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Nahata Professional Academy
IDEAL ANSWERS
CA Final
(New Syllabus)
Financial Management
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(Special thanks to my student Varun Tibrewal for proof reading & Cross checking)

(Disclaimer: Questions asked in the exam may have wrong/inadequate information and/or ambiguous language. In that case the answers provided by institute may differ from this Ideal Answers. Every step has been taken to make accurate these answers, still if you find some clerical errors, please bring it to our notice through email.)

Question 1(a)

XY Ltd. Has under its consideration a project with an initial investment of Rs. 1,00,000. Three probable cash inflow scenarios with their probabilities of occurrence have been estimated as below:

Annual cash inflow (Rs.)	20,000	30,000	40,000
Probability	0.1	0.7	0.2

The project life is 5 years and the desired rate of returns is 20%. The estimated terminal values for the project assets under the three probability alternatives, respectively, are Rs. 0, 20,000 and 30,000.

You are required to:

- Find the probable NPV;
- Find the worst-case NPV and the best-case NPV; and
- State the probability occurrence of the worst case, if the cash flows are perfectly positively correlated over time.

Answer 1(a)

(i) Calculation of Probable NPV:

Present Value Factor for 5th Year @20% = 0.402

Present Value Annuity Factor for 5 years @20% = 2.991

20,000 x 2.991 + 0	x0.402 -100000	=	-40180
30,000 x 2.991 + 20,000x0.402	-100000	=	-2230
40,000 x 2.991 + 30,000x0.402	-100000	=	+31700

$$\text{NPV} = -40180 \times 0.1 - 2230 \times 0.7 + 31700 \times .2 = +761$$

- (ii) Worst Case NPV = -40108
Best Case NPV = 31700

(iii) Probability of occurrence of the Worst Case NPV = $(0.1)^5 = 0.00001$

Question 1(b)

Mr. A purchased a 3-month call option for 100 shares in XYZ Ltd. At a premium of Rs. 30 per share, with an exercise price of Rs. 550. He also purchased a 3 month put option for 100 shares of the same company at a premium of Rs. 5 per share with an exercise price of Rs. 450. The market price of the share on the date of Mr. A's purchase of options, is Rs. 500. Calculate the profit or loss that Mr. A would make assuming that the market price falls to Rs. 350 at the end of 3 months.

Answer 1(b)

	<u>Rs.</u>
Call option (Strike Price 550) will not be exercised	Nil
Put option (Strike Price 450) will be exercise	100
Premium on call and put Paid (30 + 5)	<u>-35</u>
Net Profit	<u>65</u>

Question 1(c)

Explain briefly, how financial policy is linked to strategic management.

Answer 1(c)

The starting point of an organization is money and the end point of that organization is also money again. Offer of the organization is only a vehicle that links up the starting point and the end point. No

organization can run the existing business and promote a new expansion project without a suitable financial base. Following financial decisions are in built to the strategic management:

Estimating the requirements of funds: A careful estimate of long funds as well as the exact timing when such funds are required must be made by the Strategic manager.

Decision regarding capital structure: Once the requirement of funds has been estimated, a decision regarding various sources from where these funds would be raised has to be taken.

Investment decision: The investment of funds in a project has to be made after careful assessment of the various projects through capital budgeting. A part of long term funds is also to be kept for financing the working capital requirements.

Dividend decision: The Strategic manager is also concerned with the decision to pay or declare a dividend. To arrive at a dividend decision, a large number of considerations like the trend of earnings, the effect on share market prices, the requirement of funds for future growth, the cash flow situation, the tax position of share-holders, etc., are to be kept in mind. Ultimately his decision should result in maximization of wealth of the company.

Question 2(a)

P Ltd. Has decided to acquire a machine costing Rs. 50 lakhs through leasing. Quotations from 2 leasing companies have been obtained which are summarized below:

	Quote A	Quote B
Lease term	3 years	4 years
Initial lease rent (Rs. Lakhs)	5.00	1.00
Annual lease rent (payable in arrears) (Rs. Lakhs)	21.06	19.66

P Ltd. evaluates investment proposals at 10% cost of capital and its effective tax rate is 30%. Terminal payment in both cases is negligible and may be ignored.

Make calculations and show which quote is beneficial to P Ltd. Present value factors at 10% rate for years 1-4 are respectively 0.91, 0.83, 0.75 and 0.68. Calculations may be rounded off to 2 decimals in lakhs.

Answer 2(a)

Note: It appears from language of the questions that in both options life of the asset is same. Therefore we need not to apply the concept of equivalent Net Present Value.

