

BBA 2nd Semester (Honours) Examination, 2021
BACHELOR OF BUSINESS ADMINISTRATION

Course ID:23212

Course Code:CC-04

Course Title: Business Statistics

Time: 3 Hours

Full Marks: 80

*The figure in the margin indicate full marks.
Candidates are required to give their answers in their own words
as far as practicable.*

Group-A

1. Answer all the questions from the following. Choose Correct Options:

10 X 1 = 10

- a) The only index number that satisfies the factor reversal test is
(i) Laspeyres' index number (ii) Paasche's index number (iii) Fisher's index number (iv) None of these.
- b) The index number that satisfies both the factor reversal test and time reversal test is
(i) Laspeyres' index number (ii) Fisher's index number (iii) Marshall-Edge Worth's index number (iv) None of these.
- c) If the living index number is 120 and the salary of a worker is Rs. 800, his real wage is
(i) Rs. 600.00 (ii) Rs. 660.67 (iii) Rs. 666.67 (iv) Rs. 606.67.
- d) Correlation coefficient lies between
(i) -1 and 1 (ii) -1 and 2 (iii) -1 and 0 (iv) 1 and 2.
- e) If $u = x-2$ and $v = y+3$, then
(i) $r_{uv} = r_{xy}$ (ii) $r_{uv} \neq r_{xy}$ (iii) $r_{uv} = 2r_{xy}$ (iv) $2r_{uv} = r_{xy}$.
- f) The relation between β_1 and γ_1 is
(i) $\beta_1 = \sqrt{\beta_1}$ (ii) $\gamma_1 = \sqrt{\beta_1}$ (iii) $\beta_1 = \gamma_1^{\frac{3}{2}}$ (iv) $\gamma_1 = \beta_1^{\frac{3}{2}}$.
- g) A symmetric distribution has its skewness
(i) 1 (ii) -1 (iii) 0 (iv) 2.
- h) First order central moment for any distribution is
(i) 1 (ii) 0 (iii) -1 (iv) None of these.
- i) Bowley's measure always lies between
(i) (0,1) (ii) (-1,0) (iii) (-3,1/2) (iv) (-1,1).
- j) Mean deviation is least when taken about the
(i) Mean (ii) Median (iii) Mode (iv) None of these.

GROUP-B

2. Answer any ten questions from the following.

10 X 2 = 20

- a) Define Frequency distribution.
b) Define class limits and class mark.
c) If the arithmetic mean of 1,3,5, x,11,10 is 6, find x.

- d) If X_1 and X_2 are the two positive value of a variate, prove that their geometric mean is equal to the geometric mean of their arithmetic and harmonic means.
- e) Find the mean of the first n natural numbers.
- f) Find the Standard deviation, if in a distribution. $n = 10$, $\sum x = 120$, $\sum x^2 = 1690$.
- g) Define coefficient of skewness.
- h) Define Measure of kurtosis.
- i) Define product moment correlation coefficient.
- j) Explain the concept of regression.
- k) Name the components of the systematic part of time series.
- l) Explain what do you mean by the secular trend at a time series.
- m) What is an index number?
- n) Define cost of living index number.
- o) Give classical definition of probability with its limitations.

GROUP-C

3. Answer any four questions from the following.

5 X 4 = 20

a) Calculate the coefficient of correlation for the following data:

x: -3 -2 -1 0 1 2 3

y: 9 4 1 0 1 4 9

b) Find the value of the trend ordinates by the method of least squares from the data given below:

year: 1971 1972 1973 1974 1975 1976 1977

sales (Rs.'000): 125 128 133 135 140 141 143 .

c) Find the index numbers by the (i) method of aggregates and (ii) method of relatives(using arithmetic mean),from the following:

Commodity	Base Price (Rs.)	Current Price (Rs.)
Rice	35	42
Wheat	30	35
Pulse	40	38
Fish	107	120

- d) What is the probability that a card drawn at random from the pack of playing cards be either a queen or an ace?
- e) In a distribution,the difference of the two quartiles is 2.03,their sum is 72.67 and the median is 36.18 .Find the coefficient of skewness.
- f) The mean of 5 observations is 4.4 and their variance is 8.24. If 3 of the observations are 4,6,9, find the other two.

GROUP-D

4. Answer any three questions from the following.

10 X 3 = 30

a)

(i) Prepare a frequency distribution table with class-intervals 60-69,70-79,80-89 and so on, (tally marks data must be shown) from the following data giving weight (in gms.) of 20 apples:

93,87,79,94,67,78, 95,73,69,68,130,95,82,103,117, 89,97,83,108,96.

(ii) Draw the frequency polygon for this distribution on plane paper.

5+5=10

b)

(i) The numbers 3.2,5.8,7.9 and 4.5 have frequencies $x,(x+2),(x-3)$ and $(x+6)$ respectively.If the arithmetic mean is 4.876,find the value of x .

(ii) A cyclist reaches his school from his house at a speed of 10 km/h and back from his school to his house at 15 km/h. Find the average speed.

5+5=10

c)

5+5=10

(i) Find the standard deviation of the first n natural numbers.

(ii) If the standard deviation of two sets of observations n_1 and n_2 be the same as the standard deviation of their combined group,then show that the two sets of observations have the same mean.

d)

(i) Explain what is meant by 'skewnes of a frequency distribution' giving the different measures with their ranges of variation.

(ii) What is meant by 'moment' of a distribution?What are the 'raw' and the central moments?

5+5=10

e)

(i) Define Regression curves and scatter diagram.

(ii) If two variables x and y satisfies the relationship $y = -5+6x$, find the correction coefficient between x and y .

5+5=10

f)

(i) What is an index number? State the uses of an index number.

(ii) Define cost of living index number and Test for index number.

5+5=10