CT-03

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Section: A.

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Question-01(a)

Month :-	1	2	3	4
Sales :-	678 (A_1)	692 (A_2)	805 (A_3)	820 (A_4)
weight :-	0.20 (w_1)	0.25 (w_2)	0.0 (w_3)	0.55 (w_4)

Here,

$$w_3 = 1 - (w_1 + w_2 + w_4)$$
$$= 1 - (0.20 + 0.25 + 0.55)$$
$$= 1 - 1 = 0.0.$$

$$\therefore F_5 = w_4 A_4 + w_3 A_3 + w_2 A_2 + w_1 A_1$$
$$= (0.55 \times 820) + (0.00 \times 805) + (0.25 \times 692) + (0.20 \times 678)$$
$$= 759.6 \text{ units.}$$

Question-01(b)

Here used Delphi method. Because we know in Delphi method, the deputy head used to take interviews one by one in seperate room. The identity of all employee are hidden in this qualitative method. And here the process are continuing till all employees answer be same. like Iteration. And for this reason here need a huge time to complete this process. So, we can see find the similarity between the process of Delphi method and this given scenario. So, It is a example of Delphi method.

Question-02

Year	Sales (Y)	Time Period Index (X)	X^2	XY
2000	3912	1	1	3912
2001	3880	2	4	7760
2002	3758	3	9	11274
2003	3642	4	16	14568
2004	3627	5	25	18135
2005	3481	6	36	20886
2006	3349	7	49	23443
2007	3319	8	64	26552
2008	3121	9	81	28089
2009	3321	10	100	33210
2010	3312	11	121	36432
2011	3128	12	144	37536
Total = ΣY	ΣX	ΣX^2	ΣXY	
↓	↓	↓	↓	
= 41850	78	650	261797	

P.T.O

Now,

$$\bar{X} = \frac{\Sigma x}{n} = \frac{78}{12} = 6.5$$

and;

$$\bar{Y} = \frac{\Sigma y}{n} = \frac{41850}{12} = 3487.5$$

∴ we know that;

$$b = \frac{\Sigma xy - n\bar{x}\bar{y}}{\Sigma x^2 - n(\bar{x})^2}$$

$$= \frac{2,61797 - 12 \times 6.5 \times 3487.5}{650 - 12 \times (6.5)^2}$$

$$= [illegible] - 71.52$$

Now, we have to find the value of a;

We know;

$$a = \bar{y} - b\bar{x}$$

$$= 3487.5 - (-71.52 \times 6.5)$$

$$= 3952.38$$

∴ Overall Trendline;

$$y = a + bx$$

$$= 3952.38 + (-71.52)x$$

$$= 3952.38 - 71.52x \quad \text{---} (i)$$

For year 3189;

The value of x is $= (3189 - 2000) + 1$

$$= 1190.$$

P.T.O

From equation no 1;

$$Y_{3189} = 3952.38 - (71.52 \times 1190)$$

$$= -81156.42$$

(Result)