Banking

Q1. Mrs. Goswami deposits ₹1000 every month in a recurring deposit account for 3 years at 8% interest per annum. Find the matured value

Solution

Q1)

$P = ₹1000$ {Money deposited}

$n = 3\text{ yrs} = 36\text{ months.}$

$r = 8\%$

$$I = P \times \frac{n(n+1)}{2\times12} \times \frac{r}{100}$$

$$= 1000 \times \frac{36(36+1)}{2\times12} \times \frac{8}{100}$$

$$= 4440$$

$$MV = P \times n + I$$

$$= 1000 \times 36 + 4440$$

$$= 36000 + 4440$$

$$= ₹40440$$

Q2. Sonia had a recurring deposit account in a bank and deposited ₹600 per month for 2 1/2 years. If the rate of interest was 10% p.a., find the maturity value of this account

Solution

Q2)

$P = ₹600$

$n = 2\frac{1}{2}\text{ yr} = \frac{5}{2}\text{ yr} = \frac{5}{2}\times12 = 30\text{ months}$

$r = 10\%$

$$I = P \times \frac{n(n+1)}{2\times12} \times \frac{r}{100}$$

$$= \frac{600 \times 30 \times 31 \times 10}{2\times12\times100}$$

$$= \frac{5\,5,80,000}{2400}$$

$$= ₹2325$$

$$M.V = P \times n + I$$
$$= 600 \times 30 + 2325$$
$$= 18000 + 2325$$
$$= ₹\,20325$$

Q3. Kiran deposited ₹200 per month for 36 months in a bank's recurring deposit account. If the banks pays interest at the rate of 11% per annum, find the amount she gets on maturity?

Solution

Q3)

$$P = ₹\,200$$
$$n = 36 \text{ months}$$
$$r = 11\%$$
$$I = P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100}$$
$$= \frac{200 \times 36 \times 37 \times 11}{2 \times 12 \times 100}$$
$$= \frac{2930400}{2400}$$
$$= ₹\,1221$$

$$MV = Pn + I$$
$$= 200 \times 36 + 1221$$
$$= ₹\,8421$$

Q4. Haneef has a cumulative bank account and deposits ₹600 per month for a period of 4 years. If he gets ₹5880 as interest at the time of maturity, find the rate of interest.

Solution

Q4)

$I = ₹\ 5880$

$P = ₹\ 600$

$n = 4\ yrs = 48\ months.$

$$I = P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100}$$

$$5880 = \frac{600 \times 48 \times 49 \times r}{2400}$$

$$r = \frac{5880 \times 2400}{600 \times 48 \times 49}$$

$$= \frac{14112\,0}{14112}$$

$r = 10\%\ \ p.a.$

Q5. David opened a Recurring Deposit Account in a bank and deposited ₹300 per month for two years. If he received ₹7725 at the time of maturity, find the rate of interest per annum.

Solution

Q5)

$P = ₹\ 300$

$n = 24\ months$

$MV = ₹7725$

$$I = P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100}$$

$$= \frac{300 \times 24 \times 2.5 \times r}{2 \times 12 \times 100}$$

$$= 75r$$

$$MV = P \times n + I$$

$$7725 = 300 \times 24 + 75r$$

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$$75r = 7725 - 7200$$

$$75r = 525$$

$$r = \frac{525}{75} = 7\% \text{ p.a}$$