

# Cost management test questions and suggested solutions

[Business](#), [Management](#)



Management Test Questions & Suggested Solutions by L. Muralidharan,

FCA. , Grad. CWA. , COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS

Question: 1 Bharata Ltd is considering proposals for design changes in one of a range of soft toys. The proposals are as follows: (a) Eliminate some of the decorative stitching from the toy.

(b) Use plastic eyes instead of glass eyes in the toys (two eyes per toy). (c)

Change the filling material used. It is proposed that scrap fabric left over from the body manufacture be used instead of the synthetic material which is currently used. The design change proposals have been considered by the management team and the following information has been gathered: (a) Plastic eyes will cost Rs. 15 per hundred whereas the existing glass eyes cost Rs. 20 per hundred. The plastic eyes will be more liable to damage on insertion into the toy.

It is estimated that scrap plastic eyes will be 10% of the quantity issued from stores as compared to 5% of issues of glass eyes at present. (b) The synthetic filling material costs Rs. 80 per tonne. One tonne of filling is sufficient for 2, 000 soft toys. c) Scrap fabric to be used as filling material will need to be cut into smaller pieces before as and this will cost Rs. 0. 05 per soft toy.

There is sufficient scrap fabric for the purpose. (d) The elimination of the decorative stitching is expected to reduce the appeal of the product, with an estimated fall in sales by 10% from the current level. It is not felt that the change in eyes or filling material will adversely affect sales volume. The

elimination of the stitching will reduce production costs by Rs. 0.60 per soft toy. (e) The current sales level of the soft toy is 3,00,000 units per annum.

Apportioned fixed costs per annum are Rs. 4,50,000. The net profit per soft toy at the current sales level is Rs. 3. Required: (i) Using the information given in the question, prepare an analysis which shows the estimated effect on annual profit if all three proposals are implemented, and which enables management to check whether each proposal will achieve an annual target profit increase of Rs. 25,000. The proposals for plastic eyes and the use of scrap fabric should be evaluated after the stitching elimination proposal has been evaluated.

(ii) Calculate the percentage reduction in sales due to the stitching elimination at which the implementation of all three design change proposals would result in the same total profit from the toy as that earned before the implementation of the changes in design. Question: 2 ABC Ltd manufactures a simple garden tool. At present the company is working at full capacity producing the three components A, B, C one of each being required for the assembly of the tool. All the machines are capable of making all the components. Current cost data concerning and hundred tools are as follows:

Machine	Hours	Variable Cost Rs.	Fixed Cost Rs.	Total Rs.
1	10	6	10	16
2	16	32	2	34
3	20	32	32	64
4	46	42	74	116
5	142	142	218	360
6	250	250	250	500

Components - A Components - B Components - C

Assembly Selling Price The management is engaged in preparing next year's budget an increase in sales is to be provided for. The factory already has to

work at full machine capacity to meet current demand and no increase in the present machine capacity can be effected for over 12 months. Though facilities involving variable costs can be increase data very short notice. It is decided that one of the components will have to be bought out. The following quotations have been received: L. Muralidharan, FCA. , Grad.

CWA. , 1 Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS ; SOLUTIONS Components A B C Price per 100 tools Price per 100 tools Price per 100 tools Rs 36 46 54 The Sales manager feels sure that he can sell at least 50% more tools than at present and probably 75% more provided the factory capacity is available. You are required to prepare a report for management giving your recommendations as to which component should be ordered from outside supplied for the coming year if production is increased by 50% and 75% respectively. Question : 3 The Chakrapani Ltd's Cost behaviour is as follows: Production range in units 0- 20000 20001 - 65000 65001 - 90000 90001 - 100000 Fixed cost Rs. 160000 Rs. 190000 Rs. 210000 Rs.

250000 At an activity of 70000 units per year, variable costs total 280000. Full capacity is 100000 units per year. Required: (1) Production is now set at 50000 units per year with a sales price of Rs. 7. 50 per unit. What is the minimum number of additional units needed to be sold in an unrelated market at Rs. 5.

50 per unit to show a net profit of Rs. 3000 per year? 2) Production is now set at 60000 units per year. By how much may sales promotion costs be

increased to bring production up to 80000 units and still earn a net profit of 5% of total sales if the selling price is held at Rs. 7.50? (3) If net profit is currently Rs. 10000 with fixed costs at Rs. 160000 and a 2% increase in price will leave units sold unchanged but increase profits by Rs.

5000. What is the present volume in units? Question: 4 The manager of a business has received enquiries about printing three different types of advertising leaflet. Information concerning these three leaflets is shown below:

	A	B	C
Selling prices per 1000 leaflets	220	450	130
Estimated printing costs: Variable per 1000 leaflets	100	220	90
Specific fixed costs per month	4000	7000	13000

In addition to specific fixed costs a further Rs. 4,000/- per month would be incurred in renting special premises if any or all of the above three leaflets were printed. The minimum printing order would be for 30,000 of each type of leaflet per month and the maximum possible order is estimated to be 60,000 of each leaflet per month. Required (i) Examine and comment upon the potential profitability of leaflet printing. Make whatever calculations you consider appropriate.

(ii) Assuming that orders have been received to print each month 50,000 of both leaflet A and leaflet B calculate the quantity of leaflet C which would need to be ordered to produce an overall profit, for all three leaflets of Rs. 1,800/- per month. L. Muralidharan, FCA., Grad. CWA., 2 Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS (iii) It is possible that a special type of paper used in printing leaflets will be difficult to obtain during the first few months.

Three estimated consumption of this special paper for each type of leaflet is:

Leaflet	Leaflet A	Leaflet B	Leaflet C
2 packs per 1000 leaflets	6 packs per 1000 leaflets	6 packs per 1000 leaflets	1000 leaflets

Advise the manager on the quantity of each leaflet which should be printed in order to maximise profit in the first month, if 50,000 of each type of leaflet have been printed there remains unfulfilled order of 10,000 for each type of leaflet and there 170 packs of special paper available for the rest of the month. What will be your reaction if the printing quantity is to be pack of 1000 leaflets.

Question: 5 For the past 20 years a charity organisation has held an annual dinner and dance with the primary intention of raising funds. This year there is concern that an economic recession may adversely affect both the number of persons attending the function and the advertising space that will be sold in the programme published for the occasion. Based on past experience and current prices and quotations, it is expected that the following costs and revenues will apply for the function. (Rs.)

