

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MCom (IB) DEGREE EXAMINATION DECEMBER 2024
(Second Semester)

Branch – INTERNATIONAL BUSINESS

BUSINESS STATISTICS AND OPTIMIZATION TECHNIQUES

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	If the mean of 25, 29, 25, 32, 24 and X is 27, then what will be the median? a) 32 b) 27 c) 26 d) 25	K1	CO1
	2	In a negatively skewed distribution a) Mean > Median > Mode b) Mean > Mode > Median c) Mode > Median > Mean d) Mode < Median > Mean	K2	CO1
2	3	If the value of correlation coefficient between X and Y is '0' then a) Positive correlation between X and Y b) Negative correlation between X and Y c) Absence of Correlation between X and Y d) Perfectly positive correlation between X and Y	K1	CO2
	4	The straight line graph of the linear regression equation $Y = a + bX$, will slope upward if: a) $b = 0$ b) $b < 0$ c) $b > 0$ d) $b = -1$	K2	CO2
3	5	Arrange the following steps in sequence for testing a statistical Hypothesis A. Test statistic B. Framing the Hypothesis C. Collecting the sample data D. Level of Significance E. Obtaining the result and making decisions a) BDCAE b) CBADE c) BCADE d) ACBED	K1	CO3
	6	For computation of 'F' value in one way ANOVA, what is the final procedural step? a) Finding out within sum of squares. b) Finding out between sum of squares c) Finding out the ratio of between and within sum of squares. d) Finding out the ratio of between and within variance.	K2	CO3
4	7	Which of the following methods is used to verify the optimality of the current solution of the transportation problem a) least cost method b) vogel's approximation method c) modified distribution method d) north west corner rule	K1	CO4
	8	Which of the following methods is commonly used for solve assignment problem a) Stepping stone method b) Hungarian method c) North-west corner method d) Modified distribution method	K2	CO4

Cont...

5	9	Which approach would be used by an optimistic (or desperate) decision maker? a) maximin b) maximax c) minimax regret d) EMV	K1	CO5
	10	A game where the sum of the payoffs of all players equals zero for every configuration of their strategy choices. a) symmetric game b) constant-sum game c) zero-sum game d) ultimatum game	K2	CO5

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO																
1	11.a.	Calculate average daily wages from the following data: Daily Wages in (Rs.) 60 80 100 120 160 180 200 No.of person : 5 8 12 22 10 7 6	K3	CO1																
	(OR)																			
	11.b.	Calculate the Quartile Deviation and Coefficient of Quartile Deviation from the following data: Mid-point: 15 20 25 30 35 40 45 Frequency: 15 33 56 103 40 32 10	K4																	
2	12.a.	Calculate Karl Pearsons coefficient of correlation from the data given below: r = 0.95 <table><tr><td>A</td><td>12</td><td>9</td><td>8</td><td>10</td><td>11</td><td>13</td><td>7</td></tr><tr><td>B</td><td>14</td><td>8</td><td>6</td><td>9</td><td>11</td><td>12</td><td>3</td></tr></table>	A	12	9	8	10	11	13	7	B	14	8	6	9	11	12	3	K4	CO2
	A	12	9	8	10	11	13	7												
	B	14	8	6	9	11	12	3												
(OR)																				
12.b.	You are given below the following information about advertisement and sales. Adv. Exp . (Rs. Crores) (X) Sales (Rs. Crores) Y Mean 20 120 S.D. 5 25 Correlation coefficient 0.8. Calculate the two regression equations.	K4																		
3	13.a.	A car company decided to introduce a new car whose mean petrol consumption is claimed to be lower than that of the existing car. A sample of 50 new cars were taken and tested for petrol consumption. It was found that mean petrol consumption for the 50 cars was 30km per litre with a standard deviation of 3.5km per litre. Test at 5% level of significance whether the company's claim that he new car petrol consumption is 28 km per litre on the average is acceptable.	K5	CO3																
	(OR)																			
	13.b.	In an industry, 200 workers were classified according to their performance and training received/ not received to the test independence of a specific training and performance. The data is summarized as follows: Performance <table><tr><td></td><td>Good</td><td>Not Good</td></tr><tr><td>Trained</td><td>100</td><td>50</td></tr><tr><td>Untrained</td><td>20</td><td>30</td></tr></table> Use Chi-Square test of independence at 5% level of significance.			Good	Not Good	Trained	100	50	Untrained	20	30	K4							
	Good	Not Good																		
Trained	100	50																		
Untrained	20	30																		

Cont...

