**Summer-20 Final Term Assignment**

**Subject: Probability and Statistics**

**Note: Please attempt all Questions in sequence. All questions carry equal marks. (50)**

**Q1:** Construct a grouped distribution table for the following data and Calculate Mean, Mode Median and Quartiles.

423, 369, 387, 411, 393, 394, 371, 377, 389, 409, 392, 408, 431, 401, 363, 391,

405, 382, 400, 381, 399, 415, 428, 422, 396, 372, 410, 419, 386, 390

**Q2:** By multiplying each of the numbers 3,6,2,1,7,5 by 2 and then adding 5, we obtain 11,17,9,7,19,15. What is the relation between the standard deviation and the means of the two sets.

**Q3**: For the following grouped distribution table Calculate The Variance and Standard Deviation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Class | 64-84 | 85-104 | 105-124 | 125-144 | 145-164 | 165-184 | 185-204 |
| Frequency | 15 | 18 | 27 | 10 | 6 | 5 | 13 |

**Q4:** If two fair dice are thrown, what is the probability of getting

1. A double six
2. A sum of 8 or more dots

**Q5.** Let C1,C2,⋯,CMC1,C2,⋯,CM be a partition of the sample space SS, and AA and BB be two events. Suppose we know that

* A and B are conditionally independent given **Ci,** for all i ∈{1,2,⋯,M}
* B is independent of all **Ci's.**

Prove that A and B are independent.

***Good Luck***