

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 86**  
**(For candidates admitted from the academic year 2023 – 2024)**

**B. COM. DEGREE EXAMINATION - NOVEMBER 2024**  
**HONOURS**  
**THIRD SEMESTER**

**COURSE** : **MAJOR CORE**  
**PAPER** : **COST ACCOUNTING TECHNIQUES**  
**COURSE CODE** : **23BH/MC/CT34**  
**TIME** : **3 HOURS** **MAX. MARKS: 100**

<b>SECTION A</b>				
<b>Q.No.</b>	<b>Answer all questions:</b>	<b>(5 x 2 =10)</b>	<b>CO</b>	<b>KL</b>
1	Write a short note on relevant costing.		1	1
2	What do you mean by margin of safety? Give the formula.		1	1
3	Calculate the profit from the following figures: a. Sales – \$ 2,00,000 b. Fixed cost – \$ 40,000 c. C/S Ratio – 25%		1	1
4	Given the cost standards for materials consumption - 40 kgs at \$10 per kg. Compute the material usage variance, when the actuals are: 48 kgs at \$12 per kg.		1	1
5	Calculate inventory turnover ratio when Sales - \$10,00,000; Gross Profit - \$4,00,000; Opening Stock - \$8,00,000 and Closing stock - \$12,00,000		1	1
<b>SECTION B</b>				
<b>Q. No.</b>	<b>Answer any Four questions:</b>	<b>(4 x 5 = 20)</b>	<b>CO</b>	<b>KL</b>
6	From the following information, find out the amount of profit earned during the year using marginal costing technique: Fixed cost Rs. 5,00,000 Variable cost Rs. 10 per unit Selling price Rs. 15 per unit Output level 1,50,000 units		2	2
7	Calculate from the data given: a) C/S ratio b) Variable cost c) Profit d) Margin of Safety Sales \$80,000 Fixed cost \$15,000 Breakeven Sales \$50,000		2	2
8	Following figures have been extracted from the books of Elite Electricals: Net Sales Rs.30,00,000; Cost of goods sold Rs.20,00,000; Current liabilities Rs.2,00,000; Paid-up Capital Rs.5,00,000; Debentures Rs.2,50,000; Net profit Rs.3,00,000; Current assets Rs.6,00,000. Compute Gross profit ratio, Net profit ratio, Working capital turnover ratio and Debt-Equity ratio.		2	2

9	The following figures of XYZ company are available for the year ended 31 <sup>st</sup> March 2020. Net profit before interest and tax Rs.2,75,000; Net profit after tax Rs.2,20,000; Net profit after interest and tax Rs.1,10,000; Preference Dividend Rs.35,000; Capital employed Rs.11,00,000; Total Assets Rs.12,65,000; Net worth or Shareholders' fund Rs.7,50,000. Calculate (i) Return on Capital employed, (ii) Return on total assets and (iii) Return on Equity Shareholders' fund.	2	2																					
10	The standard material required to manufacture one unit of product A is 5kgs and the standard price per kg of material is \$30. The cost accountant's records, however, reveal that 16,000kgs of material costing \$5,20,000 were used for producing 3,000 units of product A. Calculate the variances.	2	2																					
11	A manufacturing company submits the following figures of product 'X' for the first quarter of 2024: Sales (in units) January - 30,000; February – 25,000; March – 35,000 Selling price per unit \$ 20 Target of 1 <sup>st</sup> quarter of 2025: Sales quantity increase by 10% and sales price increase by 10% Prepare Sales Budget for the first quarter of 2019.	2	2																					
<b>SECTION C</b>																								
<b>Q. No.</b>	<b>Answer the following questions:</b> <span style="float: right;"><b>(4 x 10 =40)</b></span>	<b>CO</b>	<b>KL</b>																					
