PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCom DEGREE EXAMINATION DECEMBER 2025
(First Semester)

Branch – **COMMERCE (COST & MANAGEMENT ACCOUNTING)**

BUSINESS MATHEMATICS AND STATISTICS

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	Simple interest on Rs.3500 for 3 years at 12% per annum is? a) 1,200 b)1,260 c) 2,260 d) 3,000	K2	CO1
2	What is the definition of a set? a) A relation b) A function c) An ordered collection of objects d) A proposition	K1	CO2
3	Identify the derivative of $f(x) = x^2$. a) 2x b) x c) 2 d) x^2	K1	CO1
4	For which value of x will $(x - 1)(3 - x)$ have its maximum? a) 0 b) 1 c) 2 d) -2	K1	CO2
5	Which of the following is NOT a measure of central tendency? a) Mean b) Median c) Mode d) Range	K1	CO1
6	What does a standard deviation of zero indicate? a) The data is highly scattered b) All data points are identical c) There is an error in the calculation d) The mean is the only value	K1	CO2
7	Correlation coefficient of 1.0 indicates _____. a) No linear relationship between the variables b) A perfect negative linear relationship c) A perfect positive linear relationship d) A non-linear relationship	K1	CO1
8	A process by which we estimate the value of a dependent variable based on one or more independent variables is called: a) Correlation b) Regression c) Residual d) Slope	K2	CO2
9	The probability value of an impossible event is a) 1 b) 0 c) Insufficient data d) Not defined	K1	CO1
10	Which of the following is NOT a major component of a time series? a) Trend b) Cyclical variations c) Random factors d) Seasonal variations	K2	CO2

SECTION - B (35 Marks)

Answer **ALL** questions

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

Question No.	Question	K Level	CO
11.a.	Calculate : (i) Compound interest for Rs.2,500 for 4 years at 8% per annum. (ii) Compound interest in the above case when interest is compounded (a) half yearly (b) quarterly.	K3	CO1
	(OR)		
11.b.	If A = (1, 2, 3,4), B = {3. 4, 5, 6) and C= (1, 5, 6,7, 8), verify that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ and name the property.		

Cont...

12.a.	Find $\lim_{x\to 3} \frac{x^2+x-12}{x^2-x-6}$	K2	CO2
	(OR)		
12.b.	Evaluate $\int \left(2^x + \frac{4}{x} - \frac{a}{x\sqrt{3}}\right)dx$		
13.a.	Calculate the Arithmetic mean. Marks : 40 50 54 60 68 80 Total No. of Students : 10 18 20 39 15 8 110	K3	CO3
	(OR)		
13.b.	Weekly wages of a labourer are given below. Calculate Quartile Deviation and its coefficient Weekly Wages (Rs.) : 100 200 400 500 600 Total No. of weeks : 5 8 21 12 6 52		
14.a.	For the data given below, calculate the rank correlation coefficient. X: 21 36 42 37 25 Y: 47 40 37 42 43	K3	CO4
	(OR)		
14.b.	You are given the following data: X Y Arithmetic mean 36 85 Standard deviation 11 8 Correlation coefficient between X and Y = 0.66 (a) Find the two regression equations. (b) Estimate the value of X when Y=75		
15.a.	A symmetrical die is thrown. Find the probability for the value to turn (i) 6 (ii) not 6 (iii) 7 (iv) less than 7	K4	CO5
	(OR)		
15.b.	Using three year moving averages determine the trend Year : 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 Production: 21 22 23 25 24 22 25 26 27 26		

SECTION -C (30 Marks)

Answer **ANY THREE** questions
ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Question No.	Question	K Level	CO
16	A sub-committee of 6 members is to be formed out of a group consisting of 7 men and 4 women. Calculate the probability that the sub-committee will consist of (i) exactly 2 women and (ii) at least 2 women.	K3	CO1
17	Find for what values of x, the following expression is maximum and minimum respectively: $2x^3 - 21x^2 + 36x - 20$ Find also the maximum and the minimum values.	K3	CO2
18	Calculate the mean, median and mode. Central Value: 45 55 65 75 85 95 105 Frequency : 32 65 128 167 136 79 43	K3	CO3
19	Compute the coefficient of correlation between X-Advertisement Expenditure and Y-Sales. X: 10 12 18 8 13 20 22 15 5 17 Y: 88 90 94 86 87 92 96 94 88 85	K4	CO4
20	A problem in statistics is given to 5 students A, B, C, D and E. Their chance of solving it are $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$ and $\frac{1}{6}$. What is the probability that the problem will be solved?	K4	CO5

Z-Z-Z END