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TEST PAPER – 01

(Chapter Covered – Decision Making Techniques)

STRATEGIC COST MANAGEMENT

Time Allowed: 3 Hours

Full Marks: 100

Section A contains Question Number 1. All parts of this question are compulsory.

Working notes should form part of the relevant answer.

SECTION-A

1. Choose the correct answer from the given alternatives (you may write only the Roman number and the alphabet chosen for your answer) (2×15 = 30 Marks)

(i) The Holiday Card Company, a producer of specialty cards, has asked you to complete several calculations based upon the following information:

Income tax rate	30%
Selling price per unit	₹6.60
Variable cost per unit	₹5.28
Total fixed costs	₹46,200

How many cards must be sold to earn an after-tax net income of 18,480?

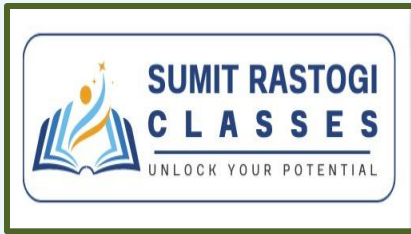
- (a) 60,000 units
- (b) 45,000 units
- (c) 75,000 units
- (d) 55,000 units

(ii) SINT Ltd. determine its selling price by marking up the variable cost 50%. In addition, the company uses frequent selling price mark down to stimulate sales. If the mark down average is 20%, what is the company's contribution margin Ratio?

- (a) 16.67%
- (b) 18.50%
- (c) 20.30%
- (d) None of the above

(iii) Which of the following will always be a relevant cost?

- (a) Fixed cost
- (b) Opportunity cost
- (c) Variable cost
- (d) Sunk cost



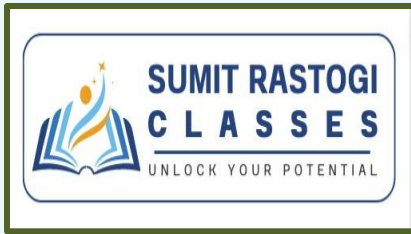
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- (iv) ROTIZ Ltd., a manufacturing company has a break-even point when sales are ₹12,00,000 and fixed costs at that level of sales are ₹4,80,000. If the margin of safety (MOS) and sales of the company are 40% and 5,00,000 units respectively, what will be the sale price per unit?
- (a) ₹6
(b) ₹5
(c) ₹4
(d) None of the above
- (v) ABC Ltd. has current PBIT of ₹19.20 lakhs on total assets of ₹96 lakhs. The company has decided to increase assets by ₹24 lakhs, which is expected to increase the operating profit before depreciation by ₹8.40 lakhs. There will be a net increase in depreciation by ₹4.80 lakhs. This will result in ROI:
- (a) To increase by 1%
(b) To decrease by 1%
(c) To decrease by 1.5%
(d) To remain the same
- (vi) Sab Ltd. 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 X for 2016-17 appears as under:

	₹
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 R.O.I	28%

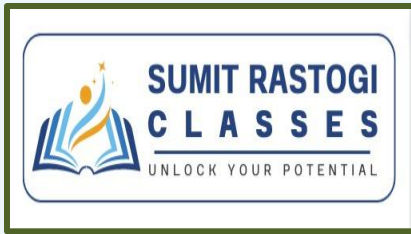
Transfer price for division X is

- (a) ₹12.70
(b) ₹10.70
(c) ₹8.70
(d) ₹14.70



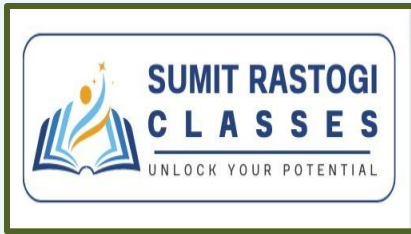
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- (vii) X Ltd. has 1,000 units of an obsolete item which are carried in inventory at the original price of ₹50,000. If these items are reworked for ₹20,000, they can be sold for ₹36,000. Alternatively, they can be sold as a scrap for ₹6,000 in the market. In a decision model used to analyse the reworking proposal, the opportunity cost should be taken as
- (a) ₹16,000
 - (b) ₹6,000
 - (c) ₹30,000
 - (d) ₹20,000
- (viii) NM paid ₹5,30,000 for a machine used to powder wheat. The machine can be sold for ₹1,30,000. The sale value of wheat is ₹8,00,000 and its variable cost is ₹4,50,000. The opportunity cost of producing wheat flour is
- (a) ₹5,30,000
 - (b) ₹3,50,000
 - (c) ₹8,00,000
 - (d) ₹1,30,000
- (ix) ROBINSON Ltd., a manufacturing company has a break-even point, when sales are ₹10 lakh and fixed costs of ₹4 lakh. To realize profits of ₹2 lakh from sales of 3,00,000 units, the selling price per unit will be:
- (a) ₹6
 - (b) ₹5
 - (c) ₹4
 - (d) ₹2
- (x) A company has the capacity of production of 80,000 units and presently it sells 20,000 units at ₹100 each. The demand is sensitive to selling price and it has been observed that every reduction of ₹10 in selling price the demand is doubled. What should be the target cost at full capacity if profit margin on sales is taken at 25%?
- (a) ₹58 lakhs
 - (b) ₹52 lakhs
 - (c) ₹48 lakhs
 - (d) ₹50 lakhs
- (xi) The _____ is a period of time when sales increase at a decreasing rate.
- (a) Maturity stage
 - (b) Growth stage
 - (c) Introduction stage
 - (d) Decline stage



