

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MCom DEGREE EXAMINATION MAY 2026
(First Semester)

Branch - COMMERCE
QUANTITATIVE 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	The value of correlation coefficient lies between (i) 0 to 1 (ii) -1 to +1 (iii) 0 to ∞ (iv) -∞ to +∞	K1	CO1
	2	Poisson distribution is used for (i) Continuous data (ii) Rare events (iii) Large Samples (iv) Symmetric data	K2	CO1
2	3	Large sample test uses (i) t - test (ii) Z - test (iii) Chi-square (iv) F - test	K1	CO2
	4	Null hypothesis means (i) Accepted hypothesis (ii) No difference (iii) Alternative Statement (iv) Final conclusion	K2	CO2
3	5	Chi-square test is used for (i) Means (ii) Attributes (iii) Variance (iv) Correlation	K1	CO3
	6	ANOVA is used to compare (i) Means of more than two groups (ii) Variances (iii) Medians (iv) Ratios	K2	CO3
4	7	Mann-Whitney test is a (i) Parametric test (ii) Non-parametric test (iii) Large sample test (iv) Variance test	K1	CO4
	8	Moving average is used for (i) Trend measurement (ii) Correlation (iii) Regression (iv) Classification	K2	CO4
5	9	Simplex method is used to (i) Solve LPP (ii) Find mean (iii) Test hypothesis (iv) Correlation	K1	CO5
	10	Assignment problem is used for (i) Allocation (ii) Testing (iii) Estimation (iv) Prediction	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.	Explain the difference between simple correlation and partial correlation with suitable examples.	K4	CO1																			
	(OR)																						
	11.b.	Calculate Rank correlation for the following data. <table><tr><td>Judge A</td><td>1</td><td>6</td><td>5</td><td>10</td><td>3</td><td>2</td><td>4</td><td>9</td><td>7</td><td>8</td></tr><tr><td>Judge B</td><td>6</td><td>4</td><td>9</td><td>8</td><td>1</td><td>2</td><td>3</td><td>10</td><td>5</td><td>7</td></tr></table>			Judge A	1	6	5	10	3	2	4	9	7	8	Judge B	6	4	9	8	1	2	3
Judge A	1	6	5	10	3	2	4	9	7	8													
Judge B	6	4	9	8	1	2	3	10	5	7													
2	12.a.	A sample of 10 students had an average score of 78 with a standard deviation of 5. Test whether this sample could have been drawn from a population with a mean of 75 using a t – test.	K3	CO2																			
	(OR)																						
	12.b.	Describe the t-test for a single mean.																					
3	13.a.	Explain the assumptions of the Analysis of Variance.	K3	CO3																			
	(OR)																						
	13.b.	Differentiate between one-way and two-way ANOVA.																					

Cont...

4	14.a.	What are the uses of Time Series Analysis -- Explain Briefly.	K3	CO4																	
	(OR)																				
	14.b.	State the procedure of 4 yearly moving average method with plot the graph.																			
5	15.a.	Explain the graphical method procedure to solve a linear programming problem.	K5	CO5																	
	(OR)																				
	15.b.	Suggest the optimal assignment schedule for the following assignment problem. <table><tr><td></td><td>I</td><td>II</td><td>III</td><td>IV</td></tr><tr><td>A</td><td>80</td><td>70</td><td>75</td><td>72</td></tr><tr><td>B</td><td>75</td><td>75</td><td>80</td><td>85</td></tr><tr><td>C</td><td>78</td><td>78</td><td>82</td><td>78</td></tr></table> What will be total maximum sale?				I	II	III	IV	A	80	70	75	72	B	75	75	80	85	C	78
	I	II	III	IV																	
A	80	70	75	72																	
B	75	75	80	85																	
C	78	78	82	78																	

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks ($3 \times 10 = 30$)

Module No.	Question No.	Question	K Level	CO																													
1	16	Find the correlation and the two-regression equation of X and Y on X from the following data. <table><tr><td>X</td><td>10</td><td>12</td><td>16</td><td>11</td><td>15</td><td>14</td><td>20</td><td>22</td></tr><tr><td>Y</td><td>15</td><td>18</td><td>23</td><td>14</td><td>20</td><td>17</td><td>25</td><td>28</td></tr></table>	X	10	12	16	11	15	14	20	22	Y	15	18	23	14	20	17	25	28	K4	CO1											
X	10	12	16	11	15	14	20	22																									
Y	15	18	23	14	20	17	25	28																									
2	17	The average height of a random sample of 150 college students is 170 cm with a standard deviation of 5 cm. Test whether this sample comes from a population with a mean height of 168 cm at 1% level of significance.	K4	CO2																													
3	18	A researcher studies the effect of different teaching methods on students test scores. Three methods were tested with the following results: <table><tr><td>Method 1</td><td>75</td><td>78</td><td>80</td><td>74</td><td>77</td></tr><tr><td>Method 2</td><td>82</td><td>85</td><td>87</td><td>83</td><td>86</td></tr><tr><td>Method 3</td><td>70</td><td>72</td><td>68</td><td>71</td><td>69</td></tr></table> Perform a one – way ANOVA to test if the mean test scores differ significantly.	Method 1	75	78	80	74	77	Method 2	82	85	87	83	86	Method 3	70	72	68	71	69	K4	CO3											
Method 1	75	78	80	74	77																												
Method 2	82	85	87	83	86																												
Method 3	70	72	68	71	69																												
4	19	Calculate Ratio to trend method for the following observations <table><tr><th rowspan="2">Year</th><th colspan="4">Quarters</th></tr><tr><th>I</th><th>II</th><th>III</th><th>IV</th></tr><tr><td>2013</td><td>8</td><td>15</td><td>6</td><td>10</td></tr><tr><td>2014</td><td>12</td><td>17</td><td>11</td><td>6</td></tr><tr><td>2015</td><td>9</td><td>5</td><td>12</td><td>8</td></tr><tr><td>2016</td><td>11</td><td>10</td><td>9</td><td>6</td></tr></table>	Year	Quarters				I	II	III	IV	2013	8	15	6	10	2014	12	17	11	6	2015	9	5	12	8	2016	11	10	9	6	K4	CO4
Year	Quarters																																
	I	II	III	IV																													
2013	8	15	6	10																													
2014	12	17	11	6																													
2015	9	5	12	8																													
2016	11	10	9	6																													
5	20	Solve the following Transportation Problem. <table><tr><th rowspan="2">From</th><th colspan="3">To</th><th rowspan="2">Available</th></tr><tr><th>a</th><th>b</th><th>c</th></tr><tr><td>I</td><td>6</td><td>8</td><td>4</td><td>14</td></tr><tr><td>II</td><td>4</td><td>9</td><td>8</td><td>12</td></tr><tr><td>III</td><td>1</td><td>2</td><td>6</td><td>5</td></tr><tr><td>Demand</td><td>6</td><td>10</td><td>15</td><td></td></tr></table>	From	To			Available	a	b	c	I	6	8	4	14	II	4	9	8	12	III	1	2	6	5	Demand	6	10	15		K4	CO5	
From	To			Available																													
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