B.Com.(CS) DEGREE EXAMINATION,NOVEMBER 2018
II Year IV Semester
Core Major- Paper XII
STATISTICS - II

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

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

Answer any **TEN** questions

1. What is least square fit?

2. Write the normal equation for straight line trend.

3. What do you mean by correlation?

4. Write the Regression lines?

5. Find the correlation Co-efficient when $X = 0.37Y$, $Y = 0.65X$

6. What is time series?

7. What are the components of time series?

8. Define Index Number.

9. Construct the Cost of living Index from the data given below

Expenditure	Food	Clothing	Fuel	Rent	Miscellaneous
Index No	550	215	220	150	275
Weight	46%	10%	7%	12%	25%

10. What are the features of index numbers?

11. Write the types of hypothesis.

12. Define type I and type II error.

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

Answer any **FIVE** questions

13. Fit a straight line trend for the following data

Year	2006	2007	2008	2009	2010	2011	2012
Production(in tonnes)	80	90	92	83	94	99	92

14. Calculate the Rank Correlation Co-efficient

X	21	36	42	37	25
Y	47	40	37	42	43

15. You are given the following data. Find the two Regression Equations.

	X	Y
Arithmetic mean	36	85
Standard deviation	11	8
Correlation Co-efficient	0.66	

16. Calculate 5 Yearly moving averages.

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Profit('000)	161	127	152	143	144	167	182	179	152	163	159

17. Find the trend line by the method of semi average.

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

18. Calculate Suitable Index Number for the following

	A	B	C	D	E
Base Year price	32	41	53	64	17
Base year quantity	7	5	6	3	8
Current Year price	43	57	63	82	19

19. The mean weekly sales if soap bars in departmental stores was 146.3 bars per stores. After an advertising campaign the mean weekly sales in 22 stores for a typical week increased to 153.7 and showed a S.D of 17.2 was the advertising campaign successful.

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

Answer any TWO questions

20. Ten Competitors in a beauty contest are ranked by three judges as follows

Judge I	1	5	4	8	9	6	10	7	3	2
Judge II	4	8	7	6	5	9	10	3	2	1
Judge III	6	7	8	1	5	10	9	2	3	4

Use rank correlation Co-efficient to decide which pair of judges have the nearest approach to common tastes in beauty?

21. From the following data calculate Seasonal Indices.

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

22. Compute Laspeyre's and Fisher's ideal index number of the data given below. Check whether it satisfies the Time Reversal Test.

Commodity	2010		2011	
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

23. Two random samples drawn from 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 population and test whether two populations have the same variance.