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- (xii) Marketing department of an organisation estimates that 40,000 of new mixers could be sold annually at a price of ₹60 each. To design, develop and produce these new mixers an investment of ₹40,00,000 would be required. The company desires a 15% return on investment (ROI). Given these data, the target cost to manufacture, sell, distribute and service one mixer will be
- (a) ₹37.50
 - (b) ₹40.00
 - (c) ₹45.00
 - (d) ₹48.60
- (xiii) 1,200 units of microchips are required to be sold to earn a profit of ₹1,06,000 in a monopoly market. The fixed cost for the period is ₹74,000. The contribution in the monopoly market is as high as 3/4th of its variable cost. Determine the target selling price per unit.
- (a) 450
 - (b) 400
 - (c) 325
 - (d) 350
- (xiv) A company that is a price-taker would most likely use which of the following methods?
- (a) Target costing
 - (b) Cost plus pricing, contribution approach
 - (c) Cost plus pricing, absorption approach
 - (d) Time-and-material pricing
- (xv) If project A has a net present value (NPV) of ₹30,00,000 and project B has an NPV of ₹50,00,000, what is the opportunity cost if project B is selected?
- (a) ₹23,00,000
 - (b) ₹30,00,000
 - (c) ₹20,00,000
 - (d) ₹50,00,000



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SECTION-B

2. BNR Ltd. has spare capacity in two of its manufacturing departments – Department 4 and Department 5. A five-day week of 40 hours is worked, but there is only enough internal work for 3 days per week so that 2 days per week (16 hours) could be available in each department. BNR Ltd. has sold this time to another manufacturer, but there is some concern about the profitability of this work.

The accountant has prepared a table given the hourly operating cost in each department. The summarized figures are as follows:

	Department 4 (₹)	Department 5 (₹)
Power Costs	40	60
Labour Costs	40	20
Overhead Costs	40	40
	120	120

The labour is paid on a time basis and there is no change in the weekly wage bill whether or not the plant is working at full capacity. The overhead figures are based on firm's current overhead absorption rates (fixed and variable) when the departments are operating at 90% of full capacity (assume 50 weeks a year). The budgeted fixed overhead attributed to Department 4 is 36,000 p.a. and that for Department 5 ₹50,400 p.a.

As a short-term measure, the company has been selling processing time to another manufacturer @₹70 per hour in either departments. The customer is willing to continue this arrangement and to purchase any spare time available, but BNR Ltd., is considering the introduction of a new product on a minor scale to absorb the spare capacity.

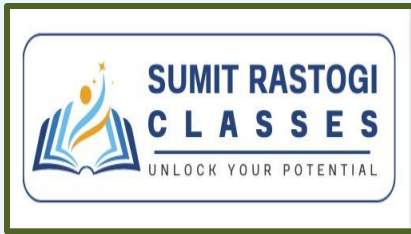
Each unit of the new product would require 45 minutes in Department 4 and 20 minutes in Department 5. The variable cost of the required input material is ₹10 per unit. The market study indicated as follows:

- (I) With a selling price of ₹100, the demand would be 1,500 units p.a.
(II) With a selling price of ₹110, the demand would be 1,000 units p.a.
(III) With a selling price of ₹120, the demand would be 500 units p.a.

Required:

- (i) Analyze relevant cost per unit for producing the new product.
(ii) Assess the best price per unit to be charged for the new product to achieve optimum profit.
(iii) Prepare the best weekly programme for the spare time in two manufacturing departments.
(iv) Analyze and quantify the weekly gain that this programme and price should yield.

(14 marks)



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3. (a) MKT Ltd. has two divisions, A and B. Division A manufactures product X which it sells in outside market as well as to Division B which processes it to manufacture Z. The manager of Division B has expressed the opinion that the transfer price is too high and that it should be lowered down. The two divisional managers are about to enter into discussion to resolve the conflict. The following information is collected before the discussion.

Division A has been selling 40,000 units to outsiders and 10,000 units to Division B, all at ₹20 per unit. It is not anticipated that the demand will change. The variable cost is ₹12 per unit and the fixed costs are ₹2 lakh.

The manager of Division A anticipates that Division B will want a transfer price of 18. If he does not sell to Division B ₹35,000 of fixed costs and ₹1,50,000 of assets out of total assets of ₹8,00,000 can be avoided. The manager of Division A would have no control over the proceeds from the sale of the assets and is judged primarily on his rate of return.

- (i) Should the manager of Division A transfer its products at 18 to Division B?
(ii) What is the lowest price that Division A should accept? Support your decision.

(7 marks)

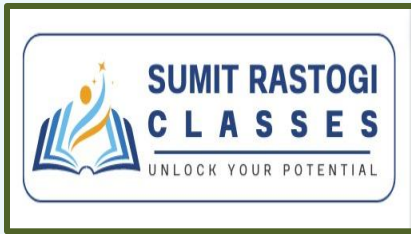
3. (b) A regional audit firm offers audit, tax and consulting services. The segmented profit and loss position for the next year shows the following position:

	Audit (₹)	Tax (₹)	Consulting (₹)
Revenues	60,000	1,00,000	1,20,000
Costs:			
Service-Level	50,000	60,000	70,000
Facility-Level (Apportioned)	10,000	12,000	16,000
Total	60,000	72,000	86,000
Operating Profit (1 – 2)	NIL	28,000	34,000

Partners are concerned about the profitability of their audit business and contemplate to close it down. In the event of closure of audit service, it might do more tax work. If audit service is discontinued, 50 per cent of the facility costs associated with auditing would be saved. More tax work would increase tax revenues by 45 per cent, but tax service-level costs would also increase by 45 per cent.

Required:

- (a) Determine whether the firm should drop auditing service and the impact on its closure on profit. Assume that audit centre facility level costs can be allocated to two other centres based on revenues. Compare Profitability of Tax and Consulting Services before and after closure of Audit Centre.
(b) What other considerations are important to drop auditing service? (7 marks)



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4. (a) X Ltd. manufactures and sells a special component. It follows a Standard Marginal Costing System. For the year ended 31.03.2019, it produced 1,500 components against a budgeted capacity of 2,000 components. Out of the production 100 components were scrapped. Due to a computer virus most of the financials could not be retrieved.