Costs:	Dinner and dance:	Hire of premises	Band and entertainers	Raffle prizes	Photographer	Food
Rs. 2 per person (with a guarantee of 400 persons minimum)	Programme:	Rs. 2,000, plus Rs. 5 per page	Price of tickets	Average revenue from : Raffle	Photographs	Programme:
Rs. 70 per person	Average revenue from advertising	Rs. 5 per person	Rs. 1 per person	Rs. 20 per person	700	2,800
800	200	A sub-committee, formed to examine more closely the likely outcome of the function, discovered the following from previous records and accounts: No.				

of tickets sold 250 to 349 350 to 449 450 to 549 550 to 649 No. of past occasions 4 6 8 2 20 L. Muralidharan, FCA. , Grad. CWA. , 3Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS No. of programme pages sold 24 32 40 48 No.

of past occasions 4 8 6 2 20 Several members of the sub-committee are in favour of using a market research consultant to carry out a quick enquiry into the likely number of tickets and the likely number of pages of advertising space that would be sold for this year's dinner and dance. You are required to: (a) Calculate the expected value of the profit to be earned from the dinner and dance this year; (b) Recommend, with relevant supporting financial and cost data, whether or not the charity should spend Rs. 00 on the market research enquiry and indicate the possible benefits the enquiry could provide. NB: All workings for tickets should be in steps of 100 tickets and for advertising in steps of 8 pages. Question: 6 The budgeted production for period 7 in the finishing department of a pottery manufacturer is, 4, 500 cups, 4, 000 saucers and 6, 250 plates. In one standard hour a direct operative is expected to be able to finish either, 30 cups, or 40 saucers, or 25 plates. During period 7, 400 direct labour hours were worked and actual production was, 4, 260 cups, 6, 400 saucers and 3, 950 plates.

Required: Using the above information calculate for period 7: (i) The productivity of the direct operatives; (ii) An appropriate ratio expressing the department's actual production relative to that budgeted; (iii) Another ratio which you consider may be useful to management and explain the meaning of the ratio you have calculated. Question: 7 The Bashyam Co Ltd

manufactures a variety of products of basically similar composition.

Production is carried on by subjecting the various raw materials to a number of standardised operations, each major series of operations being carried out in a different department. All products are subject to the same initial processing which is carried out in departments A, B and C; the order and extent of further processing then depending upon the type of end product to be produced. It has been decided that a standard costing system could be usefully employed within Bashyam and pilot scheme to be operated for six months based initially only on department B, the second department in the initial common same of operations. If the pilot scheme produces useful results then a management accountant will be employed and the system would be incorporated as appropriate throughout the whole firm. The standard cost per unit of output of department B is: Rs.

Direct labour (14 hours at Rs. 2 per hour) Direct material (i) (ii) Output of department A (3 kg at Rs. 9 per kg) Acquired by and directly input to department 4 Sreeram Coaching Point Rs. 28 27 L. Muralidharan, FCA. , Grad. CWA.

, COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS B material X (4 kg at Rs. 5 per kg) Variable overhead (at Rs. 1 per direct labour hours worked) Fixed production overheads (i) Directly incurred by department B - (note 1) manufacturing overhead (per unit) (ii) Allocated to department B general factory overhead (per unit) 3 8 11 14 20 47 Note 1. Based on normal monthly production of 400 units. In the first month of operation of the pilot study (month 7 of the financial year), department B had no work in progress



at the beginning and the end of the month. The actual costs allocated to department B in the first month of operation were: Rs. Direct labour (6, 500 hours) Direct materials (i) (ii) Output of department A (1, 400 kg) - (note 2) Material X (1, 000 kg) Variable overhead Fixed overhead (i) (ii) Directly incurred manufacturing overhead Allocated to department B - (note 3) 1, 600 2, 900 4, 500 Rs.

59, 000 Note 2. Actual cost of output of department A. Note 3. Based on the actual expenditure on joint manufacturing overheads and allocated to departments in accordance with labour hours worked The production manager feels that the actual costs of Rs. 59, 000 for production of 500 units indicates considerable inefficiency on the part of department B. e says, 'I was right to request that the pilot standard costing system be carried out in department B as I have suspected that they are inefficient and careless - this overspending of Rs. 9, 000 proves I am right'.

Required: Prepare a brief statement which clearly indicates the reasons for the performance of department B and the extent to which that performance is attributable to department B. the statement should utilize variance analysis to the extent it is applicable and relevant. Question: 8 (i) Mathanakesari Ltd manufactures and sells a single product. In the quarter to 30 November 2002 sales of 10, 000 units were budgeted at a unit selling price of Rs. 5 and a unit contribution of Rs. 1 (after charging variable costs). The budget had been prepared in the previous spring, and proved to be inaccurate.

Actual sales for the November quarter were 7, 000 units at a unit selling price of Rs. 8, giving a unit contribution of Rs. 3. You are required to calculate appropriate sales margin variances on the basis of this information.

(ii) When reviewing the results for the quarter to 30 November the sales manager ascertained several additional facts. The total market for the product nationally had been only 45, 000 units during the quarter, and not 50, 000 units as Mathanakesari had originally anticipated. Mathanakesari had previously maintained a 20% share L.

Muralidharan, FCA. , Grad. CWA. , 5 Sreeram Coaching Point Rs. 14, 000 21, 000 11, 500 32, 500 8, 000 COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS of the market for many years, adopting a policy of matching the market price. An index of the selling price levels of competitors' products had risen to 140, instead of remaining at the level of 100 as originally budgeted. Mathanakesari's variable costs (all materials) had risen in line with the change in the appropriate commodity price index, which had gone up from the expected level of 100 to an actual level of 125.

You are required to calculate a set of variances to take appropriate notice of this additional information, and to discuss their significance. Question: 9

From past experience a company operating a standard cost system has accumulated the following information in relation to variances in its monthly management accounts: Percentage of total number of variances. 1) Its variances fall into two categories: Category 1: those which are not worth investigating Category 2: those which are worth investigating 64 36 100 (2) Of category 2, corrective action has eliminated 70% of the variances, but the

remainder have continued. (3) The cost of investigation averages Rs. 350 and that of correcting variances averages Rs. 550. (4) The average size of any variance not corrected is Rs.

525 per month and the company's policy is to assess the present value of such costs at 2% per month for a period of five months. You are required to: (a) Prepare two decision trees, to represent the position if an investigation is: (i) Carried out; (ii) Not carried out; (b) Recommend, with supporting calculations, whether or not the company should follow a policy of investigating variances as a matter of routine; (c) Explain briefly two types of circumstance that would give rise to variances in Category 1 and two to those in Category 2; (d) Mention any one variation in the information used that you feel would be beneficial too the company if you wished to improve the quality of the decision-making rule recommended in (b) above. Explain briefly why you have suggested it. Question: 10 Vishwakarma is a builder.

His business will have spare capacity over the coming six months and he has been investigating two projects. Project A Vishwakarma is tendering for a school extension contract. Normally he prices a contract by adding 100% to direct costs, to cover overheads and profit.

