2023

(FYUGP)

(3rd Semester)

COMMERCE

(Minor)

Paper Code. : Bc/M3

(Business Statistics)

Full Marks : 75 *Pass Marks* : 40%

Time : 3 hours

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

The figures in the margin indicate full marks for the questions

1. *(a)* Explain various scopes and functions of statistics. 10

Or

(b) Explain various types of diagrams in statistics.

2. *(a)* Calculate the median marks from the following data : 10

Marks	*No. of students*
5–10	7
10–15	15
15–20	24
20–25	31
25–30	42
30–35	30
35–40	26
40–45	15
45–50	10

Or

(b) Explain various types of measures of skewness

3. *(a)* A random sample of 5 college students is selected and their grades in Mathematics and Statistics found to be

Mathematics	:	85	60	73	40	90
Statistics	:	93	75	65	50	80

Calculate Spearman's rank correlation coefficient. 10

Or

(b) Explain various types of correlation.

4. *(a)* From the following data, construct the price index number of the group of four commodities by using Fisher's ideal formula : 10

	Base year		*Current year*	
Commodities	*Price per unit*	(₹) *Exp.*	*Price per unit*	(₹) *Exp.*
A	2	40	5	75
B	4	16	8	40
C	1	10	2	24
D	5	25	10	60

Or

(b) Explain various utilities of time series analysis.

5. *(a)* Explain mutually exclusive events, independent and dependent events, simple and compound events, exhaustive events and complementary events. 2+2+2+2+2=10

Or

(b) A bag contains five white and three black balls. Two balls are drawn at random one after another without replacement. Find the probability that both balls drawn are black. 10

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(PART : A—OBJECTIVE)

(*Marks* : 25)

The figures in the margin indicate full marks for the questions

1. Choose the correct answer and place its code in the brackets provided : 1×15=15

(a) Statistics can

(i) prove anything

(ii) disprove anything

(iii) neither prove nor disprove anything, is just a tool

(iv) None of the above [ ]

(b) The scope of survey depends on

(i) the objectives

(ii) resources

(iii) availability of time

(iv) All of the above [ ]

(c) When population under investigation is infinite, we should use

(i) the census method

(ii) the sample method

(iii) either the census method or sample method

(iv) neither the census method nor sample method

[ ]

(d) The coefficient of correlation varies between

(i) 0 and 1

(ii) -1 and 1

(iii) $-\infty$ and ∞

(iv) 0 and 1

[ ]

(e) Two regression lines are identical (or coincide), if

(i) $r = 1$

(ii) $r = -1$

(iii) $r = 0$

(iv) $r = \pm 1$

[ ]

(f) If one regression coefficient is greater than unity, then other regression coefficient must be

(i) less than unity

(ii) greater than unity

(iii) equal to unity

(iv) less than zero [ ]

(g) The algebraic sum of deviations of a set of values from their AM is

(i) unity

(ii) zero

(iii) standard deviation

(iv) None of the above [ ]

(h) Standard deviation cannot be less than mean deviation from

(i) mean

(ii) median

(iii) mode

(iv) geometric mean [ ]

(i) The graphic method of studying dispersion is

(i) cartogram

(ii) pictogram

(iii) Lorenz curve

(iv) scatter diagram [ ]

(j) The best average in the construction of index number is

(i) arithmetic mean

(ii) geometric mean

(iii) median

(iv) mode [ ]

(k) Paasche's index number is based on

(i) base year's quantities

(ii) current year's quantities

(iii) Both (i) and (ii)

(iv) average of base and current year

[ ]

(l) A time series consists of data arranged

(i) in ascending order

(ii) in descending order

(iii) chronologically

(iv) in alternatively [ ]

(m) Probability ranges from

(i) -1 to 1

(ii) 0 to 1

(iii) $-\infty$ to ∞

(iv) -3 to 3 [ ]

(n) If A and B are two mutually exclusive events, then the probability of occurrence either A or B is

(i) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

(ii) $P(A \cap B) = P(A)\ P(B)$

(iii) $P(A \cap B) = P(A)\ P(B / A)$

(iv) $P(A \cup B) = P(A) + P(B)$ [ ]

(o) In a simultaneous toss of three coins, the probability of all heads is

(i) $\frac{1}{2}$

(ii) $\frac{1}{8}$

(iii) $\frac{3}{8}$

(iv) $\frac{1}{4}$ [ ]

2. Write short notes on any *five* of the following : 2×5=10

(a) Importance of Statistics in Economics

(b) Characteristics of Statistics

(c) Skewness

(d) Kurtosis

(e) Coefficient of variation

(f) Scatter diagram

(f) Scatter diagram

(g) Lorenz curve

(h) Characteristics of index number

(i) Uses of time series

(j) Classical definition of probability

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