However, the Chief Cost Accountant gave the following information:

Particulars	(₹)
Selling Price per component	213
Direct Materials total cost (1,400 units)	84,000
Direct labour cost per component (Actual efficiency 80%)	?
Variable Manufacturing overhead per component	15
Variable Selling overhead per component	8
Fixed Selling and Administration overheads	48,000
Fixed overhead manufacturing absorption rate per component (on the basis of budgeted capacity)	30
Closing stock (200 units) (Valued at prime cost for financial Purpose)	18,000

Required:

- Prepare the Profitability statements as per Marginal Costing. Absorption Costing and the actual Profit & Loss Account.
- Reconcile the actual profit with that of the Break-even profit under Marginal Costing. (7 marks)

4. (b) Following is the operating results of Premier hospital for the year ended 31st March 2019:

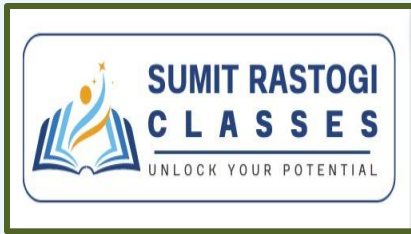
Particulars	(₹)
Revenue	1,13,88,000
Cost: Variable	26,28,000
Bed capacity cost (fixed) but varies with number of beds	45,30,000
Staff Cost	35,10,000
Profit	7,20,000

The hospital charged each patient an average of ₹650 per day, has a capacity of 60 beds operated 24 hours per day for 365 days. The hospital has minimum departmental personnel requirements based on total annual patient days and following table gives the Salary to be paid.

Annual Patient Days	Salary (₹ in 000s)
10,000 – 14,000	3,200
14,001 – 17,000	3,380
17,000 – 23,725	3,510

Required:

- Compute the Break-even patient days for the year ended 31st March, 2019.
- Compute the Break-even patient days for the year ended 31st March, 2020 if the hospital capacity is raised to 80 beds. Patient demand is unknown but assumes that revenue per patient and cost per patient day, cost per bed, and employee salary will remain the same as for the year ended 31st March, 2019. (7 marks)



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5. AIRWAY Ltd. has hired an aircraft to specially operate between cities A and B. All the seats are economy class. The following information is available:

Seating capacity of the aircraft	: 260 passengers
Average number of passengers per flight	: 240 passengers
Average one-way fare from A to B	: 5,000 per passengers
Fuel costs per flight from A to B	: ₹90,000
Food cost (A to B sector) (no charge to passenger)	: ₹300 per passenger
Commission to travel agents (All tickets are through agents)	: 10% of the fare
Annual lease costs allocated to each flight	: ₹2,00,000
Ground services, baggage handling/checking in service costs per flight A to B	: ₹40,000
Flight crew salaries per flight A to B	: ₹48,000

There is an offer from another airlines operator, ZOMB Ltd. for a stop-over at destination D, which is on the way from A to B. Due to this, the flight will operate from A to D, then from D to B.

The following terms are considered for the stop-over:

50 seats from D to B will be booked by ZOMB Ltd. at 2,700 per ticket, whether or not ZOMB Ltd. is able to sell them to its customers. No agents' commission is payable on these tickets. However, snacks must be provided to these passengers also by Airway Ltd. at no further charge to the passengers.

A maximum of 60 tickets can be sold by Airway's travel agents for A to D sector at a fare of 3,000 per passenger.

Since the stop-over wastes more time, 25 of Airway's original passengers in the A to B sector will voluntarily drop out in favour of other airlines offering direct flights between A and B.

Due to the stop-over, fuel costs will increase from ₹90,000 to ₹1,35,000. Additional airport landing/baggage, handling charges of ₹19,000 per stop-over will have to be incurred by Airway Ltd.

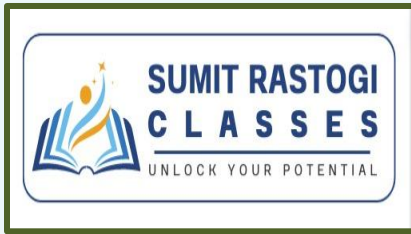
Airway Ltd. will have to serve snacks to all the passengers in the D to B sector at no charge to passengers. Each snack will cost Airway ₹200. This will be in addition to the original food at ₹300 served in the A to D sector.

(Assume that fuel costs are not affected by the actual number of passengers in the flight, ignore non-financial considerations, additional wear and tear to aircraft due to extra landing/take-off.)

Required:

- (a) Without considering ZOMB Ltd.'s offer:
 - (i) Analyze the Profit earned by AIRWAY Ltd., per flight from city A to B.
 - (ii) Assess the Break-even number of passengers for each flight from city A to B.
- (b) Considering the effects of ZOMB Ltd's offer:
 - (i) Analyze the additional Profit earned by AIRWAY Ltd., from ZOMB Ltd's offer.
 - (ii) Advise with the justification whether the AIRWAY Ltd. should accept the offer of ZOMB Ltd. or not.

[Note: A detailed Profitability Statement is not essential. Only figures relevant to the cost-revenue analysis are required.] (14 marks)



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6. (a) Pobix Ltd. has been approached by a customer who would like a special job to be done for him and willing to pay 22,000 for it. The job would require the following materials:

Material	Total Units Required	Units Already in Stock	Book Value of Units in Stock ₹/Unit	Realisable Value ₹/Unit	Replacement Cost ₹/Unit
A	1,000	0	-	-	6
B	1,000	600	2	2.5	5
C	1,000	700	3	2.5	4
D	200	200	4	6	9

- (i) Material B is used regularly by POBIX Ltd. and if stocks are required for this job, they would need to be replaced to meet other production demand.
- (ii) Materials C and D are in stocks as the result of previous excess purchase and they have a restricted use. No other use could be found for material C but material D could be used in another job as a substitute for 300 units of material E which currently cost 5 per unit (of which the company has no units in stock at the moment).
- (iii) All other expenses on the contract to be specially incurred besides the relevant cost of material is ₹550.