Particulars	Quote A	Quote B
Initial Lease Rent	-5.00	-1.00
Tax Benefit@30%#	1.50	0.30
Net Initial Cash Flow	-3.50	-0.70
Annual Lease rent	-21.06	-19.66
Tax Benefit@30%	6.32	5.90
Net Annual Cash Flow	14.74	13.76
Present Value Annuity Factor@10%	x2.49	x3.17
PV of annual cash flows	-36.70	-43.62
Total Cost	40.20	44.32

It is assumed that tax benefit on initial lease rent is available at year zero only. One can also assume that tax benefit will be available at the end of first year.

Conclusion: **Option A is better.**

Question 2(b)

Based on the following information, determine the NAV of a regular income scheme on per unit basis :

	Rs. Crores
Listed shares at cost (ex-dividend)	20
Cash in hand	1.23
Bonds and debentures at cost	4.3
Of these, bonds not listed and quoted	1
Other fixed interest securities at cost	4.5
Dividend accrued	0.8
Amount payable on shares	6.32
Expenditure accrued	0.75
Number of units (Rs. 10 face value)	20 lacs
Current realizable value of fixed income Securities of face value of Rs. 100	106.5
The listed shares were purchased when Index was	1,000
Present index is	2,300
Value of listed bonds and debentures At NAV date	8
There has been a diminution of 20% in unlisted bonds and debentures	
Other Fixed interest securities are at cost.	

Answer 2(b)

Note:

- 1) One of the lines of the question says "Of these bonds **not listed and quoted**". This line has been interpreted as "Of these bonds **not listed**".
- 2) Also last line of the question says "Other fixed interest securities are listed at cost". This line gives an impression that market value is equal to cost. But the same question says "Current realizable value" is Rs.106.5. Therefore last line of the question has been ignored.
- 3) Value of listed bonds and debentures is given as 8. It is assumed to be Rs.8 crores.

Particulars	Amount (Rs. In crores)
Listed Shares 20 x 2300/1000	46.00
Cash in Hand	1.23
Not listed Bonds and debentures (1cr -20%)	0.80
Listed Bonds and Debentures	8.00
Other Fixed Interest Securities (4 x 106.5/100)	4.79
Dividend Accrued	0.80
Amount Payable on shares	-6.32
Expenditure accrued	-0.75
Total Value on NAV date	54.55
No. of units (in crores)	0.20
NAV	Rs.272.75

Question 2(c)

How is a stock market index calculated? Indicate any two important stock market indices.

Answer 2(c)

“Sensex” of Bombay stock exchange and “Nifty” of National stock exchange are the two popular indices of India.

Method of calculation of Indices is similar to calculation of any Index number. Here we take current price in numerator and base year price in denominator and multiply this by 100 (in sensex) or by 1000 (in nifty).

$$\text{Index Number} = \frac{\text{Current average price of securities}}{\text{Base year average price of securities}} \times 100 \text{ or } 1000$$

Here rather than taking price for a single security we take weighted average price of 30 securities in case of sensex and 50 securities in case of nifty. Also for the purpose of calculating weighted average price weights of Free float market capitalization is given. Here free float market capitalization means No. of shares held by public (not by promoters) multiplied by current market price. The base date for Sensex is 1st April 1979 and for Nifty is 1st April 1995.

Question 3(a)

The following information is given for 3 companies that are identical except for their capital structure :

	Orange	Grape	Apple
Total invested capital	1,00,000	1,00,000	1,00,000
Debt/assets ratio	0.8	0.5	0.2
Shares outstanding	6,100	8,300	10,000
Pre tax cost of debt	16%	13%	15%
Cost of equity	26%	22%	20%
Operating Income (EBIT)	25,000	25,000	25,000
Net Income	8,970	12,350	14,950

The tax rate is uniform 35% in all cases.

- Compute the weighted average cost of capital for each company.
- Compute the Economic Value Added (EVA) for each company.
- Based on the EVA, which company would be considered for best investment? Give reasons.
- If the industry PE ratio is 11x, estimate the price for the share of each company.
- Calculate the estimated market capitalization for each of the companies.

b)
The rate of inflation in India is 8% per annum and in the U.S.A. it is 4%. The current spot rate for USD in India is Rs. 46. What will be the expected rate after 1 year and after 4 years applying the Purchasing Power Parity Theory.

Answer 3(a)

Note: It appears that this question has been framed very loosely. It contains contradictory information:

- All the three companies have different financial risk hence different cost of equity, still their price earnings ratio is same.
- Considering debt/asset ratio number of shares given in the question should be 2000, 5000 and 8000 but these are given as 6100, 8300 and 10,000.

- 3) Net Income given in the question is wrong. If we deduct interest and tax from EBIT a different figure appears as net income.

