

H-86-21

Roll No.....

Annual Examination, 2021

B.C.A. III (New Course)

B.C.A.-301

Paper I

(Statistical Analysis)

Time : 3 Hours]

[Maximum Marks : 80

Note : Attempt any two questions from each unit. All questions answer carry equal marks.

Unit I

- Find the number of different 8-letter arrangements that can be made from the letters of the word "DAUGHTER" so that :
 - all vowels occur together,
 - all vowels do not occur together.
- Find the number of ways to choose 4 cards from a pack of 52 cards so that :
 - all 4 cards are face cards.
 - two are red cards and two are black cards.
- Using binomial theorem, prove that $6^n - 5n$ always leaves remainder 1 when divided by 25.

P.T.O.

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Unit II

- Write short notes on the following :
 - Histogram,
 - Frequency polygon.
- Find the average height of the plants of a garden from the following data. What is the median and how much it is differ from mode ?
- Following is given the fluctuations of two items A and B. Find that in which of them the variability is more :

A	B
618	2152.5
619	2132.5
623	2134.25
620	2132.5
624	2145
622	2142.5
625	2246.25
622	2130
625	2146.25
626	2142.5
625	2150
	2135
	2152.5

Unit III

- There are n letters and n -envelopes with address on them. If the letters are kept at random in the envelopes then what is the probability that all the letters are not kept in the right envelopes.

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8. A bag contains 3 black and 4 red balls. Two balls are drawn at random, one after the other and not kept back. What is the probability that the first ball is black when it is known that the second ball is red ?
9. A fair cubical dice is thrown in the multiple of 8 times. If it comes 5 or 6, then it is success. What is the percentage of getting 3 successes.

Unit IV

10. Students obtained the following marks in economics and statistics in percentage :

Roll No.	Marks in Economics	Marks in Statistics
1	78	84
2	36	51
3	98	91
4	25	60
5	75	68
6	82	62
7	90	86
8	62	58
9	65	53
10	39	47

Find coefficient of correlations.

11. Show that coefficient of correlation is the geometric mean of coefficient of regressions.
12. For the following data fit the parabola of second degree :

x	0	1	2	3	4
y	1	5	10	22	38

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Unit V

13. Taking population mean zero, find the values of t distribution of a student for the following values of a variable in the sample of 8 :

$-4, -2, -2, 0, 2, 2, 3, 3.$

14. A coin was tossed 400 times and head occurred 216 times. Discuss about the coin to be unbiased.
15. Random samples obtained for two normal populations are following :

Sample I	Sample II
20	27
16	33
26	42
27	35
23	32
22	34
18	38
24	28
25	41
16	43
	30
	37

Find population variance and test that variance for both population is same.

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