Required:

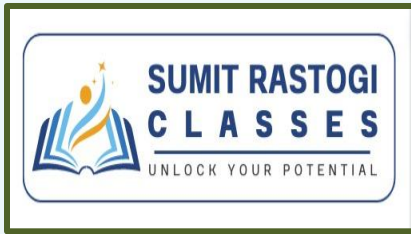
What are the relevant cost of material in deciding whether or not to accept the contract? (Show the reasons for relevancy of cost elements) **(7 marks)**

6. (b) REGAL Ltd. is organised into two divisions. Division X produces a component, which is used by division Y in making of a final product. The final product is sold for ₹540 each. Division X has capacity to produce 2,500 units and division Y can purchase the entire production. The variable cost of division X in manufacturing each component is ₹256.50. Division X informed that due to installation of new machines, its depreciation cost had gone up and hence wanted to increase the price of component to be supplied to division Y to ₹297, however division Y can buy the component from outside the market at ₹270 each. The variable cost of division Y in manufacturing the final product by using the component is 202.50 (excluding component cost).

Required:

Analyze and Present the statement indicating the position of each Division and the company as whole taking each of the following situations separately:

- (i) If there is no alternative use for the production facilities of division X, will the company benefit, if division Y buys from outside suppliers at ₹270 per component?
- (ii) If there is no alternative use for the production facilities of division X and the selling price for the component in the outside market drops by ₹20.25, should division Y purchase from outside supplier?
- (iii) What transfer price would be fixed for the component in each of the above circumstances? **(7 marks)**



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7. (a) ABC Enterprises has prepared a draft budget for the next year as follows:

Quantity	10,000 Units
Sales price per unit (₹)	30
Variable cost per unit:	
Direct Materials (₹)	8
Direct Labour (₹)	6
Variable Overhead (2 hrs. × 1) (₹)	2
Contribution per unit (₹)	14
Budgeted Contribution (₹)	1,40,000
Budgeted Fixed Costs (₹)	1,25,000
Budgeted Profit (₹)	15,000

The Board of Directors are dissatisfied with this budget, and asks working party to come up with alternate budget with higher target profit figures. The working party reports back with the following suggestions that will lead to budgeted profit of 25,000. The company should spend 30,000 on advertising and set the target sales price up to 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 workforce 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 ₹4. The hourly rate for variable overhead will be unaffected.

Ascertain the target labour time required to achieve the target profit.

(7 marks)

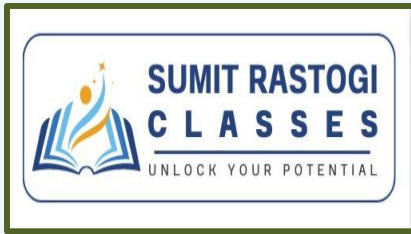
7. (b) RRS International Ltd. has developed a new product 'Meu' which is to be launched soon. The company anticipates to sell 1,25,000 of these units at a sale price of ₹400 per unit over the product life cycle of three years. The other data pertaining to the product 'Meu' are as under:

Research & Development Cost	₹32,50,000
Manufacturing Cost per Unit	₹175
Fixed Manufacturing Cost per year	₹12,75,000
Marketing Cost per unit (including 4% commission on sales)	₹90
Fixed Marketing Cost Per Year	₹6,72,000
Administration Cost Per Year	₹6,60,000
Warranty Expenses	4 replacements parts per 50 units @₹30 per part

Required:

- Analyze and assess the life-cycle cost of the product 'Meu'.
- Evaluate the revised life cycle cost if the company increases sales by 12% through 5% reduction in sales price along with increase in fixed manufacturing cost by ₹1,20,000 per year
- Advise whether the company should go for reduction in sale price.

(7 marks)



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8. (a) SUZIN Ltd., using a detailed system of standard costing finds that the cost of investigation of variances is ₹20,000. If after investigation an out of control situation is discovered, the cost of correction is ₹30,000. If no investigation is made, the present value of extra cost involved is ₹1,50,000. The probability of the process being in control is 0.82 and the probability of the process being out of control is 0.18. You are required to advise:
- (I) Whether investigation of the variances should be undertaken or not.
(II) The probability at which it is desirable to institute investigation into variance.

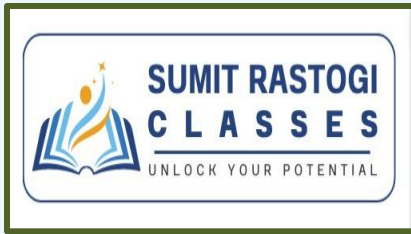
(7 marks)

8. (b) A2Z plc supports the concept of terotechnology or life cycle costing for new investment decisions covering its engineering activities. The financial side of this philosophy is now well established and its principles extended to all other areas of decision making. The company is to replace a number of its machines and the Production Manager is torn between the Exe Machine, a more expensive machine with a life of 12 years, and the Wye machine with an estimated life of 6 years. If the Wye machine is chosen, it is likely that it would be replaced at the end of 6 years by another Wye machine. The pattern of maintenance and running costs differs between the two types of machine and relevant data are shown below:

	Exe	Wye
Purchase price	₹19,000	₹13,000
Trade-in value/breakup/scrap	₹3,000	₹3,000
Annual repair costs	₹2,000	₹2,600
Overhaul costs	(at year 8) ₹4,000	(at year 4) ₹2,000
Estimated financing costs averaged over machine life	10% p.a.	10% p.a.

Required: Recommend with supporting figures, which machine to purchase, stating any assumptions made?

