B.Sc. DEGREE END SEMESTER EXAMINATION OCTOBER/NOVEMBER 2017

SEMESTER –**1**: STATISTICS FOR MATHEMATICS & COMPUTER APPLICATION

COURSE: **15U1CPSTA1-15U1CRCST1: DESCRIPTIVE STATISTICS**

(Common for Regular 2017 admission and Supplementary/Improvement 2016 & 2015 admission)

Time: Three Hours   Max. Marks: 75

Use of Scientific calculators and Statistical tables permitted

PART A

*Answer **all** questions. Each question carries 1 mark.*

1. Distinguish between deciles and percentiles.
2. What are the theoretical averages?
3. Give the empirical relation between mean, median and mode.
4. The mean of 2 observations is 7. If each observation is multiplied by 3 and then 5 is added to it, then what is the mean of the new data set?
5. If the coefficient of kurtosis of a distribution is zero, what is the nature of frequency curve?
6. What do you mean by secular trend?
7. Define index number.
8. Discuss the time reversal test.
9. What is meant by the curve fitting?
10. Write the normal equations for fitting an Exponential curve.

PART B

Each question carries 3 marks. Maximum marks from this part is 15

11. a) The arithmetic mean of two numbers is 9 and their geometric mean is 6. Then find their harmonic mean.

    b) The average of the series: 7, 9, 12, x, 5, 4 and 11 is 9.Then find the missing number x.

12. Explain Box plots.
13. Derive the inter relationship between raw moments and central moments.
14. Explain the principle of least squares
15. Distinguish between simple price index numbers and weighted price index numbers.
16. Check whether Fisher's Index number satisfies Factor reversal test.
17. What are the different measures of kurtosis?

PART C

(Each question carries 5 marks. Maximum marks from this part is 20)

18. Calculate mean deviation about the mean of the following data

Classes:	2-4	4-6	6-8	8-10
Frequency:	2	5	4	1

19. Obtain the mean and variance of first n natural numbers.
20. Given the sum of the products of prices and quantities for the current year 1 and base year 0 for five items as, $\sum p_0 q_0 = 782$, $\sum p_0 q_1 = 1008$, $\sum p_1 q_0 = 1084$ and $\sum p_1 q_1 = 1329$. On the basis of the information, Show that the Fisher's index number satisfies time reversal and factor reversal test.
21. Given the 2nd, 3rd and 4th central moments as 50, 100 and 6600. Find the measure of kurtosis.

22. Find out the median of the following

marks	10	15	20	25	30
Number of students	2	4	6	8	10

23. Explain the components of a time series.

PART D
(Each question carries 10 marks. Maximum marks from this part is 30)

24. Draw the Lorenz curve from the following data:

Wages(Rs.)	50-70	70-90	90-110	110-130	130-150
No of Workers in firm A	20	15	20	25	20
No. of Workers in B	150	100	90	110	50

25. The following table shows the daily wages earned by males in a certain industry. Find a) the Median, b) the Quartiles, c) the Quartile deviation, and d) the Quartile Coefficient of Skewness of the distribution.

DailyWages (in $)	15-17	17-19	19-21	21-23	23-25	25-27	27-29	29-31	31-33	33-35	35-37	37-39	39-41
No.of wage earners	60	200	400	600	1400	2000	1800	1000	1000	1000	1800	600	100

26. Find out the trend by using 4-yearly moving average

Year	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Production (lakh of tons)	5	6	7	7	6	8	9	10	8	10	11	11

27. Explain consumer price index number. Compute the Consumer Price Index Number from the following data.

Groups	Group Weights	Group Indices
Food	61.0	155.4
Fuel and Lighting	8.8	156.1
House Rent	6.4	100.0
Clothing	10.8	203.0
Miscellaneous	13.0	168.8