(1) SOLVE THE QUES. DR. F. AHMAD

Q → Find the median from the following data which show eggs laying (Fecundity) of species of fish:

80, 70, 70, 70, 16, 30, 20, 20, 20, 20,
45, 16, 50, 30, 65, 40, 30, 50, 50, 65, 70,
45, 20, 70, 02, 79, 16, 20, 49, 02, 40,
50, 30, 02, 45, 30, 50, 45, 30, 16, 40,
45, 80, 50, 39, 50, 50, 20, 30, 30

Ans: first of all we arrange the above data into ascending order:

02, 02, 02, 16, 16, 16, 16, 20, 20, 20, 20, 20, 20,
20, 30, 30, 30, 30, 30, 30, 39, 40,
40, 40, 45, 45, 45, 45, 45, 49, 50, 50, 50,
50, 50, 50, 50, 50, 50, 65, 65, 70, 70, 70, 70,
70, 79, 80, 80.

Now a cumulative frequency table is prepared using above data.

Class Interval Fecundity	Frequency No. of fishes	Cumulative frequency
1 – 10	3	3
11 – 20	15	3 + 15 = 18
21 – 30	2	18 + 2 = 20
31 – 40	8 Mdn.	20 + 8 = 28
41 – 50	11	28 + 11 = 39
51 – 60	4	39 + 4 = 43
61 – 70	1	43 + 1 = 44
71 – 80	6	44 + 6 = 50

Here, $N = 50$ or $\sum f = 50$

$\therefore$ Mdn. will fall in $\left(\frac{N+1}{2}\right)^{th}$ item

$$\text{Mdn.} = \left[\frac{50+1}{2}\right]^{th} \text{item}$$

$$= \left[\frac{51}{2}\right] \text{th item}$$

$$= 25.5 \text{ th item}$$

The 25.5th item lies between 31 – 40 class interval.

Therefore 31-40 is the class interval where median falls. The lower limit of this class interval is 31.

Thus $l_1 = 31$, $N = 51$, $F = 20$, $f_m = 8$ and $i = +10$

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Letter No. ..... Date.....

(3)

$$\text{Median} = d_1 + \frac{\left[\frac{\Sigma f}{2} - F\right] \times i}{fm}$$

$$= 31 + \frac{\left[\frac{50}{2} - 20\right] \times 10}{8}$$

$$= 31 + \frac{(25-20) \times 10}{8}$$

$$= 31 + \frac{5}{8} \times 10$$

$$= 31 + \frac{50}{8}$$

$$= 31 + 6.25$$

$$= 37.25 \quad \text{Ans}$$