sold	60,000	80,000	1,00,000	70,000
Selling price net of discount	25p	23p	21p	22p
No. of sales visits	2	4	6	3
No. of purchase orders	30	20	40	20
No. of deliveries	10	15	25	14
Kilometres per journey	20	30	10	50
No. of rush deliveries	—	—	1	2

Cost of each activity:-

- | | |
|-------------------------|---------------------|
| 1) Sales visit | 210 per visit. |
| 2) Order placing | Rs.60 per order |
| 3) Product Handling | Rs.0.10 per item |
| 4) Normal delivery cost | Rs. 2 per kilometer |
| 5) Rushed delivery cost | Rs.200 per delivery |

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