



*K. Sambal*

**Avinashilingam Institute for Home Science and Higher Education for Women**

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)

Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC

Coimbatore - 641043, Tamil Nadu, India

**Bachelor's Degree Examination - November 2025**

**I Semester**

**Class : I UG**

**Major : B.Com (PA)**

**Time**

**: 3 Hours**

**Max. Marks**

**: 100**

**23BCPC03 - Business Mathematics and Logical Reasoning and Statistics**

**Course Outcomes:**

- CO1 : Apply the Logarithm Techniques and its Mathematical Equation for Business  
CO2 : Prepare the Permutation and Combination Sequences Series for Business Situations  
CO3 : Acquire the Logical Reasoning and Syllogism Skill Sets  
CO4 : Apply Statistical Techniques for Data Analysis and Interpretations  
CO5 : Application of Correlation and Regression Techniques in Business Decision Making

**Part A**

**10 x 1 = 10**

**Choose the Correct Answer**

- If  $5x=20$ , then the value of  $x$  is \_\_\_\_\_ CO1 K1  
a. 2                      b. 3                      c. 4                      d. 5
- If  $x+y=10$  and  $x-y=4$ , what is the value of  $x$ ? CO1 K1  
a. 3                      b. 4                      c. 5                      d. 7
- The sum of the first 20 terms of the arithmetic series: 3, 7, 11, ... is: CO2 K2  
a. 820                      b. 800                      c. 760                      d. 780
- If the  $n$ th term of a sequence is  $a_n = 2n+1$ , then the 10th term is: CO2 K2  
a. 19                      b. 21                      c. 20                      d. 23
- What comes next in the series? CO3 K1  
2, 6, 12, 20, 30, ?  
a. 36                      b. 40                      c. 42                      d. 44
- Which of the following is the odd one out? CO3 K1  
a. March                      b. January                      c. June                      d. Monday
- Which of the following is not a measure of central tendency? CO4 K1  
a. Mean                      b. Median                      c. Mode                      d. Standard Deviation
- Which graphical tool is best used to represent a frequency distribution? CO4 K1  
a. Line Graph                      b. Scatter Plot                      c. Histogram                      d. Pie Chart
- The value of correlation coefficient ( $r$ ) always lies between: CO5 K2  
a. 0 and 1                      b. -1 and 1                      c. -1 and 0                      d.  $-\infty$  and  $\infty$
- In probability, the total of all possible outcomes is always: CO5 K2  
a. Less than 1                      b. More than 1                      c. Exactly 1                      d. Cannot be determined

**Part B**

**5 x 6 = 30**

**Answer ALL questions**

**Each answer should not exceed 400 words or two pages**

- a. State and explain any four Laws of Indices CO1 K3  
(or)
- b. Solve the quadratic equation:  $x^2-3x-4=0$  CO1 K3
- a. Find the number of 5-digit numbers that can be formed using the digits 1, 2, 3, 4, 5, 6, and 7, if no digit is repeated. CO2 K4  
(or)
- b. Differentiate between the Arithmetic and Geometric Progressions CO2 K4
- a. Interpret the various types of puzzles in seating arrangements. CO3 K4  
(or)
- b. A person walks 15 meters North, then turns left and walks 10 meters, again turns left

14. a. Calculate the Mean, Median, and Mode of the following data set: CO4 K3  
 8, 10, 10, 12, 13, 15, 15, 15, 18, 20  
 (or)
- 14.b. Find the Standard Deviation of the data: CO4 K3  
 5, 7, 8, 10, 12
15. a. A coin is tossed three times. Find the probability of getting at least two heads. CO5 K4  
 (or)
- 15.b. From the data below, calculate the regression equations and estimate Y when X = 6 CO5 K4

X	2	4	6	8	10
Y	5	7	9	8	11

**Part C**  
**Answer ALL questions**

**5 x 12 = 60**

**Each answer should not exceed 800 words or four pages**

16. a. Explain in detail the concept and importance of Ratio and Proportion CO1 K4  
 (or)
- 16.b. Solve the cubic equation  $x^3 - 6x^2 + 11x - 6 = 0$  CO1 K4
17. a. A committee of 5 is to be formed from 6 men and 4 women. CO2 K4  
 In how many ways can the committee be formed such that:  
 a) It contains at least 2 women?  
 b) It contains more men than women?  
 (or)
- 17.b. The sum of the first three terms of an arithmetic progression is 27, and their product is 50. Find the terms of the progression. CO2 K4
18. a. Assess the different types of coding techniques used in logical reasoning. CO3 K4  
 (or)
- 18.b. Eight people – P, Q, R, S, T, U, V, and W – are sitting around a circular table CO3 K6  
 facing the center.  
 P is second to the left of T.  
 Q is to the immediate right of P.  
 R is third to the left of Q.  
 S is between T and V.  
 W is not an immediate neighbor of Q or R.  
 Draw the arrangement and find who is sitting opposite to W.
19. a. Calculate the Standard Deviation and Coefficient of Variation for the following data: CO4 K4  
 45, 55, 65, 75, 85  
 (or)
- 19.b. Find the Quartiles (Q1, Q2, Q3) for the following data set: CO4 K4  
 5, 7, 10, 15, 18, 22, 25, 28, 30, 35
20. a. A card is drawn at random from a standard deck of 52 playing cards. CO5 K4  
 Find the probability that the card is:  
 a) A king or queen  
 b) A red card  
 c) Neither heart nor diamond  
 (or)
- 20.b Find the Karl Pearson's correlation coefficient for the following data: CO4 K4  
 X: 10, 20, 30, 40, 50  
 Y: 15, 25, 35, 45, 55