He calculates direct costs as the actual cost of materials valued on a first-in-first-out basis, plus the estimated wages of direct labour. But for this contract he has prepared more detailed information. Four types of material will be needed: Matl. Quantity (units): Needed Already for contract in stock 1, 100 150 600 200 100 200 300 400 6 Price per unit: (in Rs. ) Purchase

Current Current price of Purchase resale units in stock price price 7. 00 40.  
00 35.

00 20. 00 10. 00 44. 00 33. 00 21. 00 8. 00 38.

00 25. 00 10. 00 Sreeram Coaching Point Z Y X W L. Muralidharan, FCA. ,  
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are in regular use.

Neither X nor W is currently used; X has no foreseeable use in the business,  
but W could be used on other jobs in place of material currently costing Rs. 6  
per unit. The contract will last for six months and requires two craftsmen,  
whose basic annual wage cost is Rs. 16, 000 each. To complete the contract  
in time it will also be necessary to pay them a bonus of Rs. 700 each.

Without the contract they would be retained at their normal pay rate, doing  
work which will otherwise be done by temporary workers engaged for the  
contract period at a total cost of Rs.

11, 800. Three casual labourers would also be employed specifically for the  
contract at a cost of Rs. 4, 000 each. The contract will require two types of  
equipment: general- purpose equipment already owned by Vishwakarma,  
which will be retained at the end of the contract, and specialized equipment  
to be purchased second-hand, which will be sold at the end of the contract.  
The general-purpose equipment cost Rs. 21, 000 two years ago and is being  
depreciated on a straightline basis over a seven-year life (with assumed zero  
scrap value). Equivalent new equipment can be purchased currently for Rs.

49, 000. Second-hand prices for comparable general-purpose equipment, and those for the relevant specialized equipment, are shown below. General - purpose equipment Purchase Price (Rs. ) Resale Price (Rs. ) Current After 6 months: If used for 6 months If not used 15, 000 19, 000 12, 600 16, 400 7, 000 8, 000 5, 800 6, 500 20, 000 17, 200 Specialized equipment Purchase Price (Rs. ) Resale Price (Rs. ) 9, 000 7, 400 The contract will require the use of a yard on which Vishwakarma has a four-year lease at a fixed rental of Rs.

2, 000 per year. If Vishwakarma does not get the contract the yard will probably remain empty. The contract will also incur administrative expenses estimated at Rs. 5, 000. Project B If Vishwakarma does not get the contract he will buy a building plot for Rs. 20, 000 and build a house. Building costs will depend on weather conditions: Weather condition Probability Building costs (excluding land) A 0.

4 Rs. 60, 000 B 0. 4 Rs. 80, 000 C 0. 2 Rs. 95, 000 Similarly the price obtained for the house will depend on market conditions: Market condition Probability Sale price (net of selling expenses) D 0. 7 Rs.

1, 00, 000 E 0. 3 Rs. 1, 20, 000 Vishwakarma does not have the resources to undertake both projects. The costs of his supervision time can be ignored. Requirements: (a) Ignoring the possibility of undertaking project B, calculate: (i) The price at which Vishwakarma would tender for the school extension contract if he used his normal pricing method, and (ii) The tender price at which you consider Vishwakarma would neither gain nor lose by taking the

contract. (b) Explain, with supporting calculations, how the availability of project B should affect Vishwakarma's tender for the school extension contract. L.

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MANAGEMENT - TEST QUESTIONS & SOLUTIONS Question: 11 Narendran

Products has two main products. X and Y, which have unit costs of Rs. 12 and Rs. 24 respectively.

The company uses a markup of 33% in establishing its selling prices and the current prices are thus Rs. 16 and Rs. 32. With these prices, in the year which is just ending, the company expects to make a profit of Rs. 3,00,000 from having produced and sold 15,000 units of X and 30,000 units of Y. This programme will have used all the available processing time in the finishing department. Each unit of X requires an hour of processing time in this department and every unit of Y correspondingly requires half an hour.

Fixed overhead was Rs. 3,60,000 for the year and this has been charged to the products on the basis of the total processing hours used. All other costs may be assumed variable in relation to processing hours. In the current year it is estimated that Rs. 60,000 of the fixed overhead will be absorbed by X and Rs. 3,00,000 by Y. With the existing selling prices it is considered that the potential annual demand for X is 20,000 units and that for Y, 40,000 units.

You are required to comment critically on the product mix adopted by Narendran Products. Calculate what would have been the optimal plan given

that there was no intention of changing the selling prices. (a) For the forthcoming year increased capacity has been installed in the finishing department so that this will no longer be a constraint for any feasible sales programme. Annual fixed overhead will be increased to Rs. 4, 00, 000 as a consequences of this expansion of facilities, but variable costs per unit are unchanged. A study commissioned by the Sales Director estimates the effect that alterations to the selling prices would have on the sales that could be achieved. The following table has been prepared:

X	Price	Demand ('000)	Rs.
13	50	30	Rs. 18
18	50	10	Rs. 29
00	60	Y	Rs. 35

00 20 It is thought reasonable to assume that the price/demand relationship is linear. Assuming that the company is now willing to abandon its cost plus pricing practices, if these can be shown to be deficient, you are required to calculate the optimal selling price for each product and the optimal output levels for these prices. State clearly any assumptions that you find it necessary to make. Question: 12 Division A of a large divisionalized organization manufactures a single standardized product. Some of the output is sold externally whilst the remainder is transferred to Division B where it is a subassembly in the manufacture of that division's product. The unit costs of Division A's product are as follows: (Rs. ) Direct material Direct labour Direct expense Variable manufacturing overheads Fixed manufacturing overheads Selling and packing expense - variable 4 2 2 2 4 1 17 Annually 10, 000 units of the product are sold externally at the standard price of Rs.

0. In addition to the external sales, 5, 000 units are transferred annually to Division B at an internal transfer charge of Rs. 29 per unit. This transfer price is obtained by deducting variable selling and packing expense from the external price since this expense is not incurred for internal transfers.

Division B incorporates the transferred-in goods into a more advanced product. The unit costs of this product are as follows: L. Muralidharan, FCA.

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QUESTIONS ; SOLUTIONS (Rs. Transferred-in term (from Division A) Direct material and components Direct labour Variable overheads Fixed overheads

Selling and packing expense variable 29 23 3 12 12 1 80 Division B's

manager disagrees with the basis used to set the transfer price. He argues that the transfers should be made at variable cost plus an agreed (minimal) mark-up since he claims that his division is taking output that Division A would be unable to sell at the price of Rs. 30. Partly because of this disagreement, a study of the relationship between selling price and demand has recently been made for each division by the company's sales director.

The resulting report contains the following table: Customer demand at various selling prices: Division A Selling price Demand Division B Selling price Demand  
 Rs. 80 7, 200 Rs. 90 5, 000 100 2, 800 Rs. 20 15, 000 Rs. 30 10, 000  
 Rs. 40 5, 000 The manager of Division B claims that this study supports his case. He suggests that a transfer price of Rs.

