**Mid Semester Assignment**

**Spring 2020**

**Subject: Probability and Statistics**

**Q1:** Students were asked how long it took them to walk to school on a particular morning. A cumulative frequency distribution was formed

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Time taken(in minutes)***  | <5 | <10 | <15 | <20 | <25 | <30 | <35 | <40 | <45 |
| ***Frequency*** | 25 | 45 | 81 | 143 | 280 | 349 | 374 | 395 | 400 |

1. Draw a cumulative frequency curve and estimate how many students took less than 18 minutes.
2. Take equal class intervals of 0-, 5-, 10-, etc., construct frequency distribution and draw a histogram.

**Q2:** Construct a grouped distribution table for the following data and Calculate Mean, Mode 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

**Q3:** 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.

**Q4**: 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 |

**Q5: Comment on the following sentences**

1. The depth of a river at four different points is 2,7,5,6 feet respectively. The average depth is 5 feet. Therefore all the people with heights 5 feet can cross it
2. The average marks of one class of students are 30. Therefore every student is hopeless.
3. The average income of a king and his household servants is £20,000 per month, therefore all the household servants must be fabulously paid.