4	14.a.	A company has three operational departments (weaving,processing and packing) with capacity to produce three different types of clothes namely suiting, shirting's and woolen's yielding a profit of Rs.2, Rs.4 and Rs.4 per meter respectively. One meter suiting requires 3 minutes in weaving, 2 minutes in processing and 1 minute in packing. Similarly one meter of shirting requires 4 minutes in weaving, 3 minutes in each department. In a week, total run time of each department is 60, 40 and 80 hours for weaving, processing and packing departments respectively. Formulate the linear programming problem to find the product mix to maximize the profit.	K5	CO4																																														
	(OR)																																																	
	14.b.	For the transportation problem given below, find a basic feasible solution by "North West Corner Rule" method: <table><tr><td></td><td>D1</td><td>D2</td><td>D3</td><td>D4</td><td>D5</td><td>D6</td><td>SUPPLY</td></tr><tr><td>O1</td><td>6</td><td>4</td><td>8</td><td>4</td><td>9</td><td>6</td><td>4</td></tr><tr><td>O2</td><td>6</td><td>7</td><td>13</td><td>6</td><td>8</td><td>12</td><td>5</td></tr><tr><td>O3</td><td>3</td><td>9</td><td>4</td><td>5</td><td>9</td><td>13</td><td>3</td></tr><tr><td>O4</td><td>14</td><td>7</td><td>11</td><td>6</td><td>11</td><td>10</td><td>9</td></tr><tr><td>DEMAND</td><td>4</td><td>4</td><td>5</td><td>3</td><td>2</td><td>3</td><td></td></tr></table>			D1	D2	D3	D4	D5	D6	SUPPLY	O1	6	4	8	4	9	6	4	O2	6	7	13	6	8	12	5	O3	3	9	4	5	9	13	3	O4	14	7	11	6	11	10	9	DEMAND	4	4	5	3	2	3
	D1	D2	D3	D4	D5	D6	SUPPLY																																											
O1	6	4	8	4	9	6	4																																											
O2	6	7	13	6	8	12	5																																											
O3	3	9	4	5	9	13	3																																											
O4	14	7	11	6	11	10	9																																											
DEMAND	4	4	5	3	2	3																																												
5	15.a.	Two players A and B match coins. If the coins match, then A wins one unit of value, if te coins do not match then B wins one unit of value. Determine optimum strategies and the value of the game.	K4	CO5																																														
	(OR)																																																	
	15.b.	Explain Various quantitative methods that are useful for decision making under uncertainty.	K3																																															

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Find the Mean, Median and Mode: Interval : 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-100 Frequency : 4 14 20 51 32 17 6 4	K5	CO1
2	17	Ten competitors in a beauty contest are ranked by three judges in the following order: Judge A 1 5 4 8 9 6 10 7 3 2 Judge B 4 8 7 6 5 9 10 3 2 1 Judge C 6 7 8 1 5 10 9 2 3 4 Use rank correlation coefficient to discuss which pair of judges has the nearest approach to common tastes in beauty.	K4	CO2

Cont...

3	18	Random sample of three models of scooter were tested for the petrol mileage (the number of kilo metres per litre). Use ANOVA to analyses the data. Model A: 60 54 76 48 66 52 62 56 Model B: 62 58 52 48 70 Model C: 42 64 36 65 42 60 82	K6	CO3
4	19	Explain the steps in the Hungarian Method used for solving assignment problems.	K5	CO4
5	20	Discuss the difference between decision – making under certainty, under uncertainty and under risk.	K4	CO5

Z-Z-Z

END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
MCom (IB) DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch – INTERNATIONAL BUSINESS

