B.Com. (ISM) DEGREE EXAMINATION,NOVEMBER 2018
II Year IV Semester
Core Allied- Paper IV
BUSINESS STATISTICS -II

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

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

Answer any **TEN** questions

1. Define time series.

2. What are the uses of trend analysis?

3. Fit a trend line to the following data by the free hand graph method.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Sales (in lakhs)	38	47	40	34	38	47	40	34	34

4. What are Index numbers?

5. Give the formula for cost of living index.

6. List out the different types of weighted indexes.

7. What is Sampling?

8. Define Hypothesis.

9. What is meant by goodness of fit test?

10. Mention any two uses of Chi-square test.

11. Define Analysis of variance.

12. Mention the various methods of studying analysis of variance.

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

Answer any **FIVE** questions

13. Given the following time series data, calculate 3 yearly moving average.

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013
Annual values	260	105	124	183	90	181	295	210	150

14. The following is the series of index number taking 2000 as base year:

Year	2000	2001	2002	2003	2004	2005
Index	100	120	135	170	180	210

How would the index numbers be changed if 2001 is taken as base year?

15. Explain the different methods of construction of index numbers.

16. Construct simple aggregative price index from the following data:

Commodities	Prices in 2016(Rs.)	Prices in 2018(Rs.)
I	15.00	18.00
II	5.00	8.00
III	2.25	4.00
IV	6.00	7.00

17. Elaborate the advantages of sampling techniques.

18. A doctor believes that the proportions of births in this country on each day of the week are equal. A simple random sample of 700 births from a recent year is selected, and the results are below. At a significance level of 0.01, is there enough evidence to support the doctor's claim?

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Frequency	65	103	114	116	115	112	75

19. Brief about the assumptions of Analysis of Variance.

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

Answer any **TWO** questions

20. Calculate the trend values using method of least square.

Year	2008	2009	2010	2011	2012	2013	2014
Sales	20	23	22	25	26	22	30

Estimate the likely sales for the year 2015.

21. From the following data, find the fisher's ideal index no:

Commodity	2015		2016	
	Price	Value	Price	Value
A	10	600	6	300
B	2	240	2	200
C	6	360	4	240

22. Table given below shows the data obtained during outbreak of small pox:

	Attacked	Not Attacked	Total
Vaccinated	31	469	500
Not vaccinated	185	1315	1500
Total	216	1784	2000

Test the effectiveness the vaccination in preventing the attack from small pox. Use χ^2 test at 5% level of significance. [Given $\chi^2_{0.05} = 3.84$]

23. Three varieties A,B and C of paddy were sown in 4 plots each and the following yield in quintals per acre were obtained:

Plots	Varieties		
	A	B	C
1	10	9	4
2	6	7	7
3	7	7	7
4	9	5	6

Set up analysis of variance (ANOVA) Table and find out whether there is a significant difference between the mean yields of the three varieties.