Solution to No. 1:

a) The data is **continuous** since the strength was measured.

b) Stem = Tens, and ones and Leaf = tenth

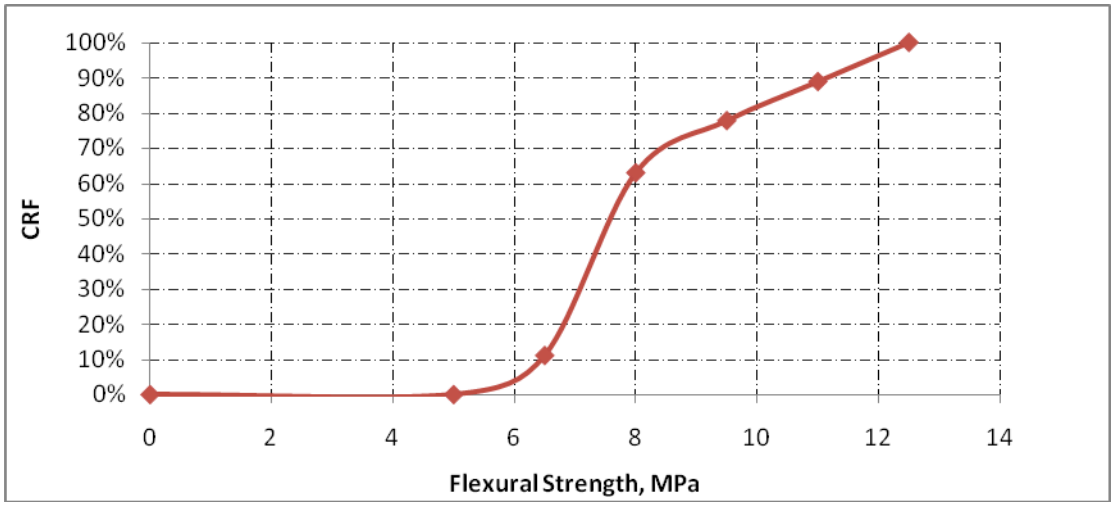
Stem	Leaf
5	9
6	3, 3, 5, 8, 8
7	0, 0, 2, 3, 4, 6, 7, 7, 8, 8, 9
8	1, 2, 7
9	0, 7, 7
10	7
11	3, 6, 8

The observations are variable, or spread out; and the majority of observations are between 6 and 9 Mpa, with the modal class in the 7 Mpa range.

c)

Flexural Strength (MPa)	F	CRF	RF	CRF
$5.0 \le x < 6.5$	3	3	11.1%	11.1%
$6.5 \le x < 8.0$	14	17	51.9%	63.0%
$8.0 \le x < 9.5$	4	21	14.8%	77.8%
$9.5 \le x < 11.0$	3	24	11.1%	88.9%
$11.0 \le x < 12.5$	3	27	11.1%	100.0%
	∑=27 ok		∑=100.0% ok	

d)



e) Based on the slope of the graph, the majority of tested samples showed strength in the region of ±6 to ±8 MPa. The graph also indicates that 100% of the samples had a capacity of more than 5MPa; whereas about 38% (100% - 62%) of the samples showed resistance to bending more than 8 MPa.

f) Based on the above graph about 19% of the beams tested showed a capacity of more than 10 MPa.

100% - 81% = 19%

g) Based on the above graph about 57% of the beams tested showed a capacity of anywhere between 6 to 8 MPa.

61 % – 4% = 57%

h) h) $L_{35\%}$ =0.35 (27) = 9.45 location in the sorted data.
The value = 7.2 + 0.45 (7.3-7.2) = 7.25 MPa
$L_{89\%}$ = .89 (27) = 24.03 location in the sorted data.
The value is = 10.7 + 0.03(11.3 – 10.7) = 10.72 MPa

i) Using Descriptive Statistics of Data Analysis of Excel, the statistics are as follows: Sample Mean = 8.1 MPa
Sample Median = 7.7 MPa
Sample Variance = 2.8 (MPa)2

Sample Standard Variation = 1.7 MPa

The data distribution is slightly skewed to the right (mean is greater than median).

Solution to Problem No. 2

Inner fences are: 1.5(IQR) = 1.5(216.8-196.0) = 31.2
And outer fences are : 3(IQR) = 3(216.8-196.0) = 62.4.

Mild outliers: observations below 196-31.2 = 164.6 or above 216.8+31.2=248.

Extreme outliers: observations below 196-62.4 = 133.6 or above 216.8+62.4 = 279.2.

Of the observations given, 125.8 is an extreme outlier and 250.2 is a mild outlier.

Solution to Problem No. 3

A. 50% - 34% = 16%

B. 100% - 2.5% = 97.5%

C. 50% - 34% = 16%

D. 34% + 47.5% = 81.5%