



### Exercise 11D

Q1.

**Answer :**

(c) Rs. 832

$$\begin{aligned} A &= P \times \left(1 + \frac{R}{100}\right)^n \\ &= \text{Rs. } 5000 \times \left(1 + \frac{8}{100}\right)^2 \\ &= \text{Rs. } 5000 \times \left(\frac{108}{100}\right)^2 \\ &= \text{Rs. } 5000 \times \left(\frac{27}{25}\right)^2 \\ &= \text{Rs. } 5000 \times \left(\frac{27}{25}\right) \times \left(\frac{27}{25}\right) \\ &= \text{Rs. } (8 \times 27 \times 27) \\ &= \text{Rs. } 5832 \\ \therefore \text{Interest} &= \text{amount} - \text{principal} = \text{Rs } (5832 - 5000) = \text{Rs } 832 \end{aligned}$$

Q2.

**Answer :**

(b) Rs. 3310

$$\begin{aligned} A &= P \times \left(1 + \frac{R}{100}\right)^n \\ &= \text{Rs. } 10000 \times \left(1 + \frac{10}{100}\right)^3 \\ &= \text{Rs. } 10000 \times \left(\frac{110}{100}\right)^3 \\ &= \text{Rs. } 10000 \times \left(\frac{11}{10}\right)^3 \\ &= \text{Rs. } 10000 \times \left(\frac{11}{10}\right) \times \left(\frac{11}{10}\right) \times \left(\frac{11}{10}\right) \\ &= \text{Rs. } (10 \times 11 \times 11 \times 11) \\ &= \text{Rs. } 13310 \end{aligned}$$

$$\therefore \text{Compound interest} = \text{amount} - \text{principal} = \text{Rs} \left( 13310 - 10000 \right) = \text{Rs } 3310$$

Q3.

**Answer :**

(a) Rs 1872

$$\begin{aligned} \text{Here, } A &= P \times \left( 1 + \frac{R}{100} \right)^1 \times \left( 1 + \frac{\frac{1}{2}R}{100} \right) \\ &= \text{Rs } 10000 \times \left( 1 + \frac{12}{100} \right) \times \left( 1 + \frac{\frac{1}{2} \times 12}{100} \right) \\ &= \text{Rs } 10000 \times \left( \frac{100+12}{100} \right) \times \left( \frac{100+6}{100} \right) \\ &= \text{Rs } 10000 \times \left( \frac{112}{100} \right) \times \left( \frac{106}{100} \right) \\ &= \text{Rs } 10000 \times \left( \frac{28}{25} \right) \times \left( \frac{53}{50} \right) \\ &= \text{Rs } (8 \times 28 \times 53) \\ &= \text{Rs } 11872 \end{aligned}$$

$$\therefore \text{Compound interest} = \text{amount} - \text{principal} = \text{Rs} \left( 11872 - 10000 \right) = \text{Rs } 1872$$

Q4.

**Answer :**

(c) Rs 961

$$\begin{aligned} \text{Here, } A &= P \times \left( 1 + \frac{R}{100} \right)^2 \times \left( 1 + \frac{\frac{1}{4}R}{100} \right) \\ &= \text{Rs. } 4000 \times \left( 1 + \frac{10}{100} \right)^2 \times \left( 1 + \frac{\frac{1}{4} \times 10}{100} \right) \\ &= \text{Rs. } 4000 \times \left( \frac{100+10}{100} \right)^2 \times \left( \frac{40+1}{40} \right) \\ &= \text{Rs. } 4000 \times \left( \frac{110}{100} \right)^2 \times \left( \frac{41}{40} \right) \\ &= \text{Rs. } 4000 \times \left( \frac{11}{10} \right) \times \left( \frac{11}{10} \right) \times \left( \frac{41}{40} \right) \\ &= \text{Rs. } (11 \times 11 \times 41) \\ &= \text{Rs. } 4961 \end{aligned}$$

$$\therefore \text{Compound interest} = \text{amount} - \text{principal} = \text{Rs} \left( 4961 - 4000 \right) = \text{Rs } 961$$

Q5.

**Answer :**

(b) Rs. 5051

$$\begin{aligned}\text{Here, } A &= \text{Rs. } P \times \left(1 + \frac{p}{100}\right) \times \left(1 + \frac{q}{100}\right) \times \left(1 + \frac{r}{100}\right) \\&= \text{Rs. } 25000 \times \left(1 + \frac{5}{100}\right) \times \left(1 + \frac{6}{100}\right) \times \left(1 + \frac{8}{100}\right) \\&= \text{Rs. } 25000 \times \left(\frac{105}{100}\right) \times \left(\frac{106}{100}\right) \times \left(\frac{108}{100}\right) \\&= \text{Rs. } 25000 \times \left(\frac{21}{20}\right) \times \left(\frac{53}{50}\right) \times \left(\frac{27}{25}\right) \\&= \text{Rs. } (21 \times 53 \times 27) \\&= \text{Rs. } 30051 \\ \therefore \text{Compound interest} &= \text{amount} - \text{principal} = \text{Rs. } (30051 - 25000) = \text{Rs. } 5051\end{aligned}$$

Q6.

**Answer :**

(b) Rs. 510

$$\begin{aligned}\text{Rate of interest compounded half yearly} &= \frac{8}{2} \% = 4\% \\ \text{Time} &= 1 \text{ year} = 2 \text{ half years} \\ \text{Now, } A &= P \times \left(1 + \frac{R}{100}\right)^n \\&= \text{Rs. } 6250 \times \left(1 + \frac{4}{100}\right)^2 \\&= \text{Rs. } 6250 \times \left(\frac{104}{100}\right)^2 \\&= \text{Rs. } 6250 \times \left(\frac{26}{25}\right) \times \left(\frac{26}{25}\right) \\&= \text{Rs. } (10 \times 26 \times 26) \\&= \text{Rs. } 6760 \\ \therefore \text{Compound interest} &= \text{amount} - \text{principal} = \text{Rs. } (6760 - 6250) = \text{Rs. } 510\end{aligned}$$

Q7.

**Answer :**

(a) Rs. 1209

$$\begin{aligned}\text{Time} &= 6 \text{ months} = 2 \text{ quater years} \\ \text{Rate compounded quarter yearly} &= \frac{6}{4} \% = \frac{3}{2} \% \\ \text{Now, } A &= P \times \left(1 + \frac{R}{100}\right)^n \\&= \text{Rs. } 40000 \times \left(1 + \frac{3}{100 \times 2}\right)^2 \\&= \text{Rs. } 40000 \times \left(\frac{203}{200}\right)^2 \\&= \text{Rs. } 40000 \times \left(\frac{203}{200}\right) \times \left(\frac{203}{200}\right) \\&= \text{Rs. } (203 \times 203) \\&= \text{Rs. } 41209\end{aligned}$$

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