B.Com(ISM) DEGREE EXAMINATION,APRIL 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. Draw a trend line by the semi-average method using the below data.

Year	1980	1981	1982	1983	1984	1985
Sales('000 Rs.)	78	85	82	90	87	92

3. Mention the various methods used for determining the trend.
4. What is an Index numbers?
5. Calculate the weighted aggregate method the index number from the following data:

Commodity	Base Year Price p.u.	Current Year price p.u.	Weight
Rice	300	400	10
Wheat	200	300	5

6. Calculate the cost of living index from the following data:

Commodity	Base Year Price	Current Year price	Weight
Food	30	47	4
Clothes	14	18	3

7. What do you mean by Sampling Techniques?
8. Mention the types of Samples.
9. What do you mean by Chi-square test?
10. Prepare contigency table for Chi-square.

Treatment	Affected	Not Affected	
Inacculated	12	26	38
Not-inacculated	16	6	22
	28	32	60

11. Write the meaning of ANOVA.

12. Find the chain base index number from the following data:

Year	1991	1992	1993	1994	1995
Sales	100	130	140	110	160

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

Answer any **FIVE** questions

13. The following figures relate to the profits of a commercial concern for 8 years.

Year	2000	2001	2002	2003	2004	2005	2006	2007
Profits(Rs)	15,420	14,470	15,520	21,020	26,120	31,950	35,370	34,670

Find the trend of profits by the method of moving averages.

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. Compute a price index for the following by a (a) Simple aggregate and (b) average of price relative method by using both arithmetic mean and geometric mean.

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

16. Construct an index number for 2006 taking 2005 as base.

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

17. Verify the hypothesis that the sample means are equal using one-way Anova.

U_1	U_2	U_3
8	7	12
10	5	9
7	10	13
14	9	12
11	9	14

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

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

Test the hypothesis that the dice is unbiased.

19. Briefly explain the methods of data collection.

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

Answer any **TWO** questions

20. 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

21. Calculate Fishers Index numbers and verify the time reversal test and factor reversal test:

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. Check whether there is association between education and intelligence using chi-square.

	Educated	uneducated	Total
Intelligent	40	35	75
Unintelligent	40	85	125
	80	120	200

23. The following table shows yield of 15 samples plot under 3 variety of seeds. Find out if the average yield of plant shows significant difference.

A	B	C
20	18	25
21	20	28
23	17	22
16	15	28
20	25	32