B.Com(ISM) DEGREE EXAMINATION,NOVEMBER 2019
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. Write any two uses of Time Series.
4. Define index number.
5. Mention any two characteristics of index numbers.
6. Mention the types of index numbers.
7. Define Random sample.
8. Define hypothesis.
9. What do you mean by Chi-square Test?
10. What do you mean degree of freedom?
11. Define ANOVA.
12. Mention any two assumptions of ANOVA.

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

Answer any **FIVE** questions

13. 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

14. 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

15. 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

16. 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

17. A dice is tossed 120 times with the following results:

No. turned up	1	2	3	4	5	6	Total
Frequency	30	25	18	10	22	25	120

Test the hypothesis that the dice is unbiased.

18. If the variance between the samples is 5, variance within samples is 3. Calculate the F-ratio.

19. 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

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 ()	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. 4 coins were tossed 160 times and the following results were obtained:

No. of heads	0	1	2	3	4
Observed frequencies	17	52	54	31	6

Under the assumption that coins are balanced, find the expected frequencies of getting 0,1,2,3 or 4 heads and test the goodness of fit.

23. Two random samples drawn normal populations are

Sample I	20	16	26	27	23	22	18	24	25	19		
Sample II	27	33	42	35	32	34	38	28	41	43	30	37

Obtain estimates of the variances of the populations and test whether two populations have the same variance.