

Seat No. : _____

JF-101
January-2021
B.Sc., Sem.-III
202 : Statistics
(Descriptive Statistics – II)
(New Course)

Time : 2 Hours]

[Max. Marks : 50

Section – A

Attempt any **three** :

1. (a) What is correlation ? State its uses. 7
(b) State the methods of studying correlation. Explain the scatter diagram method. 7
2. (a) Explain Karl Pearson's method of obtaining correlation coefficient with its merits and demerits. 7
(b) Explain Spearman's rank correlation method. 7
3. (a) Give difference between correlation and regression. 7
(b) State and prove the regression coefficient of y on x and x on y . 7
4. (a) State the utility of regression and also state the properties of regression coefficients. 7
(b) Write a note on principle of least squares. 7
5. (a) Write a short note on Yule's method. 7
(b) Write a difference between correlation and association of attributes. 7
6. (a) Discuss different types of association of attributes. 7
(b) Write different methods of studying association. How will you determine the type of association using proportion method ? 7
7. (a) Explain bivariate data with example. 7
(b) State and prove properties of multiple correlation. 7
8. (a) Write a note on variance of Residuals. 7
(b) Derive the equation of plane of regression for three variables. 7

Section – B

9. MCQs (Attempt any **eight**) 8
(1) There is a perfect positive correlation between x and y if $r =$ _____.
(a) 1 (b) 0
(c) -1 (d) None of the above

- (2) If the change in the value of x and y are in opposite direction then they have _____ correlation.
- (a) Positive (b) Negative
(c) No correlation (d) Can't say
- (3) The range of r lies between _____ and _____.
- (a) -1 and 1 (b) 0 and 1
(c) -1 and 0 (d) -2 and 2
- (4) The value of R^2 lies between _____ and _____.
- (a) -1 and 1 (b) 0 and 1
(c) -1 and 0 (d) 0 and 2
- (5) There is no correlation between X and Y if $r =$ _____.
- (a) -1 (b) 0
(c) 1 (d) 0.5
- (6) If all the points in scatter diagram are scattered in random manner, $r =$ _____.
- (a) 0 (b) -1
(c) 1 (d) 2
- (7) In rank correlation if ranks for both the variables of each pair are same, $r =$ _____.
- (a) 0 (b) 1
(c) -1 (d) 2
- (8) The characteristics of the unit that cannot be expressed numerically is known as _____.
- (a) Variable (b) Attribute
(c) Quantity (d) None of the above
- (9) The range of Yule's coefficient of association is _____.
- (a) -1 to 1 (b) -1 to 0
(c) 0 to 1 (d) 1 to 2
- (10) In rank correlation if $\sum d^2 = 0$, $r =$ _____.
- (a) -1 (b) 0
(c) 1 (d) 0.5
- (11) The regression coefficient is independent of change of origin and scale
- (a) True (b) False
- (12) Two variables are uncorrelated hence the regression lines are perpendicular.
- (a) True (b) False
- (13) The correlation coefficient is the geometric mean of _____.
- (a) Regression coefficient (b) Correlation coefficient
(c) Linear constraints (d) None of the above
- (14) The product of regression coefficient is equal to the _____.
- (a) square of the correlation coefficient
(b) correlation coefficient
(c) inverse of correlation coefficient
(d) None of the above
- (15) There are _____ methods of studying correlation.
- (a) 1 (b) 2
(c) 3 (d) 4