12 a.	<p>Following are the cost data of Samuel Ltd. for six months:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Month</th> <th>Units</th> <th>Inspection Cost \$'s</th> </tr> </thead> <tbody> <tr> <td>January</td> <td>340</td> <td>2,250</td> </tr> <tr> <td>February</td> <td>300</td> <td>2,160</td> </tr> <tr> <td>March</td> <td>380</td> <td>2,320</td> </tr> <tr> <td>April</td> <td>420</td> <td>2,400</td> </tr> <tr> <td>May</td> <td>400</td> <td>2,360</td> </tr> <tr> <td>June</td> <td>360</td> <td>2,280</td> </tr> </tbody> </table> <p><b>Requirement – Using High/Low analysis find:</b></p> <ol style="list-style-type: none"> <li>Variable cost per unit</li> <li>Total fixed cost</li> <li>Forecast the total cost when 500 units are produced</li> <li>Forecast the total cost when 600 units are produced</li> <li>Calculate the price variance and usage variances</li> </ol> <p style="text-align: center;"><b>(or)</b></p>	Month	Units	Inspection Cost \$'s	January	340	2,250	February	300	2,160	March	380	2,320	April	420	2,400	May	400	2,360	June	360	2,280	3	3
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12 b.	<p>XYZ Ltd. supplies you the following data for the year ending 31st March, 2019:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">Production (Units)</td> <td style="text-align: right;">1,200</td> </tr> <tr> <td>Sales (Units)</td> <td style="text-align: right;">1,100</td> </tr> <tr> <td>Opening Stock</td> <td style="text-align: right;">Nil</td> </tr> <tr> <td>Variable manufacturing cost per unit</td> <td style="text-align: right;">₹ 70</td> </tr> <tr> <td>Fixed manufacturing overhead</td> <td style="text-align: right;">₹ 22,000</td> </tr> <tr> <td>Variable Selling and Administrative overhead per unit</td> <td style="text-align: right;">₹ 5</td> </tr> <tr> <td>Fixed Selling and Administrative overheads</td> <td style="text-align: right;">₹ 4,000</td> </tr> <tr> <td>Selling price per unit</td> <td style="text-align: right;">₹ 150</td> </tr> </table>	Production (Units)	1,200	Sales (Units)	1,100	Opening Stock	Nil	Variable manufacturing cost per unit	₹ 70	Fixed manufacturing overhead	₹ 22,000	Variable Selling and Administrative overhead per unit	₹ 5	Fixed Selling and Administrative overheads	₹ 4,000	Selling price per unit	₹ 150	3	3					
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	<p>Prepare:</p> <p>(i) Income statement under variable costing.</p> <p>(ii) Income statement under absorption costing.</p> <p>(iii) Explain the difference in profits under variable and absorption costing, if any.</p>																																														
13 a.	<p>The sales director of a manufacturing company reports that next year he expects to sell 50,000 units of a certain product.</p> <p>The production manager consults the store-keeper and gets the following information:</p> <p>Two kinds of raw materials, A and B, are required for manufacturing the product. Each unit of the product requires 2 units of A and 3 units of B. The estimated opening balances at the commencement of the next year are:</p> <ul style="list-style-type: none"> <li>• Finished product – 10,000 units; A – 12,000 units; B – 15,000 units.</li> <li>• The desirable closing balances at the end of the next year are: Finished product – 14,000 units; A – 13,000 units; B – 16,000 units.</li> </ul> <p>Draw up a Material Requirement Budget for the next year.</p> <p style="text-align: center;"><b>(or)</b></p>	3	3																																												
13 b.	<p>From the following particulars, prepare a statement of profitability of the product mix, and find the most profitable product mix:</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Product A</th> <th style="text-align: center;">Product B</th> <th style="text-align: center;">Product C</th> </tr> </thead> <tbody> <tr> <td>Units budgeted to be produced and sold</td> <td style="text-align: center;">1,800</td> <td style="text-align: center;">3,000</td> <td style="text-align: center;">1,200</td> </tr> <tr> <td>Selling price per unit (₹)</td> <td style="text-align: center;">60</td> <td style="text-align: center;">55</td> <td style="text-align: