# All formula

Alright — I’ve cleaned up your text, fixed the formula notations, corrected small mistakes, and made everything consistent with standard statistical notation.

Here’s the **complete, corrected Unit 1 formula sheet** for **Descriptive Statistics** based on your syllabus:

**Unit 1 – Descriptive Statistics**

**Measures of Central Tendency (Measures of Location)**

**1. Mean (Xˉ\bar{X})**

* **Individual Series:**

Xˉ=∑Xn\bar{X} = \frac{\sum X}{n}

* **Discrete Series:**

Xˉ=∑fXN\bar{X} = \frac{\sum fX}{N}

* **Continuous Series:**

Xˉ=∑fXN,X=Lower Limit+Upper Limit2\bar{X} = \frac{\sum fX}{N}, \quad X = \frac{\text{Lower Limit} + \text{Upper Limit}}{2}

(XX = mid-point of class interval)

**2. Median (MdM\_d)**

* **Individual Series:**

Md=Value of (n+12)th itemM\_d = \text{Value of } \left(\frac{n+1}{2}\right)^{\text{th}} \text{ item}

* **Discrete Series:**

Md=Value of (N+12)th itemM\_d = \text{Value of } \left(\frac{N+1}{2}\right)^{\text{th}} \text{ item}

* **Continuous Series:**

Md=l+N2−CFf×hM\_d = l + \frac{\frac{N}{2} - CF}{f} \times h

Where:  
ll = lower boundary of median class  
CFCF = cumulative frequency before median class  
ff = frequency of median class  
hh = class width

**3. Mode (MoM\_o)**

* **Individual / Discrete Series:** Most frequent value.
* **Continuous Series:**

Mo=l+(f1−f0)2f1−f0−f2×hM\_o = l + \frac{(f\_1 - f\_0)}{2f\_1 - f\_0 - f\_2} \times h

Where:  
f1f\_1 = frequency of modal class  
f0f\_0 = frequency before modal class  
f2f\_2 = frequency after modal class

**4. Quartiles (QiQ\_i)**

* **Individual Series:**

Qi=Value of (i(n+1)4)th item,i=1,2,3Q\_i = \text{Value of } \left(\frac{i(n+1)}{4}\right)^{\text{th}} \text{ item}, \quad i=1,2,3

* **Discrete Series:**

Qi=Value of (i(N+1)4)th itemQ\_i = \text{Value of } \left(\frac{i(N+1)}{4}\right)^{\text{th}} \text{ item}

* **Continuous Series:**

Qi=l+iN4−CFf×hQ\_i = l + \frac{\frac{iN}{4} - CF}{f} \times h

**5. Deciles (DiD\_i)**

* **Individual Series:**

Di=Value of (i(n+1)10)th item,i=1,2,…,9D\_i = \text{Value of } \left(\frac{i(n+1)}{10}\right)^{\text{th}} \text{ item}, \quad i=1,2,\dots,9

* **Discrete Series:**

Di=Value of (i(N+1)10)th itemD\_i = \text{Value of } \left(\frac{i(N+1)}{10}\right)^{\text{th}} \text{ item}

* **Continuous Series:**

Di=l+iN10−CFf×hD\_i = l + \frac{\frac{iN}{10} - CF}{f} \times h

**6. Percentiles (PiP\_i)**

* **Individual Series:**

Pi=Value of (i(n+1)100)th item,i=1,2,…,99P\_i = \text{Value of } \left(\frac{i(n+1)}{100}\right)^{\text{th}} \text{ item}, \quad i=1,2,\dots,99

* **Discrete Series:**

Pi=Value of (i(N+1)100)th itemP\_i = \text{Value of } \left(\frac{i(N+1)}{100}\right)^{\text{th}} \text{ item}

* **Continuous Series:**

Pi=l+iN100−CFf×hP\_i = l + \frac{\frac{iN}{100} - CF}{f} \times h

**Measures of Dispersion**

**Absolute Measures**

**1. Range (RR)**

* **Individual / Discrete Series:**

R=L−SR = L - S

Where LL = largest value, SS = smallest value.

* **Continuous Series:**

R=Upper limit of highest class−Lower limit of lowest classR = \text{Upper limit of highest class} - \text{Lower limit of lowest class}

**2. Quartile Deviation (Q.D.)**

Q.D.=Q3−Q12Q.D. = \frac{Q\_3 - Q\_1}{2}

**3. Standard Deviation (σ\sigma)**

* **Individual Series:**

σ=∑X2n−Xˉ2\sigma = \sqrt{\frac{\sum X^2}{n} - \bar{X}^2}

* **Discrete Series:**

σ=∑fX2N−Xˉ2\sigma = \sqrt{\frac{\sum fX^2}{N} - \bar{X}^2}

* **Continuous Series:**

σ=∑fX2N−Xˉ2,X=mid-point of class\sigma = \sqrt{\frac{\sum fX^2}{N} - \bar{X}^2}, \quad X = \text{mid-point of class}

**Relative Measures**

**1. Coefficient of Range:**

CR=L−SL+SCR = \frac{L - S}{L + S}

**2. Coefficient of Quartile Deviation:**

CQD=Q3−Q1Q3+Q1CQD = \frac{Q\_3 - Q\_1}{Q\_3 + Q\_1}

**3. Coefficient of Variation (C.V.):**

CV=σXˉ×100%CV = \frac{\sigma}{\bar{X}} \times 100\%

If you want, I can now make a **one-page printable version** of this with a clean table layout so you can keep it as a **Unit 1 cheat sheet** for quick reference.  
Do you want me to prepare that?