17. Find mean, median and mode for the following data and verify the empirical relation among them.

Class interval :	1–10	11–20	21–30	31–40	41–50	51–60	61–70	71–80	81–90
Frequency :	3	7	13	17	18	10	8	5	6

18. Calculate combined standard deviation for the following data

	X	Y	Z
No. of observation	25	35	15
Average	30	40	33
Standard deviation	6	12	8

19. Calculate Kelly's coefficient of skewness for the given data:

Salary	20–30	30–40	40–50	50–60	60–70	70–80	80–90	90–100
No. of Employees	25	40	50	90	80	75	35	60

20. (a) Obtain the equations of regression lines from the following data:

$n = 20, \Sigma x = 80, \Sigma y = 40, \Sigma x^2 = 1680,$

$\Sigma y^2 = 320, \Sigma xy = 480.$

(b) Show that the correlation coefficient in the geometric mean of regression coefficients.

NOVEMBER/DECEMBER 2016

UACS32/ASCS32 — STATISTICAL METHODS AND THEIR APPLICATIONS — I (Allied)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define tabulation.
2. What do you mean by primary data?
3. Find the median of first fifty natural numbers.
4. Find the geometric mean of 1, 12 and 18.
5. Find the range of the data 4, 6, 8, 10, 12, 18.
6. Find the standard deviation of 1, 2, 3, 4, 5, 6, 7.
7. What are the methods for studying skewness?
8. Define moments.
9. If 0.4 and 0.9 are regression coefficients then find the correlation coefficient?
10. Write the formula for finding rank correlation coefficient when ranks are repeated.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Explain simple bar diagram and subdivided bar diagram with one example each.

Or

(b) What are the uses of graphical representation of data?

12. (a) Find the mean and mode for the following data : 10, 20, 10, 20, 11, 12, 20, 25, 10, 20.

Or

(b) Calculate harmonic mean for the given data.

x :	10	20	30	40	50	60	70
f :	4	12	22	15	8	17	2

13. (a) Find the standard deviation for the following data.

x :	75	80	85	90	95	100
f :	3	7	18	12	6	4

Or

(b) Find the mean deviation about mean for the following data:

Size :	0–10	11–20	21–30	31–40	41–50	51–60
Frequency :	3	7	10	6	14	5

14. (a) Explain various types of kurtosis.

Or

(b) In a frequency distribution, the coefficient of skewness based upon quartiles if 0.6. If the sum of the upper and lower quartiles is 100 and the median 38, find the value of the upper quartile.

15. (a) Calculate Karl pearson's coefficient for the following data.

X	10	12	13	16	17	20	25	15
Y	19	22	26	27	29	33	37	25

Or

(b) Calculate coefficient of correlation for the given data by concurrent deviation method.

X	85	82	89	95	104	106	112	100	99	93	90
Y	110	115	112	118	120	109	98	102	103	105	107

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the nature and scope of statistical methods and their limitations.