center;">50</td> </tr> <tr> <td>Requirement per unit:</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Direct Materials</td> <td style="text-align: center;">5 kgs</td> <td style="text-align: center;">3 kgs</td> <td style="text-align: center;">4 kgs</td> </tr> <tr> <td>Direct Labour</td> <td style="text-align: center;">4 hrs</td> <td style="text-align: center;">3 hrs</td> <td style="text-align: center;">2 hrs</td> </tr> <tr> <td>Variable Overheads</td> <td style="text-align: center;">₹ 7</td> <td style="text-align: center;">₹ 13</td> <td style="text-align: center;">₹ 8</td> </tr> <tr> <td>Fixed Overheads</td> <td style="text-align: center;">₹ 10</td> <td style="text-align: center;">₹ 10</td> <td style="text-align: center;">₹ 10</td> </tr> <tr> <td>Cost of Direct Materials per kg</td> <td style="text-align: center;">₹ 4</td> <td style="text-align: center;">₹ 4</td> <td style="text-align: center;">₹ 4</td> </tr> <tr> <td>Direct Labour Hour Rate</td> <td style="text-align: center;">₹ 2</td> <td style="text-align: center;">₹ 2</td> <td style="text-align: center;">₹ 2</td> </tr> <tr> <td>Maximum Possible Units of Sales</td> <td style="text-align: center;">4,000</td> <td style="text-align: center;">5,000</td> <td style="text-align: center;">1,500</td> </tr> </tbody> </table> <p>All the three products are produced from the same direct material using the same type of machines and labour. Direct labour, which is the key factor, is limited to 18,600 hours.</p>		Product A	Product B	Product C	Units budgeted to be produced and sold	1,800	3,000	1,200	Selling price per unit (₹)	60	55	50	Requirement per unit:				Direct Materials	5 kgs	3 kgs	4 kgs	Direct Labour	4 hrs	3 hrs	2 hrs	Variable Overheads	₹ 7	₹ 13	₹ 8	Fixed Overheads	₹ 10	₹ 10	₹ 10	Cost of Direct Materials per kg	₹ 4	₹ 4	₹ 4	Direct Labour Hour Rate	₹ 2	₹ 2	₹ 2	Maximum Possible Units of Sales	4,000	5,000	1,500	3	3
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14 a.	<p>XYZ produces and sells two products – X sells for \$7 per unit and has a total variable cost of \$2.96 per unit, while Y sells for \$15 per unit and has a total variable cost of \$4.50 per unit. It is expected that for every five units of X sold, one unit of Y will be sold. Total fixed cost for XYZ is \$36,000.</p> <p>Calculate the following:</p> <ol style="list-style-type: none"> <li>a. Contribution per unit in \$ for both the products</li> <li>b. Contribution per mix</li> <li>c. BEP in terms of number of mixes</li> <li>d. BEP in terms of number of units of the products</li> <li>e. Breakeven sales in \$</li> </ol> <p style="text-align: center;"><b>(or)</b></p>	4	4																																												

14 b.	<p>ABC Co is considering whether to administer its own purchase ledger or to use an external accounting service. It has obtained the following cost estimates for each option:</p> <table border="0" style="width: 100%;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: center;">Cost</th> <th style="text-align: center;">Volume</th> </tr> </thead> <tbody> <tr> <td colspan="3"><b>Internal service department</b></td> </tr> <tr> <td>Purchase hardware/software</td> <td style="text-align: right;">\$320 pa</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>Hardware/software maintenance</td> <td style="text-align: right;">\$750 pa</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>Accounting stationery</td> <td style="text-align: right;">\$500 pa</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>Part-time account clerk</td> <td style="text-align: right;">\$6,000 pa</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>Hardware/software maintenance</td> <td style="text-align: right;">\$750 pa</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>Accounting