ACCOUNTING FOR DECISION MAKING

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	The assets that can be easily converted into cash within a short period are known as a) Current Assets b) Fixed Assets c) Intangible Assets d) Investments	K1	CO1
	2	IND AS:1 shall be applied for a) Provisions b) Depreciation c) Presentation of financial statement d) Fixed Assets	K2	CO1
2	3	Sales ratio may otherwise be called as a) Operating profit ratio b) Turnover ratio c) Debt ratio d) Solvency ratio	K1	CO1
	4	The current assets to the current liabilities ratio is said to be satisfactory if it is a) 1:2 b) 2:1 c) 1:1 d) 3:2	K2	CO1
3	5	Management accounting is also known as a) Price level accounting b) historical cost accounting c) financial accounting d) decision accounting	K1	CO3
	6	Cash flows include a) cash payments only b) cash receipts only c) cash receipts and payments d) cash and non cash incomes and payments	K2	CO1
4	7	Prime cost plus factory overheads constitutes a) works cost b) Cost of production c) sales d) cost of sales	K1	CO3
	8	Fixed cost Rs.200000; sales Rs.800000; P/V ratio 30%; the amount of profit is a) Rs.50000 b) Rs.40000 c) Rs.35000 d) Rs.45000	K2	CO4
5	9	The budget is a) a post-mortem analysis b) a substitute of management c) an aid to management d) none of these	K1	CO3
	10	The fixed variable cost classification has a special significant in the preparation of a) capital budgeting b) cash budgeting c) master budgeting d) flexible budgeting	K2	CO4

SECTION - B (35 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Dissect important principles of Accounting.	K4	CO1
		(OR)		

Cont...

1	11.b.	Prepare Trading and Profit & Loss Account for the year ending 31 st march 2021 from the following information:				K4	CO1
		Particulars	Rs.	Particulars	Rs.		
		Capital	50000	Creditors	5000		
		Drawings	4000	Bad debts	1100		
		General expenses	5000	Loan	15760		
		Buildings	22000	Sales	130720		
		Machinery	18680	Purchases	94000		
		Stock	32400	Motor car	4000		
		Power	4480	Reserve fund (Cr)	1800		
		Taxes	2630	Commission(Cr)	2640		
		Wages	14400	Car expenses	3600		
		Debtors	12560	Bills payable	6700		
		Bank overdraft	6600	Cash	160		
		Charity	210				
		Stock on 31 st march 2021 was valued at Rs.47000.					
2	12.a.	Calculate operating profit ratio from the following data:				K4	CO2
	Particulars		Rs.				
	Sales		4,00,000				
	Gross profit		1,00,000				
	Administrative expenses		40,000				
	Selling and distribution expenses		35,000				
	Income on investments		20,000				
	Loss by fire		10,000				
	(OR)						
	12.b.	The balance sheet of Rama Ltd., as at 31.12.2023 is as follows:					
	Liabilities		Rs.	Assets	Rs.		
	Equity share capital		200000	Fixed assets	360000		
	9% preference share capital		100000	Stock	50000		
	8% debentures		100000	Debtors	110000		
	Profit and loss A/c		40000	Bills receivable	6000		
Creditors		90000	Bank	4000			
		530000		530000			
Find out (i) Debt –equity ratio (ii) Current ratio (iii) Liquidity ratio							
3	13.a.	Enumerate the limitations of management accounting.				K5	CO2
	(OR)						
	13.b.	From the figures given below, calculate cash from operations:					
	Particulars		31 st December				
			2022	2023			
	Trade debtors		150000	130000			
	Bills receivable		50000	40000			
	Stock-in-trade		120000	145000			
	Prepaid expenses		30000	25000			
	Accrued income		20000	27500			
	Sundry creditors		80000	110000			
	Outstanding expenses		4000	5000			
	Bills payable		30000	25000			
	Income received in advance		3000	4000			
	Profit made during the year		-	750000			

4	14.a.	Prepare cost sheet in the book of M.B Rehman from the following particulars		K3	CO3	
		Particulars	Amount(Rs.)			
		Stock of Raw material on 1 st Jan 2023	25000			
		Stock of Raw material on 31 st Jan 2023	26200			
		Purchase of raw materials	21900			
		Carriage on purchases	1100			
		Sales	72300			
		Direct wages	17200			
		Indirect wages	800			
		Direct expenses	1200			
		Factory overheads	8300			
		Administrative overheads	3200			
Selling overheads	4200					
(OR)						
14.b.	Fixed overhead Rs.120000 Variable overhead Rs.200000 Direct wages Rs.150000 Direct material Rs.410000 Sales Rs.1000000 Calculate the Break-even point and P/V ratio					
5	15.a.	Prepare a production budget for 3 months ending			K3	CO1
		Month	Estimated sales			
		April	1,40,000			
		May	1,60,000			
		June	1,30,000			
		July	1,20,000			
		It is the policy of the company to maintain 50% of the month's sales as opening stock.				
(OR)						
15.b.	Organise budgetary control and state its importance.					

