2019

(October)

COMMERCE

(Honours)

(BC–301)

(Business Statistics)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. (a) What are the various methods of collecting statistical data? Which of these is the most reliable and why? 2+6=8

    (b) What are the precautions to be taken while using secondary data? 7

    Or

    (a) Distinguish between classification and tabulation of data. 5

(Turn Over)

(b) With imaginary figures, draw up a table to show the number of candidates sex-wise, appearing in class XII, UG and PG in Arts, Science and Commerce in Meghalaya in the year 2019.   10

2. (a) Mention the requisites of a good average.   3

(b) Find the value of mean, median and mode from the data presented below :   12

Annual Sales ($\rlap{/}{\text{₹}}$ in '000)	Frequency
Less than 10	4
,, ,, 20	20
,, ,, 30	35
,, ,, 40	55
,, ,, 50	62
,, ,, 60	67

Or

(a) Briefly explain the significance of measures of dispersion.   5

(Continued)

(b) Jewel Ltd. is considering the following two mutually exclusive projects for adoption :

Year	Profit (₹ in lakh)	
	Project X	Project Y
1	10	5
2	5	25
3	20	45
4	40	30
5	60	30

Which of the two is more risky project?   10

3. (a) Write a short note on Spearman's rank correlation.   3

(b) State the assumptions of Karl Pearson's coefficient of correlation. How is this coefficient interpretated?   3+2=5

(c) The correlation coefficient between two variables X and Y is $r = 0.6$. If $\sigma_x = 1.50$, $\sigma_y = 2.00$, $\bar{X} = 10$ and $\bar{Y} = 20$, then find the two regression lines.   7

(Turn Over)

Or

(a) Briefly explain the problems encountered in the construction of index number. 5

(b) Construct a Fisher's ideal index from the following data and show that it satisfies time reversal and factor reversal tests : 10

Items	2015		2016	
	p_0	q_0	p_1	q_1
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

4. (a) What is sampling? What are the qualities of a good sample? 2+4=6

(b) A committee of four has to be formed from among 3 economists, 4 engineers, 2 statisticians and 1 doctor. What is the probability that each of the four professions is represented on the committee? 4

(Continued)

(c) A school has to select an examiner from a list of 50 persons. 20 of them are women and 30 are men, 10 of them know Hindi, 40 do not. 15 of them are teachers while 35 are not. What is the probability of school selecting a Hindi knowing woman teacher? 5

Or

(a) What are the main objectives of sampling? 4

(b) Compare and contrast the merits and drawbacks of sample and census methods. 7

(c) Write a note on 'purposive sampling'. 4

5. (a) Briefly explain the various components of time series. 6

(b) Find the seasonal variation by ratio-to-trend method from the following data : 9

Year	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.
2013	60	80	72	68
2014	68	104	100	88
2015	80	116	108	96
2016	108	152	136	124
2017	160	184	172	164

(Turn Over)

Or

(a) What is meant by interpolation and extrapolation? Mention the conditions required to be satisfied while applying binomial expansion method.   3+2=5

(b) The following are the annual premiums charged by LICI for a policy of ₹1,000 :

Age (Year) :	20	25	30	35	40
Premium (₹) :	23	26	30	35	42

Calculate the premium payable at the age of 26 by applying a suitable method of interpolation.   10

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