

## Banking/Recurring Deposit Account

**Q1.** Naveen deposits Rs.800 every month in a recurring deposit account for 6 months. If he receives Rs.4884 at the time of maturity, then the interest he earns is:

(a) Rs. 84 (b) Rs.42 (c) Rs.24 (d) Rs.284 [2023]

**Answer:** (a) Rs.84

**Step-by-step Explanation:**

Monthly Instalment (P) = Rs.800

Time in months (n) = 6 months

Maturity Amount (A) = Rs.4884

$$\begin{aligned}\text{Interest} &= A - Pn \\ &= 4884 - 800 \times 6 \\ &= 4884 - 4800 \\ &= \text{Rs. } 84\end{aligned}$$

**Q2.** Salman deposits Rs.1000 every month in a recurring deposit account for 2 years. If he receives Rs.26000 on maturity, find:

(i) The total interest Salman earns (ii) The rate of interest [2023]

**Answer:** (i) Rs. 2000 (ii) 8%

**Step-by-step Explanation:**

Monthly Instalment (P) = Rs. 1000

Time in months (n) = 2 years =  $2 \times 12 = 24$  months

Maturity Amount (A) = Rs. 26000

$$\begin{aligned}
 (i) \text{ Interest} &= A - Pn \\
 &= 26000 - 1000 \times 24 \\
 &= 26000 - 24000 \\
 &= \text{Rs. } 2000
 \end{aligned}$$

$$\begin{aligned}
 (ii) I &= \frac{P \times n(n+1)}{2 \times 12} \times \frac{r}{100} \\
 2000 &= \frac{1000 \times 24 \times 25 \times r}{2 \times 12 \times 100} \\
 2000 &= 250 r \\
 \frac{2000}{250} &= r \\
 8 &= r
 \end{aligned}$$

*Rate of interest = 8%*

Q3. Mohit opened a recurring deposit account in a bank for 2 years. He deposits Rs.1000 every month and receives Rs.25500 on maturity. The interest he earned in 2 years is:  
Rs.13500 (b) Rs.3000 (c) Rs.24000 (d) Rs.1500  
[2021 Semester- 1]

**Answer:** (d) Rs. 1500

**Step-by-step Explanation:**

Monthly Instalment (P) = Rs. 1000

Time in months (n) = 2 years =  $2 \times 12 = 24$  months

Maturity Amount (A) = Rs. 25500

Interest = A - Pn

= 25500 - 1000 × 24

$$= 25500 - 24000$$

$$= 1500$$

Interest is Rs. 1500

**Q4. A man deposited Rs.500 per month for 6 months and received Rs 3,300 as the maturity value. The interest received by him is:-  
1950 (b) 300 (c) 2800 (d) None of these [2021 Semester-1]**

**Answer: (b) 300**

**Step-by-step explanation:**

Monthly Instalment (P) = Rs. 500

Time in months (n) = 6 months

Maturity Amount (A) = Rs. 3300

$$\text{Interest} = A - Pn$$

$$= 3300 - 500 \times 6$$

$$= 3300 - 3000$$

$$= 300$$

Interest is Rs. 300

**Q5. Joseph has a recurring deposit account in a bank for two years at the rate of 8% per annum simple interest.**

**(i) If at the time of maturity Joseph receives Rs. 2000 as interest then the monthly instalment is:**

**Rs.1200 (b) Rs.600 (c) Rs.1000 (d) Rs.1600**

**(ii) The total amount deposited in the bank:**

**Rs.25000 (b) Rs.24000 (c) Rs.26000 (d) Rs.23000**

**(iii) The amount Joseph receives on maturity is:**

**Rs.27000 (b) Rs.25000 (c) Rs.26000 (d) Rs.28000**

(iv) If the monthly instalment is Rs.100 and the rate of interest is 8%, in how many months Joseph will receive Rs.52 as interest?  
18 (b) 30 (c) 12 (d) 6 [2021 Semester- I]

**Answer (i):** (c) Rs. 1000

**Step-by-step explanation:**

Interest (I) = Rs. 2000

Time in months (n) = 2 years =  $2 \times 12 = 24$  months

Rate of Interest (r) = 8%

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

$$2000 = \frac{P \times 24 \times 25 \times 8}{2 \times 12 \times 100}$$

$$\frac{2000}{2} = P$$

$$P = 1000$$

*Monthly instalment is Rs. 1000*

**Answer (ii):** (b) Rs. 24000

**Step-by-step Explanation:**

Total money deposited in the Bank

$$= P \times n$$

$$= 1000 \times 24$$

$$= \text{Rs. } 24000$$

Answer (iii): (c) Rs. 26000

Step-by-step Explanation:

Maturity Amount = Interest + Pn

$$= 2000 + 24000$$

$$= \text{Rs. } 26000$$

Answer (iv): ()

Step-by-step explanation:

