

AI1110: Assignment 1

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Question

Q10 - a) : The marks obtained by 120 students in an English test are given below:

Marks	0– 10	10– 20	20– 30	30– 40	40– 50	50– 60	60– 70	70– 80	80– 90	90– 100
No. of stu- dents	5	9	16	22	26	18	11	6	4	3

Estimate:

- (i) the median marks.
- (ii) the number of students who did not pass the test if the pass percentage was 50
- (iii) the upper quartile marks.

Solution

C.I	Marks less than	No. of students	C.F.
0 – 10	10	5	5
10-20	20	9	14
20-30	30	16	30
30-40	40	22	52
40-50	50	26	78
50-60	60	18	96
60-70	70	11	107
70-80	80	6	113
80-90	90	4	117
90-100	100	3	120

Solution (Contd..)

No. of students = 120

Median = 60th term through cumulative marks, draw a line parallel to x-axis and then draw perpendicular line to x-axis from where it touches curve.

As per the graph:

i) Median = 42

ii) Passing marks = 50

Draw a line parallel to y-axis and perpendicular line to y-axis from where it touches curve.

No. of students who did not pass = 78

iii) Upper quartile marks: $\frac{3}{4} \times n^{\text{th}} \text{ term}$

$$= \frac{3}{4} \times 120 = 90^{\text{th}} \text{ term}$$

Draw a line parallel to x-axis and perpendicular line to x-axis from where it touches curve.

Upper quartile marks: 57