I –Suggestions of Measure of Central Tendency:

1. What is central tendency? Write down the main measure of central tendency?

2. What are the measures of Central tendency? A frequency distribution of age groups of 102 persons are given below :

Age Group	Frequency
10-15	13
15-20	18
20-25	35
25-30	17
30-35	11
35-40	8

Calculate arithmetic mean, median and Harmonic mean. (RU-ICE: 2014)

3. Define arithmetic mean, median and mode for the grouped data with their merit. (RU-ICE: 2015)

4. Show that, for AM ≥ GM ≥ HM for 2 non-zero positive observations. (RU-ICE: 2014, 2012)

5. For two positive observation show that $AH = G^2$; (RU-ICE : 2011)
Where, A= Arithmetic mean, H= Harmonic mean and G= Geometric mean

6. Show that sum of squares of the deviation of a set of observation is minimum when it is taken from arithmetic mean. (RU-ICE: 2015).

7. State various types of averages and write merits and demerits of each measure of central tendency. (RUET: 2011,2013).

8. Show that, $\Sigma\delta_i (x_i-a)^2$ has a minimum value. (RUET: 2013)

9. Define geometric mean and harmonic mean with example .For the following frequency distribution, calculate mode and median ---

Class interval	Frequency
13-15	3
15-17	7
17-19	12
19-21	6
21-23	2

(RU-ICE: 2015).

10 The frequency distribution given below the marks obtained in a exam by 80 Students are.....

Class interval	Frequency
50-60	5
60-70	9
70-80	13
80-90	20
90-100	19
100-110	9
110 and Above	5
	N=80

(RUET: 2011-civil).

Compute, (a) A.M, G.M and H.M
(b) Median, Q_1, Q_3, D_4 and P_{80}
(C) Mode

11 From the following data, compute the values of upper and lower quartiles, median, D6, P20. And Mode

Marks	No. of. Students
Below 10	5
10-20	25
20-30	40
30-40	70
40-50	90
50-60	40
60-70	20
Above 70	10
	N=260

(12) Define Arithmatic Mean, Harmanic mean and Geometric Mean with example and uses.

II Measure of Dispersion Suggestions:

1. What is dispersion? What are the absolute and relative measures of dispersion? (RU-ICE: 2013)
2. Define standard deviation. Also mention its merits and demerits.
3. Find mean and variance for first n natural number. (RU-ICE: 2013)
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4. Calculate mean and standard deviation using the given data

Mid Value	Frequency
10	3
15	14
20	29
25	35
30	41
35	20
40	11
45	2

(RU-ICE: 2013)

5. What do you mean by absolute and relative measure of dispersion? (RU-ICE: 2013)
6. Show that the standard deviation for first n natural number is

$$\sigma = \sqrt{\frac{n^2-1}{12}}$$

(RUET-civil: 2014)

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7. If $\bar{X}$ and S denote the mean and standard deviation of $x_1, x_2, \ldots\ldots, x_n$ then show that $\bar{X}\sqrt{(n-1)} \geq S$ (RU-ICE: 2014)

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8. For two observations, standard deviation is half of the range , Prove. (RU-ICE: 2011)
9. Which measure of dispersion do you consider to be the best and why? (RU-ICE: 2014)
10. What is coefficient of variation? When do we use it ? (RU-ICE: 2014)
11. Given below the monthly income's in Tk for 10 families
    10450, 17416,6517,13600,14821,9226,152936,11800,18500,15225
    Use the above data to compute mean deviation from mean and mean deviation from median. (RU-ICE: 2012)

(12) Calculate mean standard deviation and coefficient of variation using the given data

Class interval	Frequency
0-5	2
5-10	5
10-15	7
15-20	13
20-25	21
25-30	16
30-35	8
35-40	3

(RU-ICE: 2011)

(13) Series of two golfers for 12 rounds were as follows:

Golfer A	74	75	78	81	84	73	68	71	76	80	67	72
Golfer B	91	84	81	88	86	89	79	81	83	78	80	82

Find which golfer may be considered to be a more consistent players? (RUET: 2013-civil)

(14) The following are the scores of two batsman A and B in a series of innigs

Player A	45	101	8	80	10	120	35	15
Player B	48	10	35	22	50	60	25	34

Find who is the better scorer and who is more consistent players? (RUET: 2012-civil)

(15) Define skewness and kurtosis? What are their types and measures? Calulalate coefficient of skewness and Kurtosis for the following data

Values	12	24	36	78	60	72	84
Frequency	8	14	18	36	30	20	10

(RUET: 2014-civil)

(16) Define moments. Distinguish between raw moments and central moments. Mention the relationship between raw moments and central moments for the first four moments.

(17) The first four moments of a distribution about the value 5 of the variable are 2,20,40,50 . Find the moment about mean .Mean and variance. (RUET: 2012-civil)

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(18) Q: Compute first four central moments for the observations 7, 8, 9, 12 and 14

Ans: See Page 217 of books N. Islam

(19) Q: Compute the first four moments about an arbitrary value 12 using the data 7, 8, 9, 12, and 14 and hence the central moments.

Ans: See Page 217-218 of books N. Islam.