Monthly Instalment (P) = Rs. 100

Rate of interest(r) = 8%

Interest (I) = Rs. 52

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

$$52 = \frac{100 \times n(n+1) \times 8}{2 \times 12 \times 100}$$

$$52 = \frac{n(n+1)}{3}$$

$$n^2 + n = 156$$

$$n^2 + n - 156 = 0$$

$$n^2 + 13n - 12n - 156 = 0$$

$$n(n+13) - 12(n+13) = 0$$

$$(n+13)(n-12) = 0$$

$$\text{Either } (n+13) = 0 \text{ OR } (n-12) = 0$$

$$n = -13 \text{ OR } 12$$

*n cannot be begative.*

*Therefore, n = 12 months*

**Q6. A man deposited Rs. 1200 in a recurring deposit account for 1 year at 5% per annum simple interest. The interest earned by him on maturity is**

**14790 (b) 390 (c) 4680 (d) 780 [2021 Semester-I]**

**Answer:** (b) Rs. 390

**Step-by-step explanation:**

Monthly Instalment (P) = Rs. 1200

Rate of interest(r) = 5%

Time in months (n) = 1 year =  $1 \times 12 = 12$  months

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

$$I = \frac{1200 \times 12 \times 13 \times 5}{2 \times 12 \times 100}$$

$$I = 390$$

*Therefore, Interest = Rs. 390*

**Q7. Mr. Sonu has a recurring deposit account and deposits Rs 750 per month for 2 years. If he gets Rs. 19125 at the time of maturity, find the rate of interest. [2020]**

**Answer:** 6%

**Step-by-step explanation:**

Monthly Instalment (P) = Rs. 750

Maturity Amount(A) = Rs. 19125

Time in months (n) = 2 years =  $2 \times 12 = 24$  months

$$\begin{aligned} \text{Interest} &= A - Pn \\ &= 19125 - 750 \times 24 \\ &= 19125 - 18000 \\ &= \text{Rs. } 1125 \\ I &= \frac{P \times n(n+1)}{2 \times 12} \times \frac{r}{100} \\ 1125 &= \frac{750 \times 24 \times 25 \times r}{2 \times 12 \times 100} \\ 1125 &= \frac{375 r}{2} \\ 375 r &= 1125 \times 2 \\ r &= \frac{1125 \times 2}{375} \\ r &= 6\% \end{aligned}$$

Therefore, Rate of Interest = 6%

Q8. Rekha opened a recurring deposit account for 20 months. The rate of interest is 9% per annum and Rekha receives 441 as interest at the time of maturity. Find the amount Rekha deposited each month. [2019]

Answer: Rs. 280

Step-by-step explanation:

Rate of interest (r) = 9%

Interest(I) = Rs. 441

Time in months (n) = 20 months

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

$$441 = \frac{P \times 20 \times 21 \times 9}{2 \times 12 \times 100}$$

$$441 = \frac{P \times 21 \times 3}{2 \times 4 \times 5}$$

$$P = \frac{441 \times 2 \times 4 \times 5}{3 \times 21}$$

$$P = 280$$

*Therefore, monthly deposit = Rs. 280.*

Q9. Sonia had a recurring deposit account in a bank and deposited Rs.600 per month for 2 1/2 years. If the rate of interest was 10% p.a., find the maturity value of this account. [3] [2018]

**Answer:** Rs. 20325

**Step-by-step explanation:**

Rate of interest (r) = 10%

Monthly instalment (P) = Rs. 600

Time in months (n) = 5/2 years

$$= 5/2 \times 12$$

$$= 30 \text{ months}$$



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

$$I = \frac{600 \times 30 \times 31 \times 10}{2 \times 12 \times 100}$$

$$I = 2325$$

$$\text{Maturity Amount} = I + Pn$$

$$= 2325 + 600 \times 30$$

$$= 2325 + 18000$$

$$= 20325$$

*Therefore, Maturity Value is Rs. 20325*

Q10. Priyanka has a recurring deposit account of ₹ 1000 per month at 10% per annum. If she gets ₹ 5550 as interest at the time of maturity, find the total time for which account has held. [3] [2018]

**Answer:** 3 years

**Step-by-step explanation:**

Monthly instalment (P) = Rs. 1000

Rate of interest (r) = 10%

Interest (I) = Rs. 5550

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

$$5550 = \frac{1000 \times n(n+1) \times 10}{2 \times 12 \times 100}$$

$$5550 = \frac{25 \times n(n+1)}{6}$$

$$n(n+1) = \frac{5550 \times 6}{25}$$

$$n^2 + n = 1332$$

$$n^2 + n - 1332 = 0$$

$$n^2 + 37n - 36n - 1332 = 0$$

$$n(n+37) - 36(n+37) = 0$$

$$(n+37)(n-36) = 0$$

$$\text{Either } n+37 = 0 \text{ OR } n-36 = 0$$

$$\text{Either } n = -37 \text{ or } 36$$

*months cannot be negative.*

*Therefore,  $n = 36 \text{ months} = 3 \text{ years}$*

**Q11.** Mr. Richard has a recurring deposit account in a bank for 3 years at 7.5% p.a. simple interest. If he gets ₹ 8325 as interest at the time of maturity, find:

(i) the monthly deposit. (ii) the amount of maturity.[3] [2017]