(7 marks)



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ANSWERS OF TEST PAPER – 01

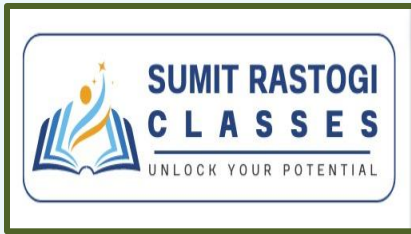
(Chapter Covered – Decision Making Techniques)

STRATEGIC COST MANAGEMENT

SECTION-A

ANS.1

- (i) (d) 55,000 units
- (ii) (a) 16.67%
- (iii) (b) Opportunity Cost
- (iv) (c) ₹4
- (v) (b) To decrease by 1%
- (vi) (a) ₹12.70
- (vii) (b) ₹6,000
- (viii) (d) ₹1,30,000
- (ix) (b) ₹5
- (x) (c) ₹48 Lakhs
- (xi) (a) Maturity Stage
- (xii) (d) ₹45.00
- (xiii) (a) 350
- (xiv) (c) Target Costing
- (xv) (b) ₹30,00,000



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SECTION-B

ANS. 2

Hours available in the department at 90% Capacity = 40 hours × 50 weeks × 90% = 1,800 hours

Fixed OH absorbed per hour in Department 4 = 36,000/1,800 = ₹20

Fixed OH absorbed per hour in Department 5 = 50,400/1,800 = ₹28

Therefore, Variable OH per hour in Department 4 = 40 – 20 = ₹20 per hour & in department 5 = 40 – 28 = ₹12 per hour

(i) Computation of Relevant Cost per unit for the new Product:

Particulars	Amount (₹)
Variable Cost of Material	10
Power Cost:	
Department 4 [40 × 45/60]	30
Department 5 [60 × 20/60]	20
Variable OH:	
Department 4 [₹20 × 45/60]	15
Department 5 [₹12 × 20/60]	4
	79

(ii) Computation of Contribution with alternative Selling Prices:

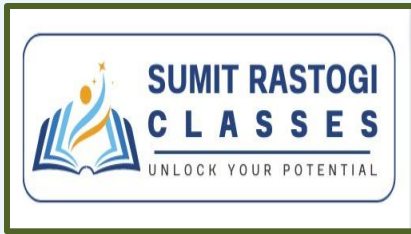
Selling Price	Relevant Cost	Contribution	Units	Total Contribution
100	79	21	1,500	31,500
110	79	31	1,000	31,000
120	79	41	500	20,500

Best price per unit to be charged to maximize profit is ₹100 as it gives the maximum total contribution of ₹31,500.

(iii) Computation of Weekly Profit if Spare Capacity is sold outside:

Particulars	Department 4 (₹)	Department 5 (₹)
Hours available	16	16
Selling Price Per hour (A)	70	70
Relevant Cost per hour:		
Power	40	60
Variable OH	20	12
Total Relevant Cost per hour (B)	60	72
Profit/(Loss) per hour (A – B)	10	(2)
Total Profit/(Loss)	160	(32)

Total Profit per week = 160 – 32 = ₹128



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Total Profit per annum (with 50 weeks) = $128 \times 50 = \text{₹}6,400$

Total Time available in Each Department = $16 \text{ hours} \times 50 \text{ weeks} = 800 \text{ Hours}$

No. of units of new product that can be made in Department 4 = $800 \times 60/45 = 1,066 \text{ units}$

No. of units of new product that can be made in Department 5 = $800 \times 60/20 = 2,400 \text{ units}$

The best plan for new product was 1,500 units which won't be possible due to non-availability of time in department 4. So, next plan for 1,000 units is the best choice. Also, the balance surplus hours in Department 4 (50 Hours) can be sold outside as the customer is ready to take any surplus capacity available. While surplus hours in Department 5 should not be sold outside as it results in a loss of ₹2 per hour.

Computation of Profit for New Product:

Particulars	Amount (₹)
Contribution from sale of 1,000 units (ii)	31,000
Profit from Spare Capacity:	
Department 4 [50×10]	500
Total Profit for the year	31,500

Conclusion: The best weekly program in the two departments is to manufacture the new product.

Note: It has been assumed that Power Cost and Variable OH are both incurred only if the spare capacity is sold out and hence relevant for the decision.

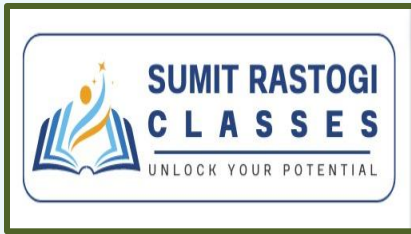
(iv) Weekly profit from the optimal program as per (iii) above is $\text{₹}31,500/50 = \text{₹}630$.

ANS. 3 (a)

(i) Comparative profitability statement of Division A

Particulars	Transfer at ₹20	Transfer at ₹18	Don't Transfer
Sales Revenue: External Sales (40,000 × 20)	8,00,000	8,00,000	8,00,000
Transfer to B: (10,000 unit @ ₹20 or ₹18)	2,00,000	1,80,000	-
Total Revenue	10,00,000	9,80,000	8,00,000
Variable Cost @ ₹12 per Unit	(6,00,000)	(6,00,000)	(4,80,000)
Contribution	4,00,000	3,80,000	3,20,000
Fixed Cost	(2,00,000)	(2,00,000)	(1,65,000)
Profit	2,00,000	1,80,000	1,55,000
Total Assets	8,00,000	8,00,000	6,50,000
Return on Assets (%)	25%	22.50%	23.85%

Comments: The manager of Division A should not agree to sell at ₹18 per unit, as it lowers down its rate of return (ROI) i.e., (25% to 22.50%)



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- (ii) The lowest transfer price acceptable to Division A is one, which maintains its rate of return of 23.85% (ROI without selling to Division B):

$$= (\text{Total sales Revenue} - \text{Total Cost}) / \text{Total Assets} = 0.24$$

$$[(\text{₹}8,00,000 + 10,000 \times \text{Transfer Price (TP)}) - 8,00,000] \div \text{₹}8,00,000 = 0.2385$$

$$10,000 \text{ TP} = 1,90,800$$

$$\text{Transfer Price} = 1,90,800 \div 10,000 = \text{₹}19.08$$

The lowest transfer price acceptable to Division - A is ₹19.08 per unit.

