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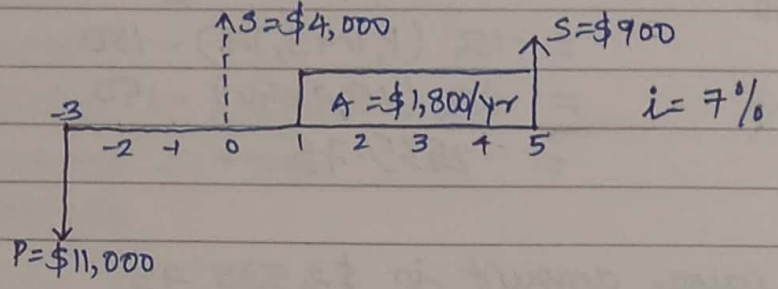
Q2.

a.



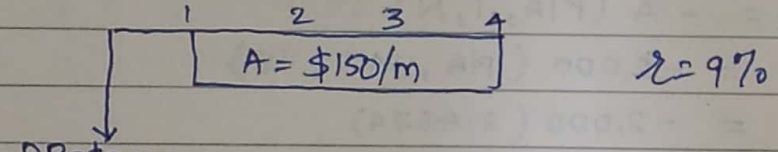
Present Worth (PW) $= -P(F/P, i, N) - A(P/A, i, N) + S(P/S, i, N)$

$= -11,000(1.2250) - 1,800(4.1002) + 900(0.7130)$

$= \$ -20213.66$

The cost of owning & operating at year zero is $ 20213.66

b.



$A = \$150$

$DP = \$2,000$

$r = 9\%$

$i = \frac{r}{m} = 9/12 = 0.75\%$

$N = 4$ years $= 4 \times 12$ months $= 48$ months

(i) $P = -DP - A(P/A, i, N)$

$= -2000 - 150(P, 0.75, 48)$

$= -2000 - 150(40.1848)$

$= -8,027.72$

The price of the bike is $8,027.72.

(ii) Payoff amount $= -A(P|A, i, N) - A_{31}$

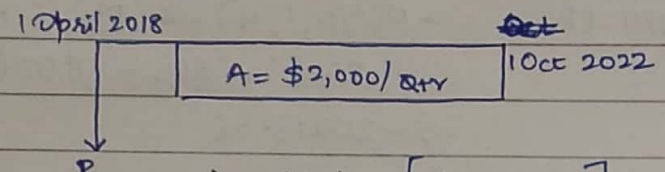
$= -150(P, 0.75, 17) - 150$

$= -150(15.9050) - 150$

$= -2535.75$

The payoff amount is \$2,535.75

c.



$i = 14\%$ [Quaterly]

No. of quarters = 18

$P_0 = -A(P|A, i, N)$

$= -2,000(P|A, 14\%, 18)$

$= -2,000(6.4674)$

$= -12,934.8$

The single amount is \$12,934.8

Q2.

a.

$A_1 = \$1,500$

$M_1 = 13$

$r_1 = 6\%$

$i_1 = \left(1 + \frac{r_1}{m_1}\right)^{m_1} - 1$

$= \left(1 + \frac{0.06}{13}\right)^{13} - 1$

$= 6.17\%$

$A_2 = \$3,000$

$M_2 = 6$ ~~Yr~~

$r_2 = 12\%$ ~~3 Yr~~

$i_2 = \left(1 + \frac{r_2}{m_2}\right)^{m_2} - 1$

$= \left(1 + \frac{0.12}{6}\right)^{6} - 1$

$= 12.62\%$

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Q.2

b. $P = \$35,000$

$A = \$900/m = \$10,800/yr$

$N = 48$ months $= 4$ years

$F = \$43,200$

$$F = P(1+i)^N$$

$$43,200 = 35,000[(1+i)^4]$$

$$(1+i)^4 = \frac{43,200}{35,000}$$

$$1+i = \sqrt{\frac{43,200}{35,000}}$$

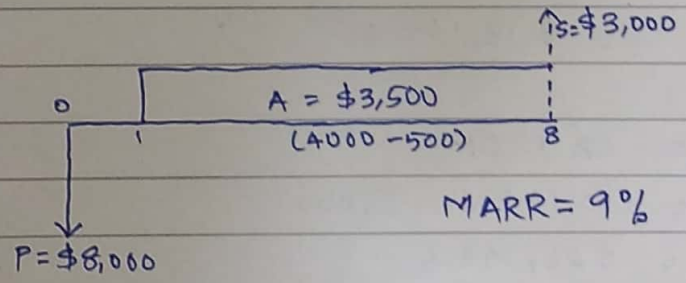
$$1+i = 1.054032$$

$$i = 0.054032$$

$$i\% = 5.40\%$$

Q3

a)



b) $PW = -P + A(P|A, i, N) + S(P|S, i, N)$

$= -8,000 + 3500(P|A, 9, 8) + 3000(P|S, 9, 8)$

$= -8,000 + 3500(5.5348) + 3000(0.5019)$

$= \$12,877.5$

c) $AE = -P(A|P, i, N) + A + F(A|F, i, N)$

$= -8000(0.1807) + 3500 + 3000(0.0907)$

$= \$2,326.5$

~~Q2~~ d) $FW = -P(F/P,i,N) + A(F/A,i,N) + F$

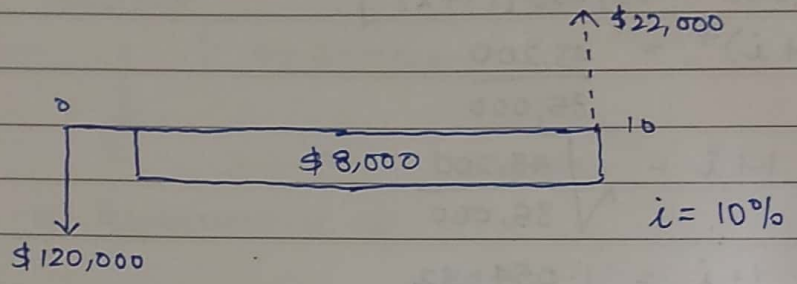
$= -8000(F/P,9,8) + 3500(F/A,9,8) + 3000$

$= -8000(1.9926) + 3500(11.0285) + 3000$

$= \$25,658.95$

Q4 → EXCEL FILE

Q5



a) $C.R. = (1-S)(A/P,i,N) + iS$

$= (120,000 - 22,000)(A/P,10,10) + 0.1(22,000)$

$= \$18,144.6$

b) $EUAC = CR + OM$

$= 18,144.6 + 8,000$

$= \$26,144.6$

c) $N = 10$ years

Operating hours = 14,000 hours/year

~~∴ cost =~~

Operating hours for 10 years = $14,000 \times 10$

$= 140,000$ hours

∴ Cost/hr = EUAC / operating cost

$= \$0.1867$ / hour

$= \$0.19$ / hour