B.Com(ISM) DEGREE EXAMINATION,APRIL 2020
II Year IV Semester
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. Mention the components of Time Series.
3. Mention the four methods used for determining the trend.
4. Define Index numbers.
5. Mention the types of Index numbers.
6. List out any four uses of Index numbers.
7. What do you mean by sampling techniques?
8. Mention the different types of samples.
9. What do you mean by Chi-square test?
10. Mention the uses of chi-square test.
11. What do you mean by Analysis of variance?
12. Mention few assumptions on analysis of variance.

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

Answer any **FIVE** questions

13. The following are the group index numbers and the group weights of an average working class family's budget construct the cost of living index number.

Group	Index No.	Weight
Food	330	50
Clothing	208	10
Fuel and lighting	200	12
House rent	162	12
Miscellaneous	180	16

14. Draw a trend line by the method of semi-averages.

Year	2001	2002	2003	2004	2005	2006	2007
Sales('000)	110	105	115	112	120	118	130

15. Calculate trend values by the method of least square from the data given below and estimate the sales for 2010.

Year	2003	2004	2005	2006	2007
Sales of Co.,A (Rs.)	70	74	80	86	90

16. Calculate three yearly moving average of the following data:

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
No.of students	15	18	17	20	23	25	29	33	36	40

17. Construct an index number for 2006 taking 2005 as base for the following information.

Commodity	Price in 2005	Price in 2006
A	90	95
B	40	60
C	90	110
D	30	35

18. Explain the procedures in testing the hypothesis.

19. Compute a price index for the following by a simple aggregate and average of price relative method by using arithmetic mean.

Commodity	A	B	C	D	E	F
Price in 2005	20	30	10	25	40	50
Price in 2006	25	30	15	35	45	55

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

Answer any **TWO** questions

20. Assuming a four-yearly cycle calculate the trend by the method of moving averages from the following data relating to the production of tea in India.

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Production(Rs.)	464	515	518	467	502	540	557	571	586	612

21. Calculate index number from the following data (Laspeyre's method, Paasche's method, Bowley's method, Fisher's ideal formula and marshall Edgeworth method.)

Items	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

22. Apply Chisquare test to find out if the following figures provide evidence of the following effectiveness of inoculations.

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

23. Compute Index Number, using Fishers Ideal formula and show that it satisfies time-reversal test and factor-reversal test.

	Quantity	Base Year Price	Quantity	Current Year Price
A	12	10	15	12
B	15	7	20	5
C	24	5	20	9
D	5	16	5	14