12 would give Division A a reasonable contribution to its fixed overheads while allowing Division B to earn a reasonable profit. He also believes that it



would lead to an increase of output and an improvement in the overall level of company profits. You are required: (a) To calculate the effect that the transfer pricing system has had on the company's profits, and (b) To establish the likely effect on profit of adopting the suggestion by the manager of Division B of a transfer price of Rs. 12. Question: 13 Companies RP, RR, RS and RT are members of a group. RP wishes to buy an electronic control system for its factory and, in accordance with group policy, must obtain quotations from companies inside and outside of the group. From outside of the group the following quotations are received: Company A quoted Rs.

33, 200. Company B quoted Rs. 5, 000 but would buy a special unit from RS for Rs. 13, 000. To make this unit, however, RS would need to buy parts from RR at a price of Rs. 7, 500. The inside quotation was from RS whose price was Rs.

48, 000. This would require RS buying parts from RR at a price of Rs. 8, 000 and units from RT at a price of Rs. 30, 000. However, RT would need to buy parts from RR at a price of Rs. 11, 000. Additional data are as follows: (1) RR is extremely busy with work outside the group and has quoted current market prices for all its products.

(2) RS costs for the RP contract, including purchases from RR and RT, total Rs. 2, 000. For the Company B contract it expects a profit of 25% on the cost of its own work. 9 Sreeram Coaching Point L. Muralidharan, FCA. , Grad. CWA.

, COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS (3) (4) RT prices provide for a 20% profit margin on total costs. The variable costs of the group companies in respect of the work under consideration are: RR: 20% of selling price. RS: 70% of own cost (excluding purchases from other group companies) RT: 65% of own cost (excluding purchases from other group companies) You are required, from a group point of view, to: (a) Recommend, with appropriate calculations, whether the contract should be placed with RS or Company A or Company B; (b) State briefly two assumptions you have made in arriving at your recommendations. Question: 14 An industrial group of companies includes two divisions: A and B. The output of Division A is product A, two units of which are used by Division B for every one of its product B. Division B has first call on Division A's output but there is a separate market outside the group for the balance of Division A's output. All the output of Division B is sold outside the group.

The maximum capacity of Division A is 1,30,000 units of A and that of Division B is 50,000 units of B per annum. Each division maintains a stable level of stocks throughout the year. The group would like to examine the results of using different bases of transfer pricing under different scenarios (ie situations that could be expected to arise). The bases of transfer pricing are Absorbed standard cost Market price Variable cost plus a lump sum of 80% of Division A's fixed cost

Scenario	Number	Product A	Market price	Total Demand (per unit) (thousand units)
1	5	23	29	30
2	25	35	100	70
3	100	70	130	Product A
4	Rs. 20	Rs. 5	Product B	Rs.

12 Rs. 18 (Exclusive of 2 units of Product A) 100 90 90 AS MP VC Product B  
 Market price Total Demand (per unit) (thousand units) Rs. 40 30 30 Costs per  
 unit are: Variable cost Fixed cost Budgeted volume in units per annum Part 1  
 1, 00, 000 40, 000 You are required to calculate the profits shown by Division  
 A and by Division B for the following seven situations: Scenario 15 23 29 MP  
 MP Basis of Transfer pricing VC VC VC AS AS L. Muralidharan, FCA. , Grad.  
 CWA. , 10 Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS ;  
 SOLUTIONS Part 2 Assume that Division B receives an overseas order for 20,  
 000 units of B that will in no way influence its other clientele.

(a) As manager of Division B state, with supporting calculations, whether you  
 would recommend acceptance of the order in the following two situations:

Scenario (i) 23 (ii) 29 Price per unit (ex factory) Rs. 55 Rs. 65 Basic of  
 transfer pricing AS MP (b) If you were Managing Director of the whole group  
 state, with very brief reasons, whether you would recommend acceptance of  
 the orders in (a) (i) and (a) (ii) above. Question: 15 Vista Electronics

manufactures two different types of coils used in electric motors. In the falls  
 of the current year. Erica Becker, the controller, compiled the following data.  
 Sales forecast for 2000 (all units to be shipped in 2000): Product Light coil  
 Heavy coil Raw material prices and inventory levels: Raw Material Expected  
 Inventories January 1, 2000 32, 000 lb.

29, 000 lb 6, 000 units Desired Inventories December 31, 2000 36, 000 lb.  
 32, 000 lb. 7, 000 units Anticipated Purchase Price in Rs. 8 5 3 Units 60, 000  
 40, 000 Price Rs. 65 Rs. 95 Sheet metal Copper wire Platform Use of raw  
 material: Raw Material Sheet metal Copper wire Platform Direct-labor

requirements and rates: Product Light coil Heavy coil Amount Used per Unit  
 Light Coll Heavy Coll 4 lb 2 5 lb 3 1 unit Hours per Unit 2 3 Rate per Hour Rs.  
 15 20 Overhead is applied at the rate of Rs.

2 per direct-labor hour. Finished-goods inventories (in units): Product  
 Expected January 1, 2000 20, 000 8, 000 Desired December 31, 2000 25,  
 000 9, 000 Light coil Heavy coil L. Muralidharan, FCA. , Grad. CWA. , 11

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SOLUTIONS Manufacturing overhead: Overhead Cost Item Purchasing and  
 material handling Depreciation, utilities and inspection Activity-Based Budget  
 Rate Rs. 25 per Rupee of sheet metal and cooper wire purchased.

Rs. 4. 00 per coil produced (either type) Shipping Rs. 1. 00 per coil shipped  
 (either type) Rs. 3. 00 per direct-labor hour General manufacturing overhead  
 Required: Prepare the following budgets for 2000.

1) Sales budget (in Rupees). 2) Production budget (in units). 3) Raw-material  
 purchases budget (in quantities). 4) Raw-material purchases budget (in  
 Rupees). ) Direct-labor budget (in Rupees). 6) Manufacturing overhead  
 budget (in Rupees). Question: 16 Toronto Business Associates, a division of  
 Maple Leaf Services Corporation, offers management and computer  
 consulting services to clients throughout Canada and the northeastern  
 United states.

The division specializes in website development and other Internet  
 applications. The corporate management at Maple Leaf Services is pleased  
 with the performance of Toronto Business Associates for the first nine

months of the current year and has recommended that the division manager, Ramachandran, submit a revised forecast for the remaining quarter, as the division has exceeded the annual plan year-to-date by 20 percent of operating income. An unexpected increase in billed hour volume over the original plan is the main reason for this increase in income. The original operating budget for the first three quarters for Toronto Business Associates follows.

