

**PINNACLE INSTITUTE OF MANAGEMENT AND SCIENCE**

Nagarabhavi Bangalore-72

**III Semester B.Com. Pre-Finals Examination, JAN 2023**

**COMMERCE**

**Business Mathematics & Statistics**

**Time:2.30 Hours**

**Max.Marks:60**

**SECTION A**

**I Answer any 6 of the following each carries 2 marks.**

**(2X6=12)**

**1.**

- a) Mention the different measures of dispersion.
- b) What is C.V. given the mean 56, variance 144 of 60 items?
- c) If  $b_{yx}=0.8$  and  $b_{xy}=0.6$ , find 'r'.
- d) What do you mean by correlation?
- e) What is Speed?
- f) What is Linear Equation?
- g) If  $A=\begin{bmatrix} 2 & 3 \\ 1 & 4 \end{bmatrix}$  and  $B=\begin{bmatrix} 3 & 5 \\ 1 & 2 \end{bmatrix}$ , Find A-B.
- h) A White Board is reduced 20% in price in a sale. The old price was ₹150. Find the new price.

**SECTION- B**

**II Answer any 3 of the following each carries 4 marks.**

**(3X4=12)**

**2.** Two quantities are in the ratio 3:4 and if 10 is subtracted from each of them, the remainders are in the ratio 1:3. What are the quantities?

**3.** Solve by Cramer's rule method:

$$5x+2y=4$$

$$7x+3y=5$$

**4.** Calculate the two regressions from the following data.

$$\bar{X}=20, \bar{Y}=12, \sigma_x=5, \sigma_y=25, r=0.8$$

**5.** Calculate mode from the following data.

<b>X</b>	0-9	10-19	20-29	30-39	40-49	50-59	60-69
<b>f</b>	678	720	664	598	524	378	244

6. Calculate Standard deviation from the following data.

<b>Wages (₹)</b>	10	20	30	40	50	60
<b>No.of Workers</b>	8	12	20	10	7	3

**SECTION- C**

**III Answer any 3 of the following each carries 12 marks. (3X12=36)**

7. Two years ago a Man was six times as old as his Son. In 18 years he will be twice as old as his Son. Determine their present age.

8. Prove that  $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$  satisfies the equation  $A^2 - 4A + 5I = 0$ , where I is the identity matrix and 0 is the zero matrix.

9. A Merchant borrowed ₹62500 and paid ₹67600 in full settlement after 2 years. Find the rate of compound interest.

10. The following are the distributions of monthly pay of workers of two factories.

- a) In which factory is total wages bill higher?
- b) In which factory is average wage higher?
- c) In which factory is wage variation more?

<b>Pay (₹)</b>	400-600	600-800	800-1000	1000-1200	1200-1400
<b>Factory A</b>	85	115	155	100	50
<b>Factory B</b>	20	25	45	15	10

11. From the following data calculate Karl Pearson's coefficient of correlation between % of pass and % of failure from the following data.

<b>No.of Students</b>	800	600	900	700	500	400
<b>No.of Passed</b>	480	300	450	560	450	300

\*\*\*\*\***ALL THE BEST**\*\*\*\*\*