Semester : IV Subject : Statistics for AIDS Academic Year: 2023-2024

BOXPLOT:-

3 12 15 16 16 17 19 34.

Solution:-

(Without Outlier).

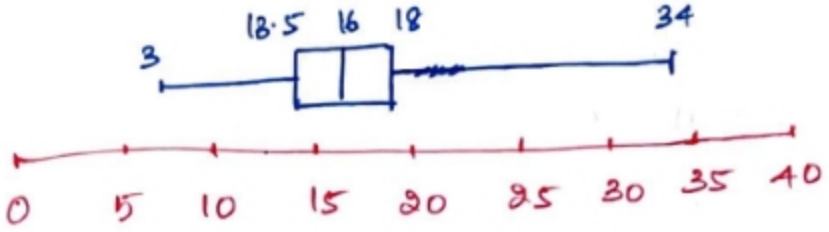
Minimum = 3.

Maximum = 34

$Q_1 = 13.5$

Median = 16

$Q_3 = 18$



(With Outlier).

1.5 (IQR) Rule.

$1.5(IQR) \rightarrow 1.5(Q_3 - Q_1)$.

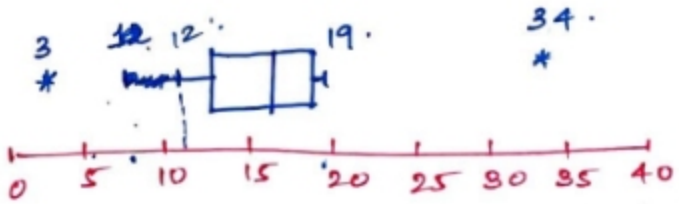
$= 1.5(18 - 13.5) = 6.75$

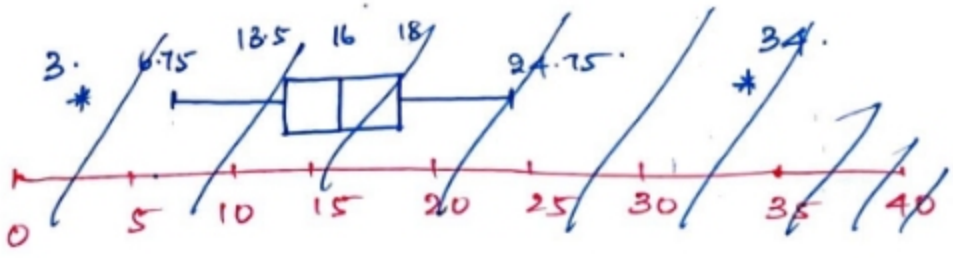
Lower outlier. $= Q_1 - 6.75$

$13.5 - 6.75 = 6.75$

Upper Outlier. $= Q_3 + 6.75$

$18 + 6.75 = 24.75$





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Example 2:

2, 4, 4, 5, 7, 9, 11, 11, 13, 14, 41

(Without outlier).

Minimum = 2.

Maximum = 41

$Q_1 = 4$

Median = 9

$Q_3 = 13$

(With outlier).

$\rightarrow 1.5(Q_3 - Q_1)$.

$\rightarrow 1.5(13-4) = (1.5)(9)$.

$= 13.5$

Lower outlier = $Q_1 - 13.5$

$= 4 - 13.5 = -9.5$

Upper bound = $Q_3 + 13.5$

$= 13 + 13.5 = \boxed{26.5}$

Range = -9.5 to 26.5.