	1st Quarter	2nd Quarter	3rd Quarter	Total for first three Quarters
Revenue:				
Consulting fees: Computer system consulting	3,86,750	45,625	1,00,000	40,000
Management consulting	24,500	3,86,750	45,625	1,00,000
Total consulting fees	3,86,750	45,625	1,00,000	40,000
Other revenue	50,000	6,22,375	1,24,500	11,60,250
Total revenue	1,36,875	3,00,000	1,20,000	1,50,000
Expenses:				
Consultant salary	18,67,125	3,73,500	4,21,875	3,15,000
Travel and related expense	7,36,875	10,000	7,46,875	4,21,875
General and administrative expenses	3,15,000	7,36,875	10,000	7,36,875
Depreciation expense	10,000	7,46,875	4,21,875	3,15,000
Corporate expense allocation	7,46,875	4,21,875	3,15,000	7,46,875
Total expenses	12,65,625	9,45,000	22,10,625	30,000
Operating income	22,40,625	L. Muralidharan, FCA.		

, Grad. CWA. , 12 Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS ; SOLUTIONS Howell will reflect the following information in his revised forecast for the fourth quarter. Toronto Business Associates currently has 25 consultants on staff, 10 for management consulting and 15 for computer systems consulting. Three additional management consultant have

been hired to start work at the beginning of the fourth quarter in order to meet the increased client demand. • The hourly billing rate for consulting revenue will remain at 90 per hour for each management consultant and 75 per hour for each computer consultant. However, due to the favorable increase in billing hour volume when compared to the plan, the hours for each consultant will be increased by 50 hours per quarter.

- The budgeted annual salaries and actual annual salaries, paid monthly, are the same: 50, 000 for a management consultant and 46, 000 for a computer consultant. Corporate management has approved a merit increase of 10 percent at the beginning of the fourth quarter for all 25 existing consultants, while the new consultants will be compensated at the planned rate. • The planned salary expense includes a provision for employee fringe benefits amounting to 30 percent of the annual salaries. However, the improvement of some corporate wide employee programs will increase the fringe benefits to 40 percent. • The original plan assumes a fixed hourly rate for travel and other related expenses for each billing hour of consulting. These are expense that are not reimbursed by the client, and the previously determined hourly rate has proven to be adequate to cover these costs. • Other revenue is derived from temporary rentals and interest income and remains unchanged for the fourth quarter.

General and administrative expense have been favourable at 7 percent below the plan; this 7 percent savings on fourth quarter expenses will be reflected in the revised plan. • Depreciation of office equipment and personal computers will stay constant at the projected straight-line rate. • Due to the

favourable experience for the first three quarters and the division's increased ability to absorb costs, the corporate management at Maple Leaf Services has increased the corporate expenses allocation by 50 percent.

Required: 1) Prepare a revised operating budget for the fourth quarter for Toronto Business Associates that Ramachandran will present to corporate management. 2) Discuss the reasons why an organization would prepare a revised operating budget. Question: 17 Ford Ltd. manufactures and sells 15,000 units of a raft, RF17, in 2001.

The full cost per unit is Rs. 200. Ford earns a 20% return on an investment of Rs. 18,00,000 in 2001. Required: (1) Calculate the selling price of RF17 in 2001. Calculate the markup percentage on the full cost per unit of RF17 in 2001. (2) If the selling price in requirement 1 represents a markup percentage of 40% on variable costs per unit, calculate the variable cost per unit of RF17 in 2001 (3) Calculate Ford's operating income if it had increased the selling price to Rs.

230. at this price Ford would have sold 13,500 units of RF17. Assume no change in total fixed costs. Should Ford have increased the selling price of RF17 to Rs. 230? 4) In response to competitive pressure, Ford must reduce the price of RF17 to Rs. 210 in 2002, in order to achieve sales of 15,000 units. Ford plans to reduce its investment to Rs.

16,50,000. If Ford wants to maintain a 20% return on investment, what is the target cost per unit in 2002? L. Muralidharan, FCA., Grad. CWA., 13 Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS ;

SOLUTIONS Question: 18 Amrutha, president of PAL Electronics (PE), is concerned about the prospects of one of its major products. The president has been reviewing a marketing report with Krishna, marketing product manager, for their 10-disk car compact disk (CD) changer.

The report indicates another price reduction is needed to meet anticipated competitors' reductions in sales prices. The current selling price for their 10-disk car CD changers is Rs. 350 per unit. It is expected that within three months PE's two major competitors will be selling their 10-disk car CD changers for Rs. 300 per unit. This concerns Amrutha because their current cost of producing the CD changers is Rs. 315, which yields a Rs.

35 profit on each unit sold. The situation is especially disturbing because PE had implemented an activity-based costing (ABC) system about two years ago. The ABC system helped them better identify costs, cost pools, cost drivers, and cost reduction opportunities. Changes made when adopting ABC reduced costs on this product by approximately 15 percent during the last two years. Now it appears that costs will need to be reduced considerably more to remain competitive and to earn a profit on the 10-disk car CD changers. Total costs to produce, sell, and service the CD changer units are as follows:

10-Disk Car CD Changer Per Unit	Material Purchased components	All other material	Labor Manufacturing, direct	Setups	Materials handling	Inspection	Machining Cutting, shaping, and drilling	Bending and finishing	Other	Finished-goods warehousing	Warranty	Total unit cost
Rs. 110	40	65	9	18	23	21	14	5	10			Rs. 315



315 Amrutha has decided to hire Damodar, a consultant, to help decide how to proceed. After two weeks of review, discussion, and value engineering analysis, Chandran suggested that PE adopt a just-in-time (JIT) cell manufacturing process to help reduce costs. He also suggested that using target costing would help in meeting the new target price. By changing to a JIT cell manufacturing system, PE expects that manufacturing direct labor will increase by Rs. 15 per finished unit. However, setup, material handling, inspection, and finished goods warehousing will all be eliminated. Machine costs will be reduced from Rs.

35 to Rs. 30 per unit, and warranty costs are expected to be reduced by 40 percent. Required: (1) Determine PAL Electronics' unit target cost the Rs. 300 competitive sales price while maintaining the same percentage of profit on sales as is earned on the current Rs. 350 sales price. 2) If the just-in-time cell manufacturing process is implemented with the changes noted, will PAL Electronics meet the unit target cost you determined in requirement (3)? Prepare a schedule detailing cost reductions and the unit cost under the proposed JIT cell manufacturing process. Question: 19 The management of Alliance Enterprises recently decided to adopt a just-in-time inventory policy to curb steadily rising costs and free up cash for purposes of investment.

The company anticipates that inventory will decrease from Rs. 36, 00, 000 to Rs. 6, 00, 000, with the released funds to be invested at a 12 percent return for the firm. Additional data follow: L. Muralidharan, FCA. Grad. CWA.

