

Q. 3-2

Finding F given P
Simple Interest

Ans:-

$$P = \$10,500$$

$$i = 0.15$$

$$N = 6$$

$$I = P \times i \times N$$

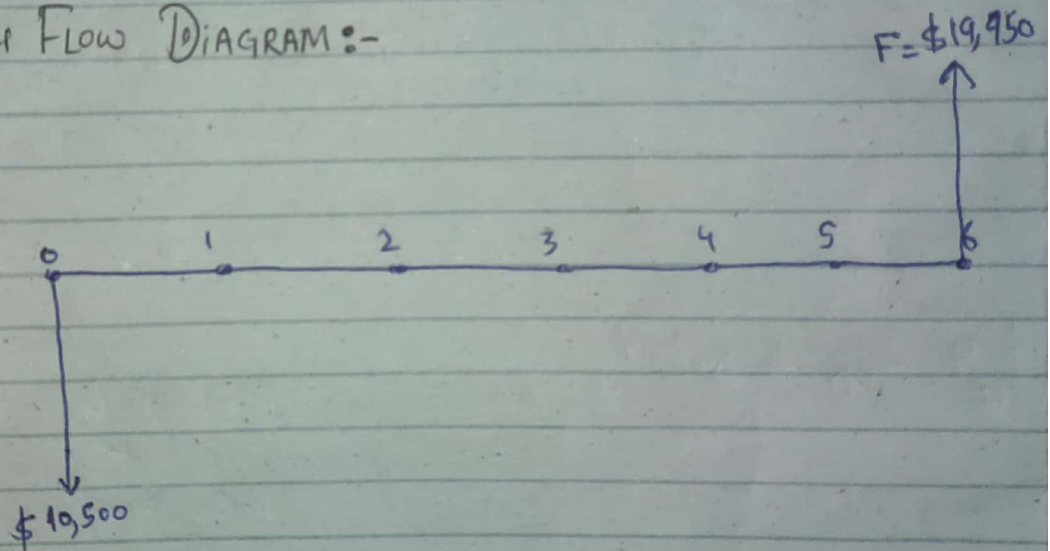
$$I = 10,500 \times 0.15 \times 6$$

$$I = \$9450$$

$$F = P + I$$

$$F = \$19,950$$

CASH FLOW DIAGRAM:-



Q. 3-3

Ans:-

$$i = 0.06$$

$$P = \$1000$$

$$N = 2.5$$

$$I = P \times i \times N$$

$$I = \$150$$

$$F = P + I = \$1150$$

Finding F given P
Simple Interest

Q 3-4

Ans:-

$$P = \$2000$$

$$i = 0.1$$

$$N = 6$$

Finding F given P
compound interest

After 3 years (from 0-3):-

$$F_{0-3} = 2000 \times (1 + 0.1)^3$$

$$F_{0-3} = \$2662$$

After paying half of principle amount i.e.
\$1000 we are left with a
loan of $\boxed{\$1662}$.

After Next 3 years (from 4-6):-

$$F_{4-6} = 1662 \times (1 + 0.1)^3$$

$$F_{4-6} = \$2212$$

Interest Paid over the 6 years period:-

$$I = \$1000 + \$2212 - \$2000$$

$$\boxed{I = \$1212}$$

Finding F given P
Compound Interest ②

Q 3-5

Ans:- If the interest is allowed to compound then it can be calculated for 6 years. i.e.

$$F_{0-6} = 2000 \times (1 + 0.1)^6$$

$$F_{0-6} = \$3543.122$$

$$I = \$3543.122 - \$2000$$

$$I = \$1543.122$$

So if we allow the interest to be compound, then we will have to pay extra $\boxed{\$331.122}$ additionally.