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO																																																											
1	16	From the following Trial Balance as on 31.12.2021. Prepare Trading, Profit and Loss Account and a Balance Sheet as on that date.	K5	CO5																																																											
		Particulars			Debit Rs.	Credit Rs.	Stock as on 01.01.2021	5840	-	Cash in hand	192	-	Drawings	2840	-	Rent	480	-	Machinery	3800	-	Tax	600	-	Provision for bad debts	-	420	Bad debts	888	-	Capital	-	17000	Interest	-	320	General expenses	1760	-	Bank overdraft	-	960	Purchases	41448	-	Debtors	16800	-	Sales	-	47624	Creditors	-	8000	Sales return	840	-	Purchases return	-	1164		75488	75488
		Particulars			Debit Rs.	Credit Rs.																																																									
		Stock as on 01.01.2021			5840	-																																																									
		Cash in hand			192	-																																																									
		Drawings			2840	-																																																									
		Rent			480	-																																																									
		Machinery			3800	-																																																									
		Tax			600	-																																																									
		Provision for bad debts			-	420																																																									
		Bad debts			888	-																																																									
		Capital			-	17000																																																									
		Interest			-	320																																																									
		General expenses			1760	-																																																									
		Bank overdraft			-	960																																																									
		Purchases			41448	-																																																									
		Debtors			16800	-																																																									
		Sales			-	47624																																																									
		Creditors			-	8000																																																									
		Sales return			840	-																																																									
Purchases return	-	1164																																																													
	75488	75488																																																													
Adjustments:																																																															
a) Depreciation on machinery 10% p.a.																																																															
b) Rent outstanding Rs.500.																																																															
c) Tax Prepaid Rs.100.																																																															
d) Provision for bad debts is to be increased to 5% on Debtors.																																																															
e) Closing stock Rs.3500.																																																															

Cont...