stationery</td> <td style="text-align: right;">\$500 pa</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td>Part-time account clerk</td> <td style="text-align: right;">\$6,000 pa</td> <td style="text-align: center;">N/A</td> </tr> <tr> <td colspan="3"><b>External services</b></td> </tr> <tr> <td>Processing of invoices/credit notes</td> <td style="text-align: right;">\$ 50 per document</td> <td style="text-align: right;">5,000 pa</td> </tr> <tr> <td>Processing of cheque payments</td> <td style="text-align: right;">\$0.50 per cheque</td> <td style="text-align: right;">4,000 pa</td> </tr> <tr> <td>Reconciling supplier accounts</td> <td style="text-align: right;">\$2.00 per supplier per month</td> <td style="text-align: right;">150 suppliers</td> </tr> </tbody> </table> <p>Determine the cost effectiveness of outsourcing the accounting activities and identify the qualitative factors involved.</p>		Cost	Volume	<b>Internal service department</b>			Purchase hardware/software	\$320 pa	N/A	Hardware/software maintenance	\$750 pa	N/A	Accounting stationery	\$500 pa	N/A	Part-time account clerk	\$6,000 pa	N/A	Hardware/software maintenance	\$750 pa	N/A	Accounting stationery	\$500 pa	N/A	Part-time account clerk	\$6,000 pa	N/A	<b>External services</b>			Processing of invoices/credit notes	\$ 50 per document	5,000 pa	Processing of cheque payments	\$0.50 per cheque	4,000 pa	Reconciling supplier accounts	\$2.00 per supplier per month	150 suppliers	4	4
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15 a.	<p>A gang of workers normally consists of 30 men, 15 women and 10 boys. They are paid at standard hourly rates as under:  Men - \$80  Women - \$60  Boys - \$40  In a normal working week of 40 hours, the gang is expected to produce 2,000 units of output. During the week ended 31<sup>st</sup> December 2018, the gang consisted of 40 men, 10 women and 5 boys. The actual wages paid were @ \$70, \$65 and \$30 respectively, 4 hours per worker were lost due to abnormal idle time and 1,600 units were produced.  Compute labour variances.</p>	4	4																																							
15 b.	<p style="text-align: center;"><b>(or)</b></p> <p>A factory engaged in an industry which is capital intensive has been in operation for five years. The capital employed is Rs. 170 lakhs, out of which Rs. 100 lakhs represent equity capital and reserves, Rs. 50 lakhs long-term borrowings on debentures, and Rs. 20 lakhs cash credit from banks. The working capital of the company of Rs. 85 lakhs is made up of stocks: Rs. 30 lakhs; stores: Rs. 14 lakhs; debtors: Rs. 35 lakhs; and advances and deposits: Rs. 6 lakhs. Annual sale is Rs. 80 lakhs.  Calculate Current Ratio, Debt Equity Ratio, Proprietary Ratio, Fixed Assets to Proprietors Funds and Fixed Assets Ratio.</p>	4	4																																							
<b>SECTION D</b>																																										
<b>Q. No.</b>	<b>Answer any one question</b>	<b>CO</b>	<b>KL</b>																																							
16	<p>The following information is available for Smith Ltd for Period 4:</p> <table border="0" style="width: 100%;"> <tbody> <tr> <td colspan="3"><b>Budget</b></td> </tr> <tr> <td>Fixed production overheads</td> <td style="text-align: right;">\$22,960</td> <td></td> </tr> <tr> <td>Units</td> <td style="text-align: right;">6,560</td> <td></td> </tr> <tr> <td colspan="3">The Standard time to produce each unit is 2 hours:</td> </tr> <tr> <td colspan="3"><b>Actual</b></td> </tr> <tr> <td>Fixed production overheads</td> <td style="text-align: right;">\$24,200</td> <td></td> </tr> <tr> <td>Units</td> <td style="text-align: right;">6,460</td> <td></td> </tr> <tr> <td>Labour hours</td> <td style="text-align: right;">12,600 hrs</td> <td></td> </tr> </tbody> </table>	<b>Budget</b>			Fixed production overheads	\$22,960		Units	6,560		The Standard time to produce each unit is 2 hours:			<b>Actual</b>			Fixed production overheads	\$24,200		Units	6,460		Labour hours	12,600 hrs		5	5															
