

Time Value of Money (continued)

13. If the loan amount is ₹ 20,00,000, tenure is 3 years and the rate of interest is 12% p.a., find out the equalised annual instalment. $PVIFA_{(12\%, 3)} = 2.40$
(Ans: ₹ 8,33,333, Hint: Use PVA formula)
14. Mr Ghosh estimates that he needs to withdraw ₹ 2,40,000 every year from his bank for the next 3 years. How much should be deposited in the bank today to meet this requirement, if the interest rate is 4% p.a.
 $PVIFA_{(4\%, 3)} = 2.775$ (Ans: ₹ 6,66,000)
15. Mr X retires at the age of 65 from a Company. His employers offered him two retirement benefit options as follows:
(i) Receive a lumpsum payment of ₹ 12,00,000 now; or
(ii) Accept a pension of ₹ 150,000 per year for the rest of his life. It is estimated that he will survive for another 15 years.
Mr X has an investment opportunity at 9% interest p.a.
 $PVIFA_{(9\%, 15)} = 8.061$
Advise Mr X about which option would be beneficial for him based on present value concept.
(Ans: PV of option I - ₹ 12,00,000, PV of option II ₹ 12,09,150, option II is better)
16. Mr. Sanyal needs ₹ 1,00,000 at the end of 10 years from now. He has the following two options:
(I) Deposit a lumpsum amount today at 6% interest rate p.a. into bank;
(II) Make an annual payment starting ~~at~~ from the beginning of this year at 6% interest p.a.
Given: $FVIF_{6\%, 10} = 1.791$, $FVIFA_{6\%, 10} = 13.181$, $PVIFA_{6\%, 10} = 7.360$, $PVIF_{6\%, 10} = 0.558$
- Required
(a) Find out the amount to be deposited under option I
(b) Calculate the amount to be deposited annually into the bank under option II
(Ans: (a) ₹ 55,835, (b) ₹ 7157.24 ≈ ₹ 7157)
17. Mr. Sen took a loan of ₹ 10,00,000 from UBI repayable in equal annual instalments at 10% interest rate p.a. Calculate the amount of each instalment. (Ans: ₹ 2,63,797)
18. A fixed deposit certificate has a maturity value of ₹ 1,33,100, at 10% interest p.a. after 3 years. What is the amount of initial fixed deposit? (Ans: ₹ 1,00,000)