Q 3-11

Finding A given P ①

Ans:-

$$P = \$20,000$$

$$N = 5$$

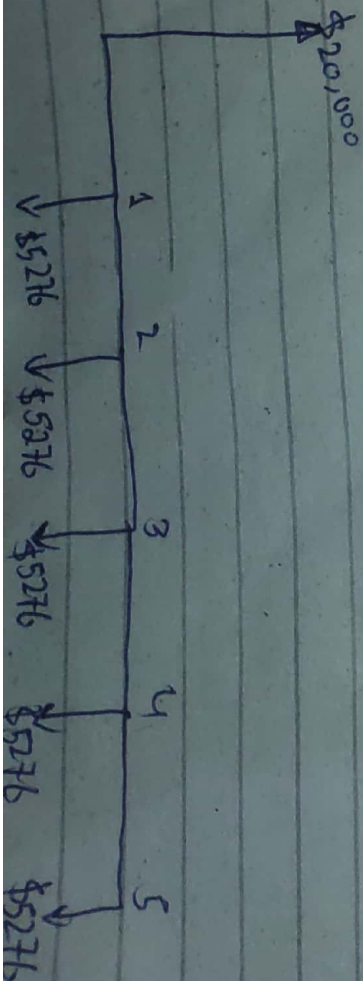
$$i = 0.1$$

$$A = ?$$

$$A = \frac{20,000}{5} \times (N/P, 5, 10\%)$$

$$A = \$5548.5276$$

Total amount Paid, $F = \$26,380$



Q 3-12

Finding F given P
Compound Interest

Ans:-

$$P = \$20,000$$

$$i = 0.1$$

After 1st year:-

$$I_1 = \$20,000 \times 0.1$$

$$I_1 = \$2000$$

$$\text{Amount Repaid, } F_1 = \$4000 + \$2000$$

$$F_1 = \$6000$$

$$\text{Now } P_1 = \$20,000 - \$6000$$

$$P_1 = \$16,000$$

After 2nd year:-

$$I_2 = \$16,000 \times 0.1$$

$$I_2 = \$1600$$

$$\text{Amount Repaid, } F_2 = \$4000 + \$1600$$

$$F_2 = \$5600$$

$$\text{Now } P_2 = \$12,000$$

After 3rd year:-

$$I_3 = \$12,000 \times 0.1$$

$$I_3 = \$1200$$

$$\text{Amount Repaid, } F_3 = \$4000 + \$1200$$

$$F_3 = \$5200$$

After

$$\text{Now } P_3 = \$12,000 - \$5200$$

$$P_3 = \$8000$$

After 4th year :-

$$I_4 = \$8000 \times 0.1$$

$$I_4 = \$800$$

$$\text{Amount Repaid, } F_4 = \$4000 + \$800$$

$$F_4 = \$4800$$

$$\text{Now } P_4 = \$8000 - \$4000 = \$4000$$

After 5th year :-

$$I_5 = \$4000 \times 0.1$$

$$I_5 = \$400$$

$$\text{Amount Repaid, } F_5 = \$4000 + \$400$$

$$F_5 = \$4400$$

$$\text{Now } P_5 = \$0$$

$$\text{Total interest paid} = I_1 + I_2 + I_3 + I_4 + I_5 = \$6000$$

$$\text{Total Repaid Amount} = F_1 + F_2 + F_3 + F_4 + F_5 = \$26000$$

Now if we compare it with previous problem, we are spending \$380 less in this scenario.

Q 3-13

Ans:-

$$F = \$2,500$$

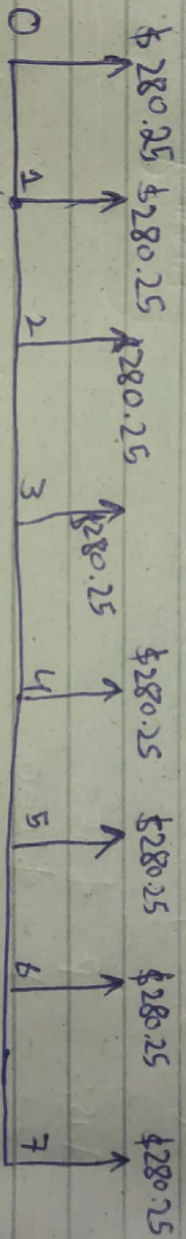
$$N = 7$$

$$i = 0.08$$

Finding A given F

$$A = F \cdot (A/F, 8\%, 7)$$

$$A = \$280.25$$



Q 3-9

Finding A given F

$$F = \$10,000$$

$$N = 15$$

$$i = 5\% = 0.05$$

$$A = F \cdot (A/F, 5\%, 15)$$

$$A = \$10,000 (0.0463)$$

$$A = \$463$$

Q 3-10

Finding F given P

Ans:-

$$P = \$1,500$$

$$N = 8$$

$$i = 12\% = 0.12$$

$$F = 1,500 (1 + 0.12)^8$$

$$F = \$3713.94$$

Q 3-14

Finding i given P & F

Ans:-

$$P = \$350$$

$$F = \$1000$$

$$N = 8$$

$$i = ?$$

$$1000 = 350 (1 + i)^8$$

$$\frac{1000}{350} = (1 + i)^8$$

$$\left(\frac{1000}{350}\right)^{\frac{1}{8}} = (1 + i)$$

$$1.14 = 1 + i$$

$$1.14 - 1 = i$$

$$i = 0.14$$

$$i = 14\%$$

Q 3-17

Ans:-

$$P = \$25,000$$

$$i = 12\% = 0.12$$

$$N = 10$$

$$A = ?$$

$$A = P \times (A/P, 12\%, 10)$$

$$A = 25,000 \times (0.1770)$$

$$A = \$4425$$

Finding A given P

①