

B. Sc DEGREE END SEMESTER EXAMINATION - OCT. 2020 : FEBRUARY 2021**SEMESTER 1 : STATISTICS FOR MATHEMATICS & COMPUTER APPLICATIONS****COURSE : 19U1CPSTA1/19U1CRCST1 : DESCRIPTIVE STATISTICS***(For Regular - 2020 Admission and Improvement / Supplementary - 2019 -Admission)*

Time : Three Hours

Max. Marks: 75

PART A**Answer any 10 (1 mark each)**

1. Find x when the arithmetic mean of $7, x-2$ and $x+3$ is 9?
2. What is combined mean?
3. Define relative measure of dispersion?
4. If the standard deviation of x is 5 find the standard deviation of $2X+7$
5. Find the H.M. of the numbers $1, 1/3, 1/5, \dots, 2/(2n-1)$
6. The coefficient of skewness of a series A is 0.15 and that of series B 0.062. which of the two series is less skew?
7. Write the normal equations for fitting a parabola of the form $y=a+bx+cx^2$
8. Write the normal equations of fitting a power curve?
9. Define Paasches index number?
10. Define price relative index number?
11. What is Wholesale Price Index Number?
12. What is seasonal variation?

(1 x 10 = 10)**PART B****Answer any 5 (3 marks each)**

13. For the numbers 2,4,6,8,10 show that $A.M > G.M. > H.M.$
14. Coefficient of variation of two series is 60% and 80% their s.d. are 20 and 16. What is their arithmetic mean?
15. In a frequency distribution the coefficient of skewness based on quartiles is 0.5. if the sum of upper and lower quartiles is 28 and the median is 11, find the values of lower and upper quartiles
16. The first two moments of a distribution about the value 5 of the variable are 2 and 20. Find the mean and variance
17. Explain how you will use the principle of least squares?
18. What is index numbers? Why index numbers are called economic barometers?
19. Explain Unit test.

(3 x 5 = 15)**PART C****Answer any 4 (5 marks each)**

20. The numbers 3.2, 5.8, 7.9 and 4.5 have frequencies $x, (x+2), (x-3)$ and $(x+6)$ respectively. If the arithmetic mean is 4.876, find the value of x .

21. Find the s.d. of the following frequency distribution?

Marks	20-29	30-39	40-49	50-59	60-69	70-79	80-89
No. of students	5	15	18	26	16	24	6

22. What is curve fitting? Explain the method of fitting of the curve of the form $y=ax^b$

23. Fit a straight line trend by the method of least square to the following data

Year	2009	2010	2011	2012	2013	2014	2015
profits	300	700	600	800	900	700	1000

24. Explain time series analysis?

25. Discuss in brief the moving average method for ascertaining the trend. What are the advantages and disadvantages of moving average method?

(5 x 4 = 20)

PART D

Answer any 3 (10 marks each)

26. The following are the marks obtained by 123 students in statistics. Draw an ogive and locate the first, second and third quartiles.

marks	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45
No. of students	7	10	16	32	24	18	10	5	1

27. The following table gives the distribution of population in towns A and B in age groups. Compare the skewness of their frequencies.

Age group	Population in thousands	
	A	B
0-10	18	10
10-20	16	12
20-30	15	24
30-40	12	32
40-50	10	29
50-60	5	11
60-70	2	3
Above 70	1	1

28. Fit an exponential curve of the form $y=ab^x$ to the following data

x :	1	2	3	4	5	6	7	8
Y :	1.0	1.2	1.8	2.5	3.6	4.7	6.6	9.1

29. From the following data compute price index for the year 2016 where 2014 is the base year by weighted average of price relative method using A.M as the average, also by using G.M as the average.

Commodity	q0	P0 (price in 2014)	P1 (price in 2016)
A	40 kg	Rs.2	Rs.2.5
B	20 kg	Rs.3	Rs.3.25
C	10 kg	Rs.1.5	Rs.1.75

(10 x 3 = 30)