B.B.A. DEGREE EXAMINATION,NOVEMBER 2018
II Year IV Semester
Allied Paper IV
BUSINESS STATISTICS - II

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

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

Answer any **TEN** questions

1. What is time series?
2. What is seasonal variation? Give example.
3. What do you know about consumer price index number?
4. What is a sample?
5. What is cluster sampling?
6. Explain the types of sampling errors?
7. What is null hypothesis?
8. Obtain the two points on the trend line using the method of semi-averages:

Year	1969	1970	1971	1972	1973	1974	1975
Sales of Firm A(in thousand units)	102	105	114	110	108	116	112

9. Calculate by simple aggregate method index number for the year 1982 based on 1981.

Commodity	Unit	Price(1981) In Rs.	Price(1982) In Rs.
Rice	Quintal	250	300
Wheat	Quintal	100	125
Pulses	Quintal	200	300
Oil	Litre	150	200
Milk	Litre	250	350

10. Construct the cost of living index number from the following group data:

Group	Weights	Group Index number for a given year
Food	47	247
Fuel and Light	7	293
Clothing	8	289
House Rent	13	100
Miscellaneous	14	236

11. Construct fixed base index number from the following data:

Year	1990	1991	1992	1993	1994	1995
Value	25	28	35	40	50	60

12. What is Base period?

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

Answer any **FIVE** questions

13. Explain different types of probability sampling?

14. There are three main brands of a certain powder. A set of 120 sample values is examined and found to be allocated among four groups(A,B,C and D) and three brands(I,II,III)as shown here under:

Brands	Groups			
	A	B	C	D
I	0	4	8	15
II	5	8	13	6
III	18	19	11	13

Is there any significant difference in brands preference? Answer at 5%level, using one-way ANOVA

15. From the following data construct Fisher's Ideal Index Number:

Commodity	1980		1990	
	Price(Rs.)	Value	Price(Rs.)	Value
A	5	50	6	72
B	7	84	10	80
C	10	80	12	96
D	4	20	5	30
E	8	56	8	64

16. For the following data, calculate Seasonal Indices:

Years	Seasons			
	I	II	III	IV
1999	37	41	33	35
2000	37	39	36	36
2001	40	43	33	31

17. A sample of 400 male students is found to have a mean height of 171.38cms. Can it reasonably regarded as a sample from a large population with mean height 171.17cms and SD 3.30cms?

18. The following data is collected on two characteristics:

	Smokers	Non-smokers
Literate	83	57
Illiterate	45	68

Using Chi-Square test whether there is association between the habit of smoking and literacy.

19. Calculate Bowley's index number from the following data

Commodity	Base Year		Current Year	
	Kilo	Rate(Rs.)	Kilo	Rate(Rs.)
Bread	10	3	8	3.25
Meat	20	15	15	20
Tea	2	25	3	23

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

Answer any **TWO** questions

20. Three samples below have been obtained from normal population with equal variances. Test the hypothesis at 5% level that the population means are equal.

8	7	12
10	5	9
7	10	13
14	9	12
11	9	14

The table value of F at 5% level for v1 $= 7$ and v2 $= 17$ is 3.88.

21. Apply Chi-Square test to find out if the following figures provide evidence of the effectiveness of inoculations.

	Attacked	Non-attacked	Total
Inoculated	20	300	320
Not Inoculated	80	600	680
Total	100	900	1000

22. Construct index numbers from the following by applying by applying

(a) Laspeyre's method and (b) Paasche's method.

Commodities	1998		1999	
	Price(Rs.)	Quantity	Price(Rs.)	Quantity
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

23. (a) Fit a straight line trend by the method of least square to the following data and

(b) Also estimate the sale of 2013.

Year	2006	2007	2008	2009	2010	2011
Sales(Tonnes)	24	25	29	26	22	24