1. Delisha has to receive Rs.50000 at the end of first year, Rs.70000 at the end of fourth year, Rs.100000 at the end of the seventh year and Rs.80000 at the end of the tenth year from a company from now. How much money Delisha will receive if she decided to get all her money now? The market rate of interest is 10% annual compounding.

$$P = 50000/(1.1)^1$$
$$+$$
$$70{,}000/(1.1)^4$$
$$+$$
$$1{,}00{,}000/(1.1)^7$$
$$+$$
$$80{,}000/(1.1)^{10}$$

$$= 175424.76$$

2. Rana deposited money in a savings account in the following pattern.

Year	Amount of deposits ($)
0	4000
1	-----
2	5000
3	6000
4	-----
5	7000
6	8000

Find the maturity amount of his account at the end of the deposit period if money is
growing at 8% interest yearly compounding.

$$F = 4000(1.08)^6$$
$$+$$
$$5000(1.08)^4$$
$$+$$
$$6000(1.08)^3$$
$$+$$
$$7000((1.08)^1$$
$$+$$
$$8000 =$$

$$36268.21$$

3. Sanchit deposited $20000 in a bank for 6 years for his sister's study fund. The annual nominal interest rate is 6%. Find the maturity amount of his account when

(i) Compounding is done half yearly.
(ii) Compounding is done quarterly.

i. $R = (1 + 0.06/2)^2 - 1 = 0.0609$

$F = 20000(1.0609)^6 = 28515.22$

ii. $R = (1 + 0.06/4)^4 - 1 = 0.0613636$

$F = 20000(1.0613636)^6 = 28590.064$

4. Suppose that you make a series of annual deposits into a bank account that pays 8% interest compounded annually. The initial deposit at the end of the first year is $50000. The deposit amount declines by $1000 in each of the next ten years. How much money would you get immediately after the deposit period?

A=50,000-1000 (A/G, 8%. 11)
A= 45760.497

F= 45760.497 (F/A, 8%, 11)
F= 761705.78

5. Suppose Mr. Sahani , wants to take Rs 50,00,000 home loan from the bank at an interest rate of 10% compounded annually. If he wants to repay the whole amount along with interest in 20 annual installments, then find the installment amount.

$$A = 50L(A/P,10\%,20) = 587254.47$$

6. Explain the difference between simple interest rate and compound interest rate. Suppose Gita wants to save Rs. 10,000 in a Recurring Deposit (RD) account annually for next 15 years with an compound interest rate of 6%. Find the maturity value of this amount.

F= 10000 (F/A,6%,15) = 232759.69

7.

An industrial unit in US has agreed to pay 25,000 $ in royalties at the end of each year for next 5 years for the use of a patented product design. If the payments are left in a foreign country, interest on the retained funds will be paid at an annual rate of 15%. What amount will be available in 5 years under these conditions? How large would the uniform annual payments have to be if the patent owners insisted that a minimum of 1,75,000 $ be accumulated in the account by the end of 5 years.

F = A(F/A, 15,5) = 1,68,558 $
A= F(A/F, 15,5) = 25,956$

8.
Returns from an investment will turn down by 150 $ each year for 5 years from a level of 1000 $ at the end of the 1st year. With 7% interest rate, find out annual series amount over the following 6 year period.

A = $ 1000 - $ 150 (A/G, 7, 6) = $654.67

9.
Alex deposits an uniform amount of ₹50000 at the end of each year for 20 years. The rate of interest is 7.2% annual compounding. Find the compound amount that Alex will receive at the end of his deposit period. You want the same compound amount at the end of 12 years for your brother's marriage. You will get the same rate as Alex. Decide the annual equivalent amount that you should deposit at the end of every year.

A=50000 and i= 7.2%
F= A(F/A,i,n) for 20 years = **₹2095099.55**

A= F(A/F,i,n) for 12 years =
2095099.55(0.00606878) = **₹115748.691**

10.

Robert plans to deposit ₹100000 in the first year in his savings account. He reduces his deposit amount by ₹2000 thereafter for next 11 years. The bank gives 7.5% interest compounded annually. Find the single amount that I should deposit now so that I will get the same future sum as Robert will get at the end of his deposit period, at the same rate of interest.

P= [100000-2000(A/G, 7.5%,12)] x [P/A, 7.5%, 12)

= **₹7,01,759.32**

11.
You have received the bill amounts of your company as per the following schedule. If these amounts are deposited in your savings account as soon as they are received and grows at the rate of 4% compounded annually, what will be the compounded amount at the end of 7 years in your account?

End of the Year	Bill amount Received(₹)
1	300000
2 -	
3	350000
4 -	
5	400000
6 -	
7	450000

$$F = 3\text{lakh}(1.04)^7$$
$$+$$
$$350000(1.04)^5$$
$$+$$
$$400000(1.04)^3$$
$$+$$
$$450000$$

$$= ₹\ 1720553.64$$

12.
Find the maturity amount and compound interest amount you will receive on ₹33280 deposited now for 8 years at a rate of 12.5% compounded annually.

F= $33280(1.125)^8$ = ₹ **85389.31**

Compound interest = **₹52109.31**