

**PSG COLLEGE OF ARTS & SCIENCE  
 (AUTONOMOUS)**

**BCom DEGREE EXAMINATION DECEMBER 2024  
 (First Semester)**

Common to Branches – **COMMERCE (CA)/ e-COMMERCE/ COMMERCE (PA)/  
 COMMERCE (A&F)/ COMMERCE (B&I)**

**MATHEMATICS FOR COMMERCE**

Time: Three Hours

Maximum: 75 Marks

**SECTION-A (10 Marks)**

Answer **ALL** questions

**ALL** questions carry **EQUAL** marks

(10 × 1 = 10)

Question No.	Question	K Level	CO
1	Find the 15th term of the Arithmetic Progression 1,4,7, ... a) 40                      b) 41                      c) 42                      d) 43	K1	CO1
2	If the rate of interest is 10% per year, how much interest will ₹1000 earn in 1 year? a) ₹10                      b) ₹100                      c) ₹1000                      d) ₹500	K1	CO1
3	The matrix having only one row is called a) Column matrix                      b) Square matrix c) Scalar matrix                      d) Row matrix	K1	CO2
4	The matrix $A = \begin{pmatrix} x & 6 \\ 2 & 3 \end{pmatrix}$ is singular then the value of $x$ is a) 1                      b) 2                      c) 3                      d) 4	K1	CO2
5	The derivative of $y = 10x + c$ is a) $10x + c$ b) 10                      c) 0                      d) $10x$	K1	CO3
6	If $y = \log x$ , then $\frac{dy}{dx}$ is a) $x^{-2}$ b) $x^{-1}$ c) $x$ d) $x^2$	K1	CO3
7	Find the value of the integral $\int 0 dx$ is a) 0                      b) 1                      c) 2                      d) 3	K1	CO4
8	$\int (f(x) + g(x))dx = \underline{\hspace{2cm}}$ a) $\int f(x)dx + \int g(x)dx$ b) $\int fg(x)dx$ c) $\int (f - g)(x)dx$ d) $\int (f/g)(x)dx$	K1	CO4
9	How many variables can you solve using the graphical method in LPP? a) 1                      b) 2                      c) 3                      d) 4	K1	CO5
10	In the simplex method, the variables that are initially set to zero are called a) Slack variables                      b) Basic variables c) Surplus variables                      d) Free variables	K1	CO5

Cont...

**SECTION - B (35 Marks)**

Answer ALL questions

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

Question No.	Question	K Level	CO
11.a.	The difference between the compound interest and the simple interest for 3 years at 5% per annum on a certain sum of money was Rs. 610. Find the sum.	K2	CO1
(OR)			
11.b.	The first three terms of a G.P. are $x$ , $x + 3$ and $x + 9$ . Find the value of $x$ and the first eight terms.	K2	CO1
12.a.	If $A = \begin{pmatrix} 3 & 5 \\ 1 & 9 \end{pmatrix}$ and $B = \begin{pmatrix} 0 & 4 \\ 6 & 3 \end{pmatrix}$ show that $2A + 2B = 2(A + B)$ and $AB \neq BA$ .	K2	CO2
(OR)			
12.b.	Solve the following equations $3x + 2y = 8$ ; $5x - 3y = 7$ .	K2	CO2
13.a.	Differentiate the function $x^5 + 3 \log x - 4e^x$ with respect to $x$ .	K2	CO3
(OR)			
13.b.	Find $\frac{dy}{dx}$ where $y = \frac{x^2 + x^3 + x^5}{x^2}$ .	K2	CO3
14.a.	Evaluate the integral $\int (x^3 + 4x^2 - 5x - 6) dx$ .	K2	CO4
(OR)			
14.b.	Integrate the function $f(x) = \sqrt{5x + 3}$ with respect to $x$ .	K2	CO4
15.a.	Explain the procedure to formulate the L.P.P	K2	CO5
(OR)			
15.b.	Solve the L.P.P by graphical method Max $Z = 4x + 5y$ $x + y \geq 10$ $2x + 5y \geq 35$ $x, y \geq 0$ .	K3	CO5

**SECTION - C (30 Marks)**

Answer ANY THREE Questions

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

Question No.	Question	K Level	CO
16	Find the four numbers in A.P. whose sum is 28 and sum of whose square is 216.	K2	CO1
17	Find the inverse of the matrix $A = \begin{bmatrix} 5 & -6 & 4 \\ 7 & 4 & -3 \\ 2 & 1 & 6 \end{bmatrix}$ .	K2	CO2
18	Find what values of $x$ , the following function $y = 2x^3 - 21x^2 + 36x - 20$ is maximum and minimum.	K2	CO3
19	Evaluate the integral $\int x^2 e^x dx$ by integration by parts.	K2	CO4
20	Use simplex method to solve Max. $Z = x_1 + x_2 + 3x_3$ Subject to $3x_1 + 2x_2 + x_3 \leq 3$ $2x_1 + x_2 + 2x_3 \leq 2$ $x_1, x_2, x_3 \geq 0$ .	K3	CO5

Z-Z-Z

END