, 14 Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS • Reduced inventories should produce savings in insurance and property taxes of Rs. 27, 000. • Alliance will lease 75 % of an existing warehouse to another firm for Rs. 2 per square foot. The warehouse has 30, 000 square feet. • Because of the need to handle an increased number of small shipments from suppliers, Alliance will remodel production and receiving-dock facilities at a cost of Rs. 6, 00, 000.

The construction costs will be depreciated over a 10-year life. • A shift in suppliers is expected to result in the purchase and use of more expensive raw materials. However, these materials should give rise to fewer warranty and repair problems after Alliance's finished product is sold, resulting in a net savings for the firm of Rs. 25, 000. • Three employees who currently earn Rs. 30, 000 each will be directly affected by the just-in-time adoption decision. Two employees will be transferred to other positions with Alliance; one will be terminated.

• Reduced raw material inventory levels and accompanying stockouts will cost Alliance Rs. 70, 000. Required: (1) Compute the annual financial impact of Alliance's decision to adopt a just-in-time inventory system. (2) If the just-in-time system is implemented in proper fashion, what is the likelihood of excessive raw material stockouts? Briefly explain. (3) Adoption of a just-in-time purchasing system will often result in less need for the inspection of incoming materials and parts. Why? (4) In comparison with a traditional purchasing system, why does a just-in-time system give rise to an increased number of small shipments to the buying firm? Question: 20 The product

structure and the lead times for a finished product 'X' are given in figure below. If 100 units of X are required in week 12 and if none of the components, sub-assemblies and the end product are either on hand or on order, compute the amounts and dates of the planned order releases for all the components and sub-assemblies. Assume that there is no particular order size and therefore all the order quantities are lot for lot.

X, LT = 2 P (1), LT = 3 Q (2), LT = 1 R (3), LT = 3 S (2), LT = 3 P (2), LT = 3 R (3), LT = 3  
 Question: 21 S (2), LT = 3  
 The lead time to procure Paracetamol from a supplier is four weeks. At present, 54 kg of the drug is available with us. There is also a scheduled receipt of 45 kg of it in four weeks. The production requirements of paracetamol over the next nine weeks are as:

Week	Amount in kg
1	24
2	3
3	29
4	11
5	15
6	5
7	19
8	8
9	27
10	18

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, Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS  
 If we use an order quantity of 45 kg, when shall we release the orders for Paracetamol?  
 Question: 22  
 Having attended a CIMA course on activity-based costing (ABC) you decide to experiment by applying the principles of ABC to the four products currently made and sold by your company. Details of the four products and relevant information are given below for one period:

Product	Output in units	Costs per unit:
		Direct material
		Direct labour
		Machine hours (per unit)
A	120	(Rs. ) 40
B	100	(Rs. ) 50
C	80	(Rs. ) 30
D	120	(Rs. ) 60

The four products are similar and are usually produced in production runs of 20 units and sold in batches of 10 units. The production overhead is currently absorbed by using a machine

hour rate, and the total of the production overhead for the period has been analysed as follows: (Rs.

Machine department costs (rent, business rates, depreciation and

supervision) Set-up costs Stores receiving Inspection / Quality control

Materials handling and despatch 10, 430 5, 250 3, 600 2, 100 4, 620 You

have ascertained that the 'cost drivers' to be used are as listed below for the

overhead cost shown: Cost Set up costs Stores receiving Inspection / Quality

control Materials handling and despatch Cost Driver Number of production

runs Requisition raised Number of production runs Orders executed The

number of requisition raised on the stores was 20 for each product and the

number of orders executed was 42, each orders being for a batch of 10 of a

product. You are required. a) To calculate the total costs for each product if

all overhead costs are absorbed on a machine hour basis; (b) To calculate

the total costs for each product, using activity-based costing; (c) To calculate

and list the unit product cost from your figures in (a) and (b) above, to show

the differences and to comment briefly on any conclusions which may be

drawn which could have pricing and profit implications. Question: 23

SumantraTechnologyLtd. ,. manufactures several different types of printed

circuit boards; however, two of the boards account for the majority of the

company's sales. The first of these boards, a television circuit board, has

been a standard in the industry for several years.

The market for this type of board is competitive and price-sensitive.

Sumantra plans to sell 65, 000 of the TV boards in 2001 at a price of Rs. 50

per unit. The second high-volume product, a personal computer circuit

board, is a recent addition to Sumantra's product line. Because the PC board incorporates the latest technology it can be sold at a premium price. The 2001 plans include the sale of 40, 000 PC boards at Rs. 300 per unit.

L. Muralidharan, FCA. , Grad. CWA. , 16 Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS Sumantra's management group is meeting to discuss how to spend the sales and promotion Rupees for 2001. The sales manager believes that the market share for the TV board could be expanded by concentrating Sumantra's promotional efforts in this area. In response to this suggestion, the production manager said, " Why don't you go after a bigger market for the PC board? The cost sheets that I get show that the contribution from the PC board is more than double the contribution from the TV board.

I know we get a premium price for the PC board. Selling it should help overall profitability. " The cost-accounting system shows that the following costs apply to the PC and TV boards.

	PC Board	Direct material	Direct labour
Machine time	Rs. 140	4 hr.	1. 5 hr.

TV Board	Rs. 80	1. 5 hr.	. 5 hr.
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Variable manufacturing overhead is applied on the basis of direct-labor hours. For 2001, variable overhead is budgeted at Rs.

1, 20, 000, and direct-labor hours are estimated at 2, 80, 000. The hourly rates for machine time and direct labor are Rs. 10 and Rs. 14, respectively. The company applies a material-handling charge at 10 percent of material

cost. This material-handling charge is not included in variable manufacturing overhead. Total 2001 expenditures for direct material are budgeted at Rs.

1,06,00,000. Andrew Fulton, Sumantra's controller, believes that before the management group proceeds with the discussion about allocating sales and promotional Rupees to individual products, it might be worth while to look at these products on the basis of the activities involved in their production.

Fulton has prepared the following schedule to help the management group understand this concept. "Using this information," Fulton explained, "we can calculate an activity-based cost for each TV board and each PC board and then compare it to the standard cost we have been using. The only cost that remains the same for both cost methods is the cost of direct material.

The cost drivers will replace the direct labor, machine time, and overhead costs in the old standard cost figures. "Budgeted Cost Procurement

Production scheduling Packaging and shipping Total Machine setup

Hazardous waste disposal Quality control General supplies Total Machine insertion Manual insertion Wave-soldering Total In Rs.

