2022

(November)

COMMERCE

(Honours)

(BC–301)

(Business Statistics)

(Under Revised Syllabus)

Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. *(a)* Define statistics. Point out its importance in the field of business and commerce. 3+7=10

(b) Distinguish between descriptive statistics and inferential statistics. 5

Or

(a) Distinguish between primary data and secondary data. 5

(b) Draw a histogram and frequency polygon for the following data : 10

Age in Years	*No. of Persons*
10–20	3
20–30	16
30–40	22
40–50	35
50–60	24
60–70	15
70–80	2

2. (a) What are the characteristics of a good measure of central tendency? 5

(b) Find the missing frequency, if arithmetic mean is 28 of the data given below. Also find the median of the series later : 6+4=10

Class	*Frequency*
0–10	12
10–20	18
20–30	27
30–40	?
40–50	17
50–60	6

Or

(a) State the properties of a good measure of dispersion. 5

(b) From the data given below, state which series is more consistent : 10

Variable	*Series A*	*Series B*
10–20	20	13
20–30	18	22
30–40	32	40
40–50	40	32
50–60	22	18
60–70	18	10

3. (a) State the properties of Karl Pearson's coefficient of correlation. 5

(b) Calculate Spearman's coefficient of correlation from the following data : 10

X :	50	55	65	50	55	60	50	65	70	75
Y :	110	110	115	125	140	115	130	120	115	160

Or

(a) Construct Fisher's ideal index and show that it satisfies the time-reversal test and factor-reversal test : 10

Item	*2010*		*2011*	
	p_0	q_0	p_0	q_0
A	10	40	12	45
B	14	50	11	52
C	14	30	17	30
D	8	28	10	29
E	12	15	13	20

(b) Find the most likely production corresponding to a rainfall 40" from the following data : 5

	Ranifall	*Producation*
Average	30"	500 kg
Standard Deviation	5"	100 kg

Coefficient of correlation = 0·8

4. (a) Distinguish between permutation and combination by giving suitable example and state the relationship between them. 4+1=5

(b) If from a pack of cards a single card is randomly drawn, what is the probability that it is either a spade or a king? 5

(c) In an examination, a candidate is required to answer 6 out of 10 questions which are divided into two groups each containing 5 questions and not permitted to attempt more than 4 questions from each group. In how many ways can he make up his choice? 5

Or

(a) What do you mean by sampling? Briefly explain the various methods of sampling. 2+8=10

(b) Distinguish between complete enumeration and sample method. 5

5. (a) State the utility of time series analysis. 5

(b) Fit a straight-line trend by the method of least squares to the following data :

Year	*Production (lakh tonnes)*
2015	9
2016	12
2017	14
2018	16
2019	20
2020	26
2021	35

Also estimate the production for the year 2024. 8+2=10

Or

(a) What are the assumptions on which methods of interpolation are based? 5

(b) The values of X and Y are given below :

X :	5	6	9	11
Y :	12	10	14	16

Find the value of Y when $X = 10$ using Lagrange's method. 10

★ ★ ★