

7. (a) If $n_1 = 20, n_2 = 25, \bar{X}_1 = 160, \bar{X}_2 = 130, \sigma_1^2 = 25, \sigma_2^2 = 20$, find 90% confidence interval for $\mu_1 - \mu_2$
- (b) A random sample of size 20 selected from a population has $\bar{X} = 25$. If $\sigma = 5$ then Test $H_0: \mu \geq 24$ using 5% level of significance.

8. (a) Given the following data:

X	0	1	2	3	4
Y	1.0	1.8	3.3	4.5	6.3

Determine the least squares regression line taking X as independent variable.

- (b) Find the coefficient of correlation if the two regression coefficients have the following values:
- i) $b_{12} = 0.45, b_{21} = 0.8$
- ii) $b_{12} = -0.1, b_{21} = -0.4$

9. (a) Given the following:

$(AB) = 110, (\alpha B) = 90, (AB) = 290, (\alpha\beta) = 510$. Discuss the association of attributes A and B

- (b) The following table shows the production of silver utensils at a certain factory in Gujranwala.

Year	1970	1971	1972	1973	1974	1975	1976	1977
Utensils	170.0	154.8	156.5	158.9	140.3	154.2	160.7	178.3

Calculate 3-year simple moving averages for the above time series.

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