

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)BCom DEGREE EXAMINATION MAY 2026
(Second Semester)

Common to Branches – COMMERCE (RM)/ COMMERCE (FS) / COMMERCE (FT)

MATHEMATICS FOR COMMERCE

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 9 th term of the series 5, 10, 20, is (i) 45 (ii) 80 (iii) 1280 (iv) 2560	K1	CO1
	2	The simple interest is found as _____ (i) Pni (ii) Pnr (iii) P(1+i) (iv) $\frac{Pnr}{100}$	K2	CO1
2	3	[3 8 9 2] is a row matrix of order (i) 4x1 (ii) 1x4 (iii) 1x1 (iv) 2x4	K1	CO2
	4	If A is a singular matrix, then det A = (i) 0 (ii) 1 (iii) ∞ (iv) -1	K2	CO2
3	5	If y = 5x then $\frac{dx}{dy}$ is (i) 1 (ii) 5 (iii) 0 (iv) 25	K1	CO3
	6	If the total cost function is $c = 5 + 2x^2 - x^3$, marginal cost at x = 10 is (i) 0 (ii) 6 (iii) -795 (iv) -260	K2	CO3
4	7	Find the value of $\int e^{2x} dx$ (i) $12e^{2x}+c$ (ii) $e^{2x}+c$ (iii) $2e^{2x}+c$ (iv) none	K1	CO4
	8	If $\int f(x)dx = F(x)$ then $\int_b^a f(x)dx =$ _____ (i) F(b) - F(a) (ii) F(b) - F(a) + c (iii) F(a) - F(b) + c (iv) F(a) - F(b)	K2	CO4
5	9	Which of the following is not associated with any L.P.P (i) Feasible solution (ii) Optimum solution (iii) Basic solution (iv) Quadratic equation	K1	CO5
	10	Simplex method is used when the variables are _____ (i) Two only (ii) one (iii) more than two (iv) none	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.	Find the sum of 40+36+32+...+0.	K2	CO1
		(OR)		
	11.b.	A sum of Rs. 5,000 is invested as (i) First 2 years at 8% p.a. compounded annually (ii) 1 year at 10% p.a. compounded half-yearly. Find the final amount and the total compound interest.		

Cont...

2	12.a.	If $A = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 5 & 4 \\ 3 & 4 \end{bmatrix}$, find $[A + B][A - B]$	K2	CO2
		(OR)		
	12.b.	Find the inverse of the matrix $A = \begin{pmatrix} 1 & 2 & 3 \\ 0 & 1 & 4 \\ 5 & 6 & 0 \end{pmatrix}$		
3	13.a.	Find the derivative of $x^5 + 3 \log x - 4ex^2$.	K2	CO3
		(OR)		
	13.b.	Find $\frac{dx}{dy}$ when $x = 4t$ and $y = 2t^2$.		
4	14.a.	Integrate $(x^3 - x + 4)x^2$ with respect to x .	K2	CO4
		(OR)		
	14.b.	Integrate $x \log x$ with respect to x .		
5	15.a.	A nutritionist is planning a diet using two foods, Food X and Food Y. Each unit of Food X contains 4 units of protein and 2 units of vitamins, while each unit of Food Y contains 2 units of protein and 5 units of vitamins. The minimum daily nutritional requirement is at least 20 units of protein and at least 30 units of vitamins. The cost per unit of Food X is \$6 and the cost per unit of Food Y is \$8. Construct this as a LPP to determine how many units of each food should be included in the diet so that the total cost is minimized while satisfying the nutritional requirements.	K3	CO5
		(OR)		
	15.b.	Explain the Simplex Algorithm used to solve a Linear Programming Problem and Write the steps in this.		

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 three numbers in G.P. such that their sum is 14 and their product is 64.	K2	CO1
2	17	Solve the following equations by inverse matrix method $2x - y + 3z = 7$: $x + 3y - z = 8$: $x + y - 4z = 1$	K2	CO2
3	18	Find for what values of x , the following expression is maximum and minimum respectively $2x^3 - 21x^2 + 30x - 20$ Also find the maximum and minimum values.	K2	CO3
4	19	The marginal cost function for producing x units is $y = 23 + 16x - 3x^2$ and the total cost for producing 1 unit is 40. Evaluate the total cost function and the average cost function.	K2	CO4
5	20	Solve the following LPP graphically Maximize $Z = 4x + 5y$ Subject to Constraints: $x + y \leq 20$, $3x + 4y \leq 72$, $x, y \geq 0$.	K3	CO5

Z-Z-Z

END