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	<p><b>Required:</b> If Smith Ltd uses an absorption costing system, calculate the following:</p> <ol style="list-style-type: none"> <li>FOAR per labour hour</li> <li>Fixed overhead expenditure variance</li> <li>Fixed overhead capacity variance</li> <li>Fixed overhead efficiency variance</li> <li>Fixed overhead volume variance</li> </ol>																																												
17	<p>ABC Company Ltd. has given the following particulars. You are required to prepare a cash budget for the three months ending 31st December, 2018:</p> <table style="margin-left: 40px;"> <thead> <tr> <th></th> <th>Sales ₹</th> <th>Materials ₹</th> <th>Wages ₹</th> <th>Overheads ₹</th> </tr> </thead> <tbody> <tr> <td>August</td> <td>20,000</td> <td>10,200</td> <td>3,800</td> <td>1,900</td> </tr> <tr> <td>September</td> <td>21,000</td> <td>10,000</td> <td>3,800</td> <td>2,100</td> </tr> <tr> <td>October</td> <td>23,000</td> <td>9,800</td> <td>4,000</td> <td>2,300</td> </tr> <tr> <td>November</td> <td>25,000</td> <td>10,000</td> <td>4,200</td> <td>2,400</td> </tr> <tr> <td>December</td> <td>30,000</td> <td>10,800</td> <td>4,500</td> <td>2,500</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>Credit terms are: Sales/Debtors - 10% sales are on cash each month and the balance in the following months: Creditors: Materials 2 months Wages 1/5 months Overheads 1/2 months</li> <li>Cash balance on 1st October, 2018 is expected to be ₹8,000.</li> <li>A machinery will be installed in August, 2018 at a cost of ₹1,00,000. The monthly instalment of ₹5,000 is payable from October.</li> <li>Dividend at 10% on preference share capital of ₹3,00,000 will be paid on 1st December, 2018.</li> <li>Income-tax (advance) to be paid in December ₹5,000.</li> </ol>		Sales ₹	Materials ₹	Wages ₹	Overheads ₹	August	20,000	10,200	3,800	1,900	September	21,000	10,000	3,800	2,100	October	23,000	9,800	4,000	2,300	November	25,000	10,000	4,200	2,400	December	30,000	10,800	4,500	2,500	5	5												
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<b>Q. No.</b>	<b>Compulsory Case Study:</b>	<b>(1 x 15 = 15)</b>	<b>CO</b>	<b>KL</b>																																									
18	<p>Mr. Y has been asked to quote a price for a special contract. He has already prepared his tender but has asked you to review it for him. He has pointed out to you that he wants to quote the minimum price as he believes this will lead to more lucrative work in the future.</p> <p>The tender details are as follows:</p> <p><b>Mr. Y tender</b></p> <table style="margin-left: 40px;"> <thead> <tr> <th></th> <th></th> <th style="text-align: right;">\$</th> </tr> </thead> <tbody> <tr> <td>Material:</td> <td>A: 2,000 kgs @ \$ 10 per kg</td> <td style="text-align: right;">20,000</td> </tr> <tr> <td></td> <td>B: 1,000 kgs @ \$ 15 per kg</td> <td style="text-align: right;">15,000</td> </tr> <tr> <td></td> <td>C: 500 kgs @ 40 per kg</td> <td style="text-align: right;">20,000</td> </tr> <tr> <td></td> <td>D: 50 litres @ 12 per litre</td> <td style="text-align: right;">600</td> </tr> <tr> <td>Labour:</td> <td>Skilled 1,000 hrs @ 25 per hr</td> <td style="text-align: right;">25,000</td> </tr> <tr> <td></td> <td>Semi-skilled 2,000 @ \$ 15 per hr</td> <td style="text-align: right;">30,000</td> </tr> <tr> <td></td> <td>Unskilled 500 hrs @ 10 per hr</td> <td style="text-align: right;">5,000</td> </tr> <tr> <td>Fixed overheads</td> <td>3,500 hrs @ \$12 