ANS. 3 (b)

- (a) Whether to drop auditing service and the impact on profits:

Item of Cost/Revenue	Incremental Impact
Revenue loss from Audit	- 60,000
Savings in facility level costs	+ 5,000
Decrease in Service Level cost (Audit), considered avoidable	+ 50,000
Increase in Tax Service Revenue by 45%	+ 45,000
Increase in service level cost for Tax Service by 45%	- 27,000
Cumulative Impact	+ 13,000

Decision: Close the Audit function and improve Tax Service.

	Tax		Consulting	
	Before	After	Before	After
Revenue	1,00,000	1,45,000	1,20,000	1,20,000
Costs:				
Service-level	60,000	87,000	70,000	70,000
Facility-level	12,000	14,736	16,000	18,264
Total Costs	72,000	1,01,736	86,000	88,264
Operating Profits	28,000	43,264	34,000	31,736

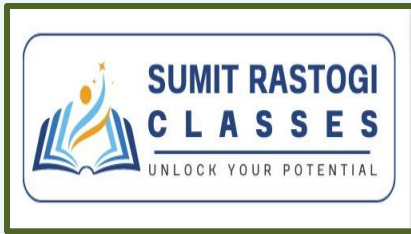
Total operating profit before dropping: 28,000 + 34,000 = 62,000

Total operating profits after dropping Audit function: 43,264 + 31,736 = 75,000

Impact = 13,000

- (b) Other important considerations for dropping Audit function:

- The Audit function is not unprofitable or with Nil profit as shown in the question. Its revenues less its service level costs and avoidable facility level costs are 60,000 - 50,000 - 5000 = 5000. Hence, it is only due to allocated overhead that Audit function appears to be a non-contributor.
- While the release of Audit function strengthens the Tax Service, the overall impact being ₹13,000 increase in profits, it is a major risk that the firm will be taking, since it is an audit firm.
- In the medium to long term, it could lose other potential clients who may go elsewhere to have more diversified services.
- The firm should try to improve its costs and increase its fees to have more comfortable profits.



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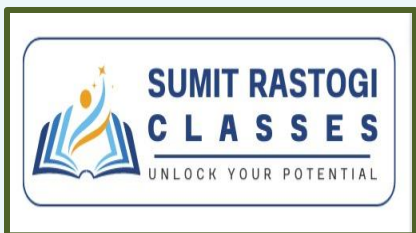
ANS. 4 (a)

(i)

- (1) Fixed Manufacturing Overheads = 60,000
 Budgeted Capacity $\times$ Absorption Rate (2,000 $\times$ 30)
 Fixed administration Overheads = 48,000
Total Fixed Cost = 1,08,000
- (2) **Contribution per Unit:**
 Selling Price 213
 Prime Cost
 (Material + Labour) (18,000/200) 90
 Variable Manufacturing Overhead 15
 Variable Selling Overhead 8
Contribution/Unit 100
- (3) Total Absorption Cost/Unit = 60 + 30 + 15 = ₹105
 (Materials + Labour + Variable Manufacturing OH)
- (4) **Profit under Marginal Costing:**
 Contribution (1,200 $\times$ 100) = 1,20,000
 Less: Fixed Cost (1,08,000)
Profit under Marginal Costing 12,000
- (5) Break-Even volume (1,08,000/100 Units) = **1,080 Units**

Statement of Profit:

Particulars	Profit under Absorption Costing	Actual P & L A/c
Sales (1,200 Units $\times$ ₹213)	2,55,600	2,55,600
Cost of Goods Manufactured:		
Production (1,500 Units $\times$ ₹105)	2,02,500	2,02,500
Additional Labour cost (1,500 $\times$ 30 $\times$ 20%/80%)	-	11,250
Less: Closing Stock (200 units $\times$ 135 p.u.) (18,000 given in the question)	(27,000)	(18,000)
Less: Scrap 100 units $\times$ 135	(13,500)	-
Add: Under absorption of OH (500 $\times$ 30)	15,000	15,000
Add: Manufacturing Fixed OH	-	-
Total Cost of Manufacture	1,77,000	2,10,750
Gross Profit	78,600	44,850
Less: Fixed Administrative OH	(48,000)	(48,000)
Less: Variable Selling OH	(9,600)	(9,600)
Profit/(Loss)	21,000	(12,750)



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(ii) Reconciliation Actual P&L with Marginal Costing:

Particulars	Amount (₹)
Profit at Break-even point (1,080 Units)	Nil
Margin of Safety (120 × 100)	12,000
Stock Valuation [Actual 18,000 – As per Marginal Costing at VC (200 × 105)]	- 3,000
Scrap (100 × 105)	- 10,500
Additional Labour	- 11,250
Actual Loss	- 12,750

ANS. 4 (b)

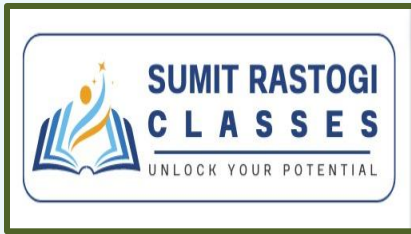
(i)

No. of patient days operated	1,13,88,000/650	17,520
Variable Cost per patient day	26,28,000/17,520	150
Contribution per patient day	650 – 150	500
Fixed Cost:		
Bed Capacity Cost	45,30,000	
Staff Cost – Sales	35,10,000	80,40,000
Break-even Patient Days	80,40,000/500	16,080
Since it falls in the previous range revised fixed cost will be:		
Fixed Cost:		
Bed Capacity Cost	45,30,000	
Staff Cost – Salary	33,80,000	79,10,000
Break-even Patient Days	79,10,000/500	15,820

(ii)

Expected patient demand with 80 beds	$(80 \times 365 \times 17,520) / (365 \times 60)$	23,360
Existing Staff salary will remain unchanged		
Fixed Cost:		
Bed Capacity Cost (80/60 × 45,30,000)	60,40,000	
Staff Cost – Salary	35,10,000	95,50,000
Break-even Patient days	95,50,000/500	19,100

Since it is in the same range there is no change in the break-even.



