

Assignment 1

Archit Ganvir (CS21BTECH11005)

Abstract—This document gives the solution for Assignment 1 (ICSE Class 10 Maths 2018 Q.1(b)).

Q.) Sonia had a recurring deposit account in a bank and deposited ₹600 per month for 2½ years. If the rate of interest was 10% p.a., find the maturity value of this account.

| Formula | Description |
|--|---|
| $P_{total} = P \times n$ | Total sum deposited |
| $I = P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100}$ | Interest on the total sum deposited |
| $M.V. = P_{total} + I$ | Maturity value of the recurring deposit |
| $M.V. = P \times n + P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100}$ | |

TABLE II

Solution:

- Given :-
Sum deposited every month, $P = 600$
Number of months, $n = \text{number of years} \times 12$
 $= 2.5 \times 12 = 30$
Rate of interest (p.a.), $r = 10\%$

| Symbol | Value | Description |
|--------|-------|---------------------------|
| P | 600 | Sum deposited every month |
| n | 30 | Number of months |
| R | 10 | Rate of interest (p.a.) |

TABLE I

Substituting the values of P, n and r, and solving, we get :-

$$M.V. = 20325 \quad (5)$$

Therefore, the maturity value of the account is ₹20325.

The code in

Assignment1/codes/recdep.py

verifies the solution.

- Formula :-
Total sum deposited = Sum deposited every month x Number of months

$$P_{total} = P \times n \quad (1)$$

Interest on the total sum deposited,

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

Maturity value of the recurring deposit, M.V.
= Total sum deposited + Interest on the total sum deposited

$$M.V. = P_{total} + I \quad (3)$$

- To Find :-
The maturity value of the given account

- Solution :-
From eq.s (1), (2), (3), we get :-

$$M.V. = P \times n + P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100} \quad (4)$$

Table 1 is taken from

Assignment1/tables/table1_variables.tex

Table 2 is taken from

Assignment1/tables/table2_formulae.tex