per hr</td> <td style="text-align: right;">42,000</td> </tr> <tr> <td colspan="3"><b>Costs of preparing the tender</b></td> </tr> <tr> <td></td> <td>Mr Y's time</td> <td style="text-align: right;">1,000</td> </tr> <tr> <td></td> <td>Other expenses</td> <td style="text-align: right;">500</td> </tr> <tr> <td></td> <td>Minimum Profit (5% of total costs)</td> <td style="text-align: right;">7,955</td> </tr> <tr> <td></td> <td><b>Minimum tender price</b></td> <td style="text-align: right;"><b>1,67,055</b></td> </tr> </tbody> </table>			\$	Material:	A: 2,000 kgs @ \$ 10 per kg	20,000		B: 1,000 kgs @ \$ 15 per kg	15,000		C: 500 kgs @ 40 per kg	20,000		D: 50 litres @ 12 per litre	600	Labour:	Skilled 1,000 hrs @ 25 per hr	25,000		Semi-skilled 2,000 @ \$ 15 per hr	30,000		Unskilled 500 hrs @ 10 per hr	5,000	Fixed overheads	3,500 hrs @ \$12 per hr	42,000	<b>Costs of preparing the tender</b>				Mr Y's time	1,000		Other expenses	500		Minimum Profit (5% of total costs)	7,955		<b>Minimum tender price</b>	<b>1,67,055</b>	5	6
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	Minimum Profit (5% of total costs)	7,955																																											
	<b>Minimum tender price</b>	<b>1,67,055</b>																																											

<p><b>Other information</b></p> <p>i. Material A</p> <p>1,000 kg of this material is in stock at a cost of \$5 per kg. Mr. Y has no alternative use for his material and intends selling in for \$2 per kg. However, if he sold any he would have to pay a fixed sum of \$300 to cover delivery costs. The current purchase price is \$10 per kg. The material is constantly used by Mr Smith in his business</p> <p>ii. Material C</p> <p>The total amount in stock of 500 kgs was bought for \$10,000 some time ago for another one-off contract that never happened. Mr Y is considering selling it for \$6,000 in total or using it as a substitute for another material, constantly used in normal production. If used in this latter manner it would save \$8,000 of the other material. Current purchase price is \$40 per kg.</p> <p>iii. Material D</p> <p>There are 100 litres of this material in stock. It is dangerous and if not used in this contract will have to be disposed of at a cost to Mr Smith of \$50 per litre. The current purchase price is \$12 per litre.</p> <p>iv. Skilled labour</p> <p>Mr Y only hires skilled labour when he needs it. \$25 per hour is the current hourly rate.</p> <p>v. Semi-skilled labour</p> <p>Mr Smith has a workforce of 50 semi-skilled labourers who are currently not fully utilised. They are on annual contracts and the number of spare hours currently available for this project are 1,500. Any hours in excess of this will have to be paid for at time-and-a-half. The normal hourly rate is \$15 per hour.</p> <p>vi. Unskilled labour</p> <p>These are currently fully employed by Mr Smith on jobs where they produce a contribution of \$2 per unskilled labour hour. Their current rate is \$10 per hr. although extra could be hired at \$20 an hr, if necessary.</p> <p>vii. Fixed overheads</p> <p>This considered by Mr. Y to be an accurate estimate of the hourly rate based on his existing production.</p> <p>viii. Cost of preparing the tender</p> <p>Mr Y has spent 10 hr. working on this project at \$100 per hr. which he believes is his charge-out rate. Other expenses include the cost of travel and research spent by MrY on the project.</p> <p>ix. Profit</p> <p>This is Mr Y minimum profit margin which he believes is necessary to cover general day-to day expenses of running a business.</p> <p><b>Required:</b> Calculate and explain for Mr. Smith what you believe the minimum tender price should be.</p>		
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