It is clear from the table that replacement is of machine A is at the end of 5th year. & minimum average yearly cost is Rs 2700

25/05.

Let the value of money be assume to be 10% per year and suppose that machine 'A' is replace after '3' years where as machine 'B' is replaced after every '6' year the yearly cost of both the machine are given as data

years	1	2	3	4	5	6
Machine A	1000	200	400	1000	200	400
Machine-B	1700	100	200	300	400	500

Determine which machine should be purpachase.

Sol^{n} — since the value of money is 10% per year.

the discount rate $= \left(\frac{1}{1+r}\right)^n$

Let $n=1$, $r=10\%$ $\Rightarrow \frac{1}{1+10\%} = \frac{1}{1+\frac{10}{100}}$

$= \frac{100}{110}$

$= \frac{10}{11}$

total Discount Cost of machain 'A' for 3 years =

$$1000 + 200 \times \frac{10}{11} + 400 \times \left(\frac{10}{11}\right)^2 = 1512 \text{ Approx}$$

for total Discount cost of machine 'B' for '6' years:

$$= 1700 + 100 \times \frac{10}{11} + 200 \times \left(\frac{10}{11}\right)^2 + 300 \left(\frac{10}{11}\right)^3 + 400 \left(\frac{10}{11}\right)^4 + 500 \left(\frac{10}{11}\right)^5 = 2765 \text{ Approx}$$

Therefore average yearly cost of machine A = $\frac{1512}{3}$

Average yearly cost of machine B = $\frac{2765}{6}$ = 460.83 Rs.

Reason :- Although from this machine looks to beneficial to the machine 'A'.

The total discount cost of machine 'A' for 6 year =

$$1000 + 200 \times \frac{10}{11} + 400 \times \left(\frac{10}{11}\right)^2 + 100 \times \left(\frac{10}{11}\right)^3 + 200 \times \left(\frac{10}{12}\right)^4 + 400 \times \left(\frac{10}{11}\right)^7 = 2647.$$

Thus the machine) the present value of the total machine in 6 year on machine 'A' is less than that of machain 'B'.

Thus the machain A is less costly compair to machain B. Hence machain 'A' should be purchase.