,00,000 2,20,000 4,40,000 10,60,000 4,46,000 48,000 5,60,000 66,000 11,20,000 12,00,000 40,00,000 1,32,000 53,32,000 Required per

Unit Parts: Machine insertions Manual insertions Machine setups Hazardous waste disposal Inspections L. Muralidharan, FCA. , Grad. CWA. , 17 Cost

Driver Number of parts Number of boards Number of boards Number of setups Rupees of waste Number of inspections Number of boards Number of insertions Numbers of insertions Number of boards Budgeted Annual Activity for Cost Driver 40,00,000 parts 1,10,000 boards 1,10,000 boards 2,78,

750 setups 16, 000 Rupees 1, 60, 000 inspections 1, 10, 000 boards 30, 00, 000 insertions 10, 00, 000 insertions 1, 10, 000 boards PC Board 55 35 20 3 . 35 lb. 2 TV Board 25 24 1 2 .

02 lb. 1 Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS Required: (1) Identify at least four general advantages associated with activity-based costing. (2) On the basis of Sumantra's unit cost data given in the problem, calculate the total contribution margin expected in 2001 for the PC board and the TV board. (3) On the basis of an activity-based costing system, calculate the total contribution margin expected in 2001 for the PC board and the TV board. (4) Explain how a comparison of the results of the two costing methods may impact the decisions made by Sumantra's management group. Question: 24 Calton Ltd. make and sell a single product.

The existing product unit specifications are as follows: Direct material X: Machine time: Machine cost per gross hour: Selling price: 8 sq. metres at Rs. 4 per sq. metre 0. 6 running hours Rs. 40 Rs. 100 Calton Ltd.

, require to fulfil orders for 5, 000 product units per period. There are no stocks of product units at the beginning or end of the period under review. The stock level of material X remains unchanged throughout the period. The following additional information affects the costs and revenues: (1) (2) (3) (4) (5) 5% of incoming material from suppliers is scrapped due to poor receipt and storage organisation. 4% of material X input to the machine process is wasted due to processing problems. Inspection and storage of material X costs Rs. 0.

10 pence per sq. metre purchased. Inspection during the production cycle, calibration checks on inspection equipment, vendor rating and other checks costs Rs. 25, 000 per period Production quantity is increased to allow for the downgrading of 12. 5% of product units at the final inspection stage.

Downgraded units are sold as 'second quality' units at a discount of 30% on the standard selling price. Production quantity is increased to allow for returns from customers which are replaced free of charge.

Returns are due to specification failure and account for 5% of units initially delivered to customers. Replacement units incur a delivery cost of Rs. 8 per unit. 80% of the returns from customers are rectified using 0. hours of machine running time per unit and are re-sold as 'third quality' products at a discount of 50% on the standard selling price. The remaining returned units are sold as scrap for Rs. 5 per unit.

Product liability and other claims by customers is estimated at 3% of sales revenue from standard product sales. Machine idle time is 20% of gross machine hours used (i. e. running hours = 80% of gross hours). Sundry costs of administration, selling and distribution total Rs. 60, 000 per period. Calton Ltd is aware of the problem of excess costs and currently spends Rs.

20, 000 per period in efforts to prevent a number of such problems from occurring. (6) 7) (8) (9) (10) Calton Ltd. is planning a quality management programme which will increase its excess cost prevention expenditure from Rs. 20, 000 to Rs. 60, 000 per period. It is estimated that this will have the



following impact. (1) A reduction in stores losses of material X to 3% of incoming material.

(2) A reduction in the downgrading of product units at inspection to 7.5% of units inspected. (3) A reduction in material X losses in process to 2.5% of input to the machine process. L. Muralidharan, FCA., Grad.

CWA., 18 Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS (4) A reduction in returns of products from customers to 2% of units delivered. (5) A reduction in machine idle time to 12.5% of gross hours used. (6) A reduction in product liability and other claims to 1% of sales revenue from standard product sales. (7) A reduction in inspection, calibration, vendor rating and other checks by 40% of the existing figure.

(8) A reduction in sundry administration, selling and distribution costs by 10% of the existing figure. (9) A reduction in machine running time required per product unit to 0.5 hours. Required: (a) Prepare summaries showing the calculation of (i) total production units (pre-inspection), (ii) purchases of material X (sq. metres), (iii) gross machine hours. In each case the figures are required for the situation both before and after the implementation of the additional quality management programme, in order that the orders for 5,000 product units may be fulfilled. (b) Prepare profit and loss account for Calton Ltd for the period showing the profit earned both before and after the implementation of the additional quality management programme.

(c) Comment on the relevance of a quality management programme and explain the meaning of the terms internal failure costs, external failure costs,

appraisal costs and prevention costs giving examples for each, taken where possible from the information in the question. Question: 25 Destiny Products makes digital watches. Destiny is preparing a product life-cycle budget for a new watch, MX3. Development on the new watch is to start shortly. Estimates about MX3 are as follows: Life-cycle units manufactured and sold Selling price per watch Life-cycle costs R & D and design costs Manufacturing Variable costs per watch Variable costs per batch Watches per batch Fixed costs Marketing Variable costs per watch Fixed costs Distribution Variable costs per batch Watches per batch Fixed costs Customer-service costs per watch Ignore the time value of money. Required: (1) Calculate the budgeted life-cycle operating income for the new watch. (2) What percentage of the budgeted total product life-cycle costs will be incurred by the end of the R & D and design stages? Rs.

280 160 Rs. 7, 20, 000 Rs. 1. 50 Rs. 3. 20 Rs. 10, 00, 000 Rs.

15 Rs. 600 500 Rs. 18, 00, 000 Rs. 10, 00, 000 4, 00, 000 Rs. 40 L.

Muralidharan, FCA. , Grad.

CWA. , 19 Sreeram Coaching Point COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS (3) An analysis reveals that 80% of the budgeted total product life-cycle costs of the new watch will be locked in at the end of the R & D and design stages. What implications does this finding have for managing MX3's costs? (4) Destiny's Market Research Department estimates that reducing MX3's price by Rs. 3 will increase life-cycle unit sales by 10 percent. If unit sales increase by 10%, Destiny plans to increase manufacturing and

distribution batch sizes by 10% as well. Assume that all variable costs per watch, variable costs per batch, and fixed costs will remain the same. Should Destiny reduce MX3's price by Rs.

3? Show your calculations. Question: 26 A first batch of 25 transistor radios took a total of 250 direct labour hours. It is proposed to assemble another 40 units. What will be the average labour per unit in this lot? Assume that there is 85% learning rate. Question: 27 Bhakatavatsala & Co, a fire arms manufacturer, has designed a new type of gun and a first lot of 25 guns assembled for test purposes had the following costs: Direct materials Direct labour Variable overheads Fixed overheads Total costs 24, 500 22, 500 16, 875 11, 250 75, 125 Proportional to direct labour BSF being satisfied with this gun have asked the lowest bid for supply of 1, 000 guns. The company will pass on the benefits of learning of 85% to the client in setting the bid. The company will set a selling price to earn 40% gross profit margin.