**Answer:** (i) Rs. 2000 (ii) Rs. 80325

**Step-by-step explanation:**

Rate of interest (r) = 7.5%

Interest(I) = Rs. 8325

Time in months (n) = 3 years

$$= 3 \times 12$$

$$= 36 \text{ months}$$

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

$$8325 = \frac{P \times 36 \times 37 \times 7.5}{2 \times 12 \times 100}$$

$$8325 = \frac{P \times 9 \times 37}{2 \times 40}$$

$$P = \frac{8325 \times 2 \times 40}{9 \times 37}$$

$$P = 1332$$

$$P = 2000$$

Therefore, monthly deposit = Rs. 2000

$$(ii) A = I + Pn$$

$$= 8325 + 2000 \times 36$$

$$= 8325 + 72000$$

$$= 80325$$

Maturity Value is Rs. 80325

**Q12.** Mohan has a recurring deposit account in a bank for 2 years at 6% p.a. simple interest. If he gets Rs.1200 as interest at the time of maturity, find :

(i) the monthly installment. (ii) the amount of maturity.[3] [2016]

**Answer:** (i) Rs. 800 (ii) Rs. 20400

**Step-by-step expansion:**

Rate of interest (r) = 6%

Interest(I) = Rs. 1200

Time in months (n) = 2 years

$$= 2 \times 12$$

$$= 24 \text{ months}$$

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

$$1200 = \frac{P \times 24 \times 25 \times 6}{2 \times 12 \times 100}$$

$$1200 = \frac{P \times 3}{2}$$

$$P = \frac{1200 \times 2}{3}$$

$$P = 800$$

Therefore, monthly deposit = Rs. 800

$$(ii) A = I + Pn$$

$$= 1200 + 800 \times 24$$

$$= 1200 + 19200$$

$$= 20400$$

Maturity Value is Rs. 20400.

**Q13.** Katrina opened a recurring deposit account with a Nationalised Bank for a period of 2 years. If the bank pays interest at the rate of 6% per annum and the monthly instalment is 1,000, find the:

(i) interest earned in 2 years. (ii) matured value. [3] [2015]

**Answer:** (i) Rs. 1500 (ii) Rs. 25500

**Step-by-step Explanation:**

Rate of interest (r) = 6% p.a.

Monthly Instalment (P) = Rs. 1000

Time in months (n) = 2 years

= 2\*12

= 24 months

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

$$I = \frac{1000 \times 24 \times 25 \times 6}{2 \times 12 \times 100}$$

$$I = 250 \times 6$$

$$I = 1500$$

*Interest is Rs. 1500*

$$(ii) A = I + Pn$$

$$= 1500 + 1000 \times 24$$

$$= 1500 + 24000$$

$$= 25500$$

*Maturity Amount is Rs. 25500.*

**Q14.** Shahrukh opened a Recurring Deposit Account in a bank and deposited Rs.800 per month for 1 1/2 years. If he received Rs.15,084 at the time of maturity, find the rate of interest per annum.[2014]

**Answer:** 6% p.a.

**Step-by-step Explanation:**

Monthly Instalment (P) = Rs. 800

Time in months (n) = 1 1/2 years

$$= 3/2 \times 12$$

$$= 18 \text{ months}$$

$$\text{Maturity Amount (A)} = \text{Rs. } 15084$$

$$I = A - Pn$$

$$I = 15084 - 800 \times 18$$

$$= 15084 - 14400$$

$$= 684$$

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

$$684 = \frac{800 \times 18 \times 19 \times r}{2 \times 12 \times 100}$$

$$684 = 114 \times r$$

$$\frac{684}{114} = r$$

$$r = 6\% \text{ p. a.}$$

*Rate of Interest is 6% p. a.*

**Q15.** Mr. Britto deposits a certain sum of money each month in a Recurring Deposit Account of a bank. If the rate of interest is of 8% per annum and Mr. Britto gets Rs. 8088 from the bank after 3 years, find the value of his monthly installment. [3] [2013]

$$\text{Rate of interest (r)} = 8\% \text{ p.a}$$

$$\text{Time in months (n)} = 3 \text{ years}$$

$$= 3 \times 12$$

= 36 months

Maturity Amount (A) = Rs. 8088

$$I = A - Pn$$

$$I = 8088 - P \times 36$$

$$I = 8088 - 36P$$

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

$$8088 - 36P = \frac{P \times 36 \times 37 \times 8}{2 \times 12 \times 100}$$

$$8088 - 36P = \frac{P \times 3 \times 37}{25}$$

$$111P = 202200 - 900P$$

$$111P + 900P = 202200$$

$$1011P = 202200$$

$$P = \frac{202200}{1011}$$

$$P = 200$$

*Monthly instalment is Rs. 200*

**Q16.** Kiran deposited Rs. 200 per month for 36 months in a bank's recurring deposit account. If the bank pays interest at the rate of 11% per annum, find the amount she gets on maturity.[3] [2012]

**Answer:** Rs. 8421

**Step-by-step Explanation:**

Rate of interest (r) = 11% p.a.

Monthly Instalment (P) = Rs. 200

Time in months (n) = 36 months