2	17	<table><tr><th>Liabilities</th><th>Rs.</th><th>Assets</th><th>Rs.</th></tr><tr><td>Equity Share Capital</td><td>5,00,000</td><td>Land & Building</td><td>1,00,000</td></tr><tr><td>Preference share capital</td><td>2,00,000</td><td>Machinery</td><td>4,00,000</td></tr><tr><td>General Reserve</td><td>1,00,000</td><td>Furniture</td><td>50,000</td></tr><tr><td>Secured Loan</td><td>3,00,000</td><td>Inventory</td><td>3,00,000</td></tr><tr><td>Sundry Creditors</td><td>1,00,000</td><td>Sundry Debtors</td><td>3,00,000</td></tr><tr><td></td><td></td><td>Cash/Bank Balance</td><td>50,000</td></tr><tr><td></td><td>12,00,000</td><td></td><td>12,00,000</td></tr></table>	Liabilities	Rs.	Assets	Rs.	Equity Share Capital	5,00,000	Land & Building	1,00,000	Preference share capital	2,00,000	Machinery	4,00,000	General Reserve	1,00,000	Furniture	50,000	Secured Loan	3,00,000	Inventory	3,00,000	Sundry Creditors	1,00,000	Sundry Debtors	3,00,000			Cash/Bank Balance	50,000		12,00,000		12,00,000	K4	CO2										
		Liabilities	Rs.	Assets	Rs.																																									
Equity Share Capital	5,00,000	Land & Building	1,00,000																																											
Preference share capital	2,00,000	Machinery	4,00,000																																											
General Reserve	1,00,000	Furniture	50,000																																											
Secured Loan	3,00,000	Inventory	3,00,000																																											
Sundry Creditors	1,00,000	Sundry Debtors	3,00,000																																											
		Cash/Bank Balance	50,000																																											
	12,00,000		12,00,000																																											
Calculate the following ratios from the above balance sheet: 1. Current ratio 2. Liquid ratio 3. Proprietary ratio 4. Stock Working capital Ratio 5. Capital Gearing Ratio 6. Debt Equity Ratio																																														
3	18	Statement of the financial position of Mr. Ram is given below: <table><tr><th>Liabilities</th><th>1.1.22 Rs.</th><th>31.12.22 Rs.</th><th>Assets</th><th>1.1.22 Rs.</th><th>31.12.22 Rs.</th></tr><tr><td>Accounts payable</td><td>2900</td><td>2500</td><td>Cash</td><td>4000</td><td>3000</td></tr><tr><td>Capital</td><td>73900</td><td>61500</td><td>Debtors</td><td>2000</td><td>1700</td></tr><tr><td></td><td></td><td></td><td>Stock</td><td>800</td><td>1300</td></tr><tr><td></td><td></td><td></td><td>Building</td><td>10000</td><td>8000</td></tr><tr><td></td><td></td><td></td><td>Other fixed assets</td><td>60000</td><td>50000</td></tr><tr><td></td><td>76800</td><td>64000</td><td></td><td>76800</td><td>64000</td></tr></table>	Liabilities	1.1.22 Rs.	31.12.22 Rs.	Assets	1.1.22 Rs.	31.12.22 Rs.	Accounts payable	2900	2500	Cash	4000	3000	Capital	73900	61500	Debtors	2000	1700				Stock	800	1300				Building	10000	8000				Other fixed assets	60000	50000		76800	64000		76800	64000	K4	CO3
		Liabilities	1.1.22 Rs.	31.12.22 Rs.	Assets	1.1.22 Rs.	31.12.22 Rs.																																							
Accounts payable	2900	2500	Cash	4000	3000																																									
Capital	73900	61500	Debtors	2000	1700																																									
			Stock	800	1300																																									
			Building	10000	8000																																									
			Other fixed assets	60000	50000																																									
	76800	64000		76800	64000																																									
Additional information: i) There were no drawings. ii) There was no purchase or sales of either buildings or other fixed assets. Prepare a statement of cash flow.																																														
4	19	In respect of a factory the following particulars have been extracted from the manufacturing concern for the month of September 2022, prepare a statement showing the cost and profit per unit. <table><tr><td>Raw materials used</td><td>Rs.40,000</td></tr><tr><td>Direct wages</td><td>Rs.24,000</td></tr><tr><td>Machine worked</td><td>9,500 hours</td></tr><tr><td>Machine hour rate</td><td>Rs. 4 Hour</td></tr><tr><td>Office overheads</td><td>20% on works cost</td></tr><tr><td>Selling overheads</td><td>Re.1 per unit</td></tr><tr><td>Units produced</td><td>20,000 units</td></tr><tr><td>Units sold</td><td>18,000 @ Rs.10 per unit</td></tr></table>	Raw materials used	Rs.40,000	Direct wages	Rs.24,000	Machine worked	9,500 hours	Machine hour rate	Rs. 4 Hour	Office overheads	20% on works cost	Selling overheads	Re.1 per unit	Units produced	20,000 units	Units sold	18,000 @ Rs.10 per unit	K5	CO4																										
		Raw materials used	Rs.40,000																																											
Direct wages	Rs.24,000																																													
Machine worked	9,500 hours																																													
Machine hour rate	Rs. 4 Hour																																													
Office overheads	20% on works cost																																													
Selling overheads	Re.1 per unit																																													
Units produced	20,000 units																																													
Units sold	18,000 @ Rs.10 per unit																																													
5	20	The expenses budgeted for the production of 5,000 units in a factory are given below : <table><tr><th>PARTICULARS</th><th>PER UNIT (Rs.)</th></tr><tr><td>Materials</td><td>40</td></tr><tr><td>Labour</td><td>30</td></tr><tr><td>Direct expenses</td><td>20</td></tr><tr><td>Fixed Overhead (30% fixed)</td><td>30</td></tr><tr><td>Selling and distribution Expenses (15% fixed)</td><td>20</td></tr><tr><td>Administration Expenses (100% fixed)</td><td>5</td></tr></table>	PARTICULARS	PER UNIT (Rs.)	Materials	40	Labour	30	Direct expenses	20	Fixed Overhead (30% fixed)	30	Selling and distribution Expenses (15% fixed)	20	Administration Expenses (100% fixed)	5	K4	CO5																												
		PARTICULARS	PER UNIT (Rs.)																																											
Materials	40																																													
Labour	30																																													
Direct expenses	20																																													
Fixed Overhead (30% fixed)	30																																													
Selling and distribution Expenses (15% fixed)	20																																													
Administration Expenses (100% fixed)	5																																													
Prepare a flexible budget for the production of (a) 4,000 units (b) 7,000 units																																														

Z-Z-Z

END