Determine the unit price that should be bid. Question: 28 One unit of product A contributes Rs. 7 and requires 3 units of raw material and 2 hours of labour. One unit of product B contributes Rs. 5 and requires one unit of raw material and one hour of labour. Availability of the raw material at present is 48 units and there are 40 hours of labour. (a) Formulate it as a linear programming problem.

(b) Write its dual. (c) Solve the dual with Simplex method and find the optimal product mix and shadow prices of the raw material and labour.

Question: 29 The simplex tableau for a maximization problem of linear

programming is given here: Product Mix Cj 5 0 xj x2 S2 cj zj cj - zj XI 1 1 4 5 -  
1 x2 1 0 5 5 0 S1 1 -1 0 5 -5 S2 0 1 0 0 0 Quantity (bi) 10 3 Answer the  
following questions, giving reasons in brief: (a) Is this solution optimal? (b)  
Are there more than one optimal solution? (c) Is this solution degenerate? L.  
Muralidharan, FCA. , Grad. CWA. , 20 Sreeram Coaching Point COST  
MANAGEMENT - TEST QUESTIONS & SOLUTIONS (d) Is this solution feasible?  
(e) If S1 is slack in machine A (in hours / week and S2 is slack in machine B  
(in hours / week), which of these machines is being used to the full capacity  
when producing according to this solution? f) A customer would like to have  
one unit of product x1 and is willing to pay in excess of the normal price in  
order to get it.

How much should the price be increased in order to ensure no reduction of  
profits? Question: 30 Management of Ranga Ltd are very much worried about  
the continuing recession in the country. The company has 7 divisions (A to  
G). they have decided to close four divisions namely A, B, C and D and  
transfer some of the employees to the remaining divisions. Personnel at the  
units to be closed have signified a willingness to move to any of the three  
remaining units and the company is willing to provide them with removal  
costs. The technology of production is different to some degree at each unit  
and retraining expenses will be incurred on transfer. Not all existing  
personnel can be absorbed by transfer and a number of redundancies will  
arise. Cost of redundancy is given as a general figure at each unit is to be  
closed.

Number employed A-200 B-400 C-300 D-200 Rs. thousands per person

Retraining costs Transfer to : Unit E Unit F Unit G Removal costs: Transfer to :  
Unit E Unit F Unit G Redundancy payments 2. 5 2. 4 2. 5 6. 0 3. 6 4.

6 2. 7 5. 0 3. 4 3. 4 3. 3 6. 0 3.

7 1. 7 2. 7 7. 0 0. 5 0. 6 0. 5 0.

4 0. 4 0. 3 0. 6 0. 6 0. 7 1. 3 0.

3 0. 3 A B C D Additional personnel required at units remaining open: E-350  
F-450 G-200. To use the transportation method to obtain an optimal solution  
to the problem of the cheapest means to transfer personnel from the units to  
be closed to those which will be expanded. Question: 31 A management  
consulting firm has a backlog of 4 contracts. Work on these contracts must  
be started immediately. 3 project leaders are available for assignment to the  
contracts. Because of the varying work experience of the leaders, the profit  
to consulting firm will vary based on the assignment as shown below.

The unassigned contract can be completed by subcontracting the work to an  
outside consultant. The profit on the subcontract is zero. Finds the optimal  
assignment. Contract Project Leader A B C L. Muralidharan, FCA. , Grad.  
CWA.

, 1 13 15 6 21 2 10 17 8 3 9 13 11 4 11 20 7 Sreeram Coaching Point COST  
MANAGEMENT - TEST QUESTIONS & SOLUTIONS Question: 32 The tit-fit  
Scientific Laboratories is engaged in producing different types of High-class  
equipments for use inSciencelabs. The company has two different assembly

lines to produce its popular product " P". Processing time (minutes) Assembly  
 A1 Assembly A2 10 0. 10 0. 20 11 0. 15 0. 40 12 0.

40 0. 20 13 0. 25 0. 15 14 0. 10 0. 05 Use the following Random(Rn. ) no's,  
 generate data on the process times for 15 units of the item and complete the  
 expected process time for the product.

134 7476 4943 Question: 33 A project consists of 7 activities. The time for  
 performance of each of the activity is as follows: Activity A Immediate Time 3  
 4 5 B 4 4 4 4 4 C A 1 1 1 D B, C 4 5 E D 3 4 5 6 F D 5 7 G E, F 2 3 Probability  
 0. 2 0. 6 0. 2 0. 1 0. 3 0.

3 0. 2 0. 1 0. 15 0. 75 0. 10 0. 8 0.

2 0. 1 0. 3 0. 3 0. 3 0. 20 0. 80 0.

5 0. 5 8343 1183 1915 3602 9445 5415 7505 0089 0880 7428 3424 9309 L.

Muralidharan, FCA. , Grad. CWA. , 22 Sreeram Coaching Point COST

MANAGEMENT - TEST QUESTIONS & SOLUTIONS a) Draw a network and

identify critical path using expected time. b) Simulate the project for 5 times  
 using Rn.

no's and find critical paths? 8 99 57 57 77 Question: 34 A small maintenance

project consist of jobs in the table below. With each job is listed its normal

time and a minimum or crash time in days. The cost in Rs. Per day of each

job is also given: Job(i-j) 1-2 1-3 1-4 2-4 3-4 4-5 Normal days 9 8 15 5 10 2

Crash days 6 5 10 3 6 1 Cost/Day 40 50 60 20 30 80 13 93 33 12 37 09 18

49 31 34 20 24 65 96 11 73 22 92 85 27 07 07 98 92 10 72 29 00 91 59 a)

What is the normal project length and minimum project length? b) Determine the minimum crashing cost of schedules ranging from normal length down to, and including, the minimum length schedule. c) Overhead costs total Rs. 115/day. What is the optimum length schedule in terms of both crashing and overhead cost? Question: 35 Allocate the men efficiently to the jobs given below and Find out the time required to complete the project.

No. of persons: 4 Job (I-j) 1-2 1-3 1-5 2-3 2-6 3-4 4-7 5-6 6-7 tn 10 6 5 0 8 10  
10 7 5 Men 1 2 3 0 1 2 3 1 2 L. Muralidharan, FCA. , Grad. CWA. , 23 Sreeram  
Coaching Point COST MANAGEMENT - TEST QUESTIONS & SOLUTIONS  
Suggested Solutions L. Muralidharan, FCA.

, Grad. CWA. , 24 Sreeram Coaching Point COST MANAGEMENT - TEST  
QUESTIONS & SOLUTIONS Answer to Question No. 1: Elimination of  
decorative stitching cost. Cost Loss of contribution due to fall in sales (WN-1)  
1, 35, 000 Net benefit = 27, 000/(a) Substituting glass eyes by plastic eyes.