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ANS. 5

(a) Without Considering ZOMB Ltd.'s offer:

(i) Statement of Profit per Flight from City A to B:

Particulars	Amount (₹)
Fare collected (240 × 5,000)	12,00,000
Less: Variable Costs:	
Foods Costs (300 × 240)	(72,000)
Commission to Agents (12,00,000 × 10%)	(1,20,000)
Contribution	10,08,000
Fixed Costs:	
Fuel Cost	90,000
Annual Lease Cost	2,00,000
Ground Service, baggage handling/checking	40,000
Flight crew Salaries	48,000
	3,78,000
Profit	6,30,000

(ii) Contribution per passenger = 10,28,000/240 = ₹4,200

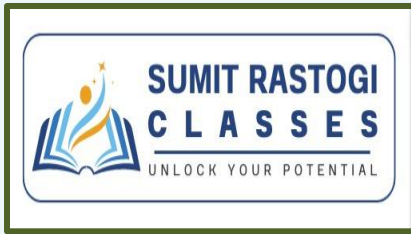
Break-even number of Passengers = 3,78,000/4,200 = 90 passengers

(b) Considering the effects of ZOMB Ltd's offer:

(i) Statement of Additional Profit earned by AIRWAY Ltd. from ZOMB Ltd's offer:

Particulars	Amount (₹)
Fare collected from ZOMB Ltd. (50 × 2,700)	1,35,000
Fare from outside sale of tickets from A to D (50 × 3,000)	1,50,000
Less: Commission on outside sale of tickets (1,80,000 × 10%)	(15,000)
Less: Loss of Contribution from Passengers dropped (30 × 4,200)	(1,26,000)
Less: Increase in Fuel Cost (1,35,000 – 90,000)	(45,000)
Less: Increase in baggage handling charges	(19,000)
Less: Cost of Additional Snacks from A to D (50 × 300)	(15,000)
Less: Cost of Snacks for Passengers from D to B (260 × 200)	(52,000)
Additional Profit	13,000

(ii) Yes, AIRWAY Ltd. should accept the offer of ZOMB Ltd. as it would lead to increase in profit by ₹13,000.



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ANS. 6 (a)

Computation of Relevant Costs:

Material	Relevant Costs	Workings	Amount (₹)
A	Replacement Cost	$(1,000 \times 6)$	6,000
B	Replacement Cost	$(1,000 \times 5)$	5,000
C	Realizable Value for 700 units and Replacement cost for 300 units	$(700 \times 2.5) + (300 \times 4)$	2,950
D	Substitution Cost	300×5	1,500
			15,450
	Other Expenses		550
	Total Relevant Costs		16,000

Decision: Contract should be accepted since offered is ₹22,000 in relation to relevant cost of ₹16,000.

Reasons for Relevant of Cost Elements:

- (i) **Material A** is not yet owned. It would have to be purchased in full at the replacement cost of ₹6.00 per unit.
- (ii) **Material B** is used by the company regularly. There is already existing a stock of 600 units. If these are used in the contract, a further 600 units would have to be purchased. Relevant cost is therefore 1000 units at the replacement.
- (iii) **Material C:** 1000 UNITS OF Material C are required and 700 units are already in stock. If it is used for the contract, a further 300 units will have to be purchased at a replacement cost of ₹4.00 each. The existing stock of 700 units will not be replaced. If they are used for the contract, they cannot be used @₹2.50 each unit. The realisable value these 700 @₹2.50 per units represent an opportunity cost of sales revenue forgone.
- (iv) **Material D** is already in stock and will not be replaced. There is an opportunity cost of using D in the contract, because there are alternative opportunities either to sell the existing stock for ₹6 per unit (₹1200 in total) or avoid other purchases (of material E) which cost $300 \times 5 = ₹1500$, since substitution for E is more beneficial ₹1500 is the opportunity cost.

ANS. 6 (b)

(i) (a) Buy internally at ₹297:

Contribution per unit for Division X = $297 - 256.50 = ₹40.50$

Contribution per unit for Division Y = $540 - (202.50 + 297) = ₹40.50$

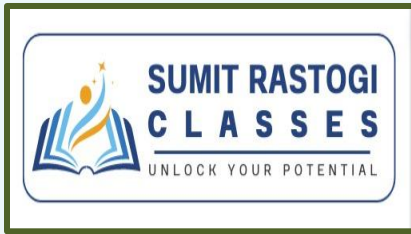
Total Contribution for the Company = $40.50 + 40.50 = ₹81$

(b) Buy Outside at ₹270:

Contribution per unit for Division X = 0 (as no alternate use of facility)

Contribution per unit for Division Y = $540 - (202.50 + 270) = ₹67.50$

Total Contribution for the Company = $0 + 67.50 = ₹67.50$



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Decision: Company should prefer INTERNAL transfer. Total profit is ₹81 vs ₹67.50. Since Division X has no other productive use, its contribution matters to overall gain. So, division Y should not purchase from outside.

(ii) External Purchase price = $270 - 20.25 = ₹249.75$

(a) Buy internally at ₹297:

Contribution per unit for Division X = $297 - 256.50 = ₹40.50$

Contribution per unit for Division Y = $540 - (202.5 + 297) = ₹40.50$

Total Contribution for the Company = $40.50 + 40.5 = ₹81$

(b) Buy Outside at ₹249.75:

Contribution per unit for Division X = 0 (as no alternate use of facility)

Contribution per unit for Division Y = $540 - (202.50 + 249.75) = ₹87.75$

Total Contribution for the Company = $0 + 87.75 = ₹87.75$

Decision: Now company benefits MORE by purchasing externally. Component costs drop, netting a higher total profit of ₹87.75 per unit. So, Division Y should purchase from outside.

(iii) Recommended Transfer Prices:

Case (i): External price ₹270, internal cost ₹256.50

Since external price is higher, and Division X has no alternative use, the minimum acceptable price = ₹256.50.

