**PRACTICAL – 11**

**Submitted By: Ridam Singhal(5040)**

**AIM:** To calculate trend using spencer’s 21-point formula.

**EXPERIMENT:**



**THEORY:**

1. Spencer's 21-point formula requires 21 points to calculate one single trend value.
2. Formula: y₀ = 1/350 \* [5]²[7][-1,0,1,2,1,0,-1]y₀
3. The above formula is correct up to 3rd differences.

**CALCULATIONS:** (an excel sheet has also been attached for reference to detailed calculations)

Table-11.1



Graph-11.1

**RESULT:**

1. Trend values have been calculated using spencer’s 21 point formula, and are shown in Table 11.1.
2. Graph 11.1 shows the line graph plotted for the given data and the calculated trend.

**CONCLUSION:**

1. The production of wheat from 1987-2019 follows increasing trends in the beginning, but the last 3 trend values are observed to be decreasing.
2. This shows us that there have been some fluctuations in production of wheat.