B.B.A DEGREE EXAMINATION,NOVEMBER 2019
III Year V Semester
Business Statistics - II

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Define secular trend.
2. Write any two merits of moving average.
3. Write the formula to find seasonal index for any quarter.
4. Write any two uses of index number.
5. Write the formula for simple aggregative method.
6. What is the weighted aggregative formula for Laspeyre's?
7. What difference between census and sample method?
8. Write any two demerits of simple random sampling.
9. Define χ^2 test.
10. Write the formula for F-ratio test.
11. Explain ANOVA.
12. Explain sampling.

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Assuming that trend is absent, determine if there is any seasonality in the data given below:

Year	1^{st} Quarter	2^{nd} Quarter	3^{rd} Quarter	4^{th} Quarter
1999	72	68	80	70
2000	76	70	82	74
2001	74	66	84	80
2002	76	74	84	78
2003	78	74	86	82

What are the seasonal indices for various quarters?

14. Calculate seasonal indices by the ratio to moving average method from the following data.

Year	1^{st} Quarter	2^{nd} Quarter	3^{rd} Quarter	4^{th} Quarter
2001	2	3	2	4
2002	5	7	6	8
2003	6	9	9	10

15. Construct an index of prices, using 1991 as the base year and price relative method:

Goods	Weight	1991(P_0)	1994(P_1)	1995(P_2)
A	5	10	12	14
B	3	5	6	8
C	2	4	5	7

16. Calculate Laspeyre's, Paaache's and Fisher's index numbers. Find Quantity index numbers also.

Commodity	p_0	q_0	p_1	q_1
A	12	20	15	25
B	10	8	16	10
C	15	2	12	1
D	60	1	65	1
E	3	2	10	1

17. Explain the causes of sampling errors.

18. What are the types of Sampling?

19. 200 digits are chosen at random from a set of tables. The frequencies of the digits are as follows:

Digit	0	1	2	3	4	5	6	7	8	9
Frequency	18	19	23	21	16	25	22	20	21	15

Use x^2 test to assess the Correctness of the hypothesis that the digit were distributed in equal numbers in the tables from which they were chosen.

Section C $(2 \times 15 = 30)$ Marks

Answer any **TWO** questions

20. Calculate Fisher's ideal index number from the following data:

Commodity	Price		Quantity	
	2002	2003	2002	2003
A	3	4	20	18
B	4	5	25	20
C	2	2	10	12
D	8	10	12	10
E	20	25	40	40

Does it satisfy time Reversal and factor Reversal Tests.

21. Explain Random sampling and its types.

22. 12 dice were thrown 4096 times and a throw of 6 was called a success x, the observed frequency f were as follows:

X	0	1	2	3	4	5	6	≥ 7	Total
F	447	1145	1181	796	380	115	24	8	4096

Test the hypothesis that dice were unbiased.

23. Perform a Two-way ANOVA on the data given below.

University	Scores				
A	90	70	60	50	80
B	70	40	50	40	50
C	60	50	60	70	60