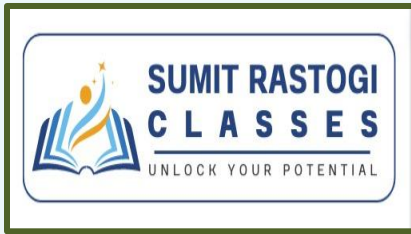
Division Y can accept up to ₹270 without loss in profit, so an ideal transfer price could be negotiated at ₹270.

Case (ii): External price ₹249.75

Since external price is lower than internal cost, Division Y would rationally prefer to buy externally.

To retain internal supply, **transfer price must be $\leq ₹249.75$**

If Division X cannot drop price below variable cost ₹256.50, company must accept external purchase for profitability.



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ANS. 7 (a)

(i) Target Conversion cost per unit:

Particulars	Workings	Amount (₹)
Target Profit		25,000
Add: Fixed Costs		
Budgeted	1,25,000	
Advertisement	30,000	1,55,000
Target Contribution		1,80,000
Sales Volume		12,000
Contribution Per Unit	1,80,000/12,000	15
Target Selling Price Per Unit		32
Target Variable Cost Per Unit	(32 – 15)	17
Less: Material Cost Per Unit		(8)
Conversion Cost Per Unit		9

(ii) Let the target Labour time per unit = x hours

Target Labour Cost - 4x

Variable OH = 1x

Total Conversion Cost per unit = 4x + 1x = 5x

5x = 9

x = 1.80 hours

Target Labour time required to achieve the target profit = 12,000 × 1.80 = **21,600 hours.**

ANS. 7 (b)

(i) Statement showing Meu's Life Cycle Cost (1,25,000 units):

Particulars	Amount (₹)
Research & Development Cost	32,50,000
Manufacturing Costs (₹175 × 1,25,000 + ₹12,75,000 × 3)	2,57,00,000
Marketing Costs [(₹74 + ₹16) × 1,25,000 + ₹6,72,000 × 3]	1,32,66,000
Administration Cost (₹6,60,000 × 3)	19,80,000
Warranty (1,25,000 units/50 units × 4 parts × ₹30)	3,00,000
Total Cost	4,44,96,000

Commission on sales = 4% of ₹400 = ₹16;

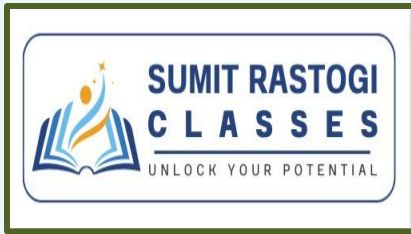
Marketing cost excluding commission = ₹90 - ₹16 = ₹74

(ii) Statement showing Meu's Revised Life Cycle Cost (1,44,000 units):

Revised Sales units = 1,25,000 × 1.12 = 1,40,000

Revised Selling Price Per Unit = ₹400 × 95% = ₹380

Fixed Manufacturing Cost = ₹12,75,000 + ₹1,20,000 = ₹13,95,000



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Particulars	Amount (₹)
Research & Development Cost	32,50,000
Manufacturing Costs ($₹175 \times 1,40,000 + ₹13,95,000 \times 3$)	2,86,85,000
Marketing Costs [$(₹74 + ₹380 \times 4\%) \times 1,40,000 + ₹6,72,000 \times 3$]	1,45,04,000
Administration Cost ($₹6,60,000 \times 3$)	19,80,000
Warranty ($1,40,000 \text{ units}/50 \text{ units} \times 4 \text{ parts} \times ₹30$)	3,36,000
Total Cost	4,87,55,000

(iii) Decision:

Statement Showing Meu's Life Time Profit:

Particulars	Amount (₹) 1,25,000 units	Amount (₹) 1,40,000 units
Sales	5,00,00,000 ($1,25,000 \times ₹400$)	5,32,00,000 ($1,40,000 \times ₹380$)
Less: Total Cost	4,44,96,000	4,87,55,000
Profit	55,04,000	44,45,000

Reducing the price by 5% will decrease profit by ₹10,59,000 (i.e. 19.24%). Therefore, the company should not go for price reduction.

ANS. 8 (a)

- (i) Total Cost of investigation = Investigation Cost + Correction Cost (If out of control)
 $= 20,000 + 30,000 \times 0.18 = ₹25,400$

Cost of not to investigate = Extra cost incurred (If out of control)
 $= 1,50,000 \times 0.18 = ₹27,000$

Decision: Since cost when investigation is undertaken is less than the cost of no Investigation, it should be done.

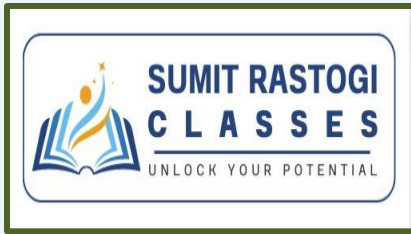
- (ii) Probability at which Investigation into Variance should be instituted Finding out the probability at which both costs are equal. Let x be the probability of process being out of control.

$$20,000 + 30,000x = 1,50,000x$$

$$20,000 = 1,20,000x$$

$$x = 0.17$$

At the probability level of 0.17 (Process out of Control), both costs are equal. As this probability level increases, the cost of not investigating will be greater than cost of Investigating. If probability level is anywhere above 0.17, investigation should be instituted.



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ANS. 8 (b)

		Exe Machine		Wye Machine
Initial Cost (₹)		19,000		13,000
Less: Scrap at the end of the life (₹)	$(3,000 \times 0.319)$	(957)	$(3,000 \times 0.564)$	(1,692)
		18,043		11,308
Present value of total annual cost (₹)	$(2,000 \times 6.812)$	13,624	$(2,600 \times 4.354)$	11,320
Overhaul Cost	$(4,000 \times 0.466)$	1,864	$(2,000 \times 0.683)$	1,366
		33,531		23,994
Capital recovery factor	$(1/6.812)$	0.1468	$(1/4.354)$	0.2297
Equivalent annual cost (₹)		4,922		5,511

Recommendation: As the equivalent annual cost is less for Exe Machine, it is better to purchase the same.