(a) Computation of weighted average cost of capital

$$K_o = K_d(1 - t) \times \frac{D}{D + E} + K_e \times \frac{E}{D + E}$$

Orange: $16 \times .65 \times 0.8 + 26 \times 0.2 = 13.52\%$
 Grape: $13 \times .65 \times 0.5 + 22 \times 0.5 = 15.225\%$
 Apple: $15 \times .65 \times 0.2 + 20 \times 0.8 = 17.95\%$

(b) Computation of economic value added

$$\text{Economic Value Added} = [ROI(1 - t) - K_o] \times \text{Capital Invested}$$

Here ROI = EBIT / Capital Employed = $25000 / 100000 = 25\%$

Orange: $[25\% \times 0.65 - 13.52\%] \times 100000 = 2730$
 Grape: $[25\% \times 0.65 - 15.225\%] \times 100000 = 1025$
 Apple: $[25\% \times 0.65 - 17.95\%] \times 100000 = -1700$

(c) Best Investment

Orange is the best investment because it has highest EVA and lowest no. of shares. Therefore its EVA per share will also be highest.

(d & e) Estimation of price of shares and Market capitalization

Particulars	Orange	Grape	Apple
EBIT	25000	25000	25000
Interest	-12800	-6500	-3000
Profit before tax	12200	18500	22000
Tax @35%	-4270	-6475	-7700
Profit after tax	7930	12025	14300
No. of Shares	6100	8300	10000
EPS	1.30	1.45	1.43
Price Earning Ratio	x11	x11	x11
Market Price Per Share	14.30	15.94	15.73
Value of equity	87230	132275	157300
Value of Debt	80000	50000	20000
Value of Firm	167230	182275	177300

Question 3(b)

The rate of inflation in India is 8% per annum and in the U.S.A. it is 4%. The current spot rate for USD in India is Rs. 46. What will be the expected rate after 1 year and after 4 years applying the Purchasing Power Parity Theory.

Answer 3(b)

One Year Forward Rate

$$\frac{1 + i_H}{1 + i_F} = \frac{\text{Forward Rate}}{\text{Spot Rate}} \quad \frac{1.08}{1.04} = \frac{F}{46} \quad F = 47.77$$

Four Years Forward Rate

$$\frac{(1 + i_H)^4}{(1 + i_F)^4} = \frac{\text{Forward Rate}}{\text{Spot Rate}} \quad \frac{(1.08)^4}{(1.04)^4} = \frac{F}{46} \quad F = 53.50$$

Question 3(c)

List and briefly explain the main functions of an investment bank.

Answer 3(c)

Investment banking is a particular form of banking which finances capital requirements of an enterprise. Investment banking assists as it performs IPOs, private placement and bond offerings, acts as broker and carries through mergers and acquisitions.

Functions of Investment Banking:

Investment banks have multilateral functions to perform. Some of the most important functions of investment banking can be jot down as follows:

- Investment banking help public and private corporations in **issuing securities** in the primary market, guarantee by standby underwriting or best efforts selling and foreign exchange management. Other services include acting as intermediaries in trading for clients.
- Investment banking provides **financial advice** to investors and serves them by assisting in purchasing securities, managing financial assets and trading securities.
- Investment banking differs from commercial banking in the sense that they **don't accept deposits and grant retail loans**. However the dividing line between the two fraternal twins have become flimsy with loans and securities becoming almost substitutable ways of raising funds.
- Small firms providing services of investment banking are called boutiques. These mainly specialize in **bond trading**, advising for mergers and acquisitions, providing technical analysis or program trading.

Question 4(a)

T Ltd. and E Ltd. are in the same industry. The former is in negotiation for acquisition of the latter. Important information about the two companies as per their latest financial statements is given below:

	T Ltd.	E Ltd.
Rs. 10 Equity shares outstanding	12 lakhs	6 lakhs
Debt:		
10% Debentures (Rs. Lakhs)	580	—
12.5% Institutional Loan (Rs. Lakhs)	—	240
Earnings before interest, depreciation and tax (EBIDTA) (Rs. Lakhs)	400.86	115.71
Market Price/share (Rs.)	220.00	110.00

T Ltd. plans to offer a price for E Ltd., business as a whole which will be 7 times EBIDTA reduced by outstanding debt, to be discharged by own shares at market price.

E Ltd. is planning to seek one share in T Ltd. for every 2 shares in E Ltd. based on the market price. Tax rate for the two companies may be assumed as 30%.

Calculate and show the following under both alternatives – T Ltd.'s offer and E Ltd.'s plan :

- (i) Net consideration payable.
- (ii) No. of shares to be issued by T Ltd.
- (iii) EPS of T Ltd. after acquisition.
- (iv) Expected market price per share of T Ltd. after acquisition.
- (v) State briefly the advantages to T Ltd. from the acquisition.

Calculations (except EPS) may be rounded off to 2 decimals in lakhs.

Answer 4(a)

Note:

- 1) Question gives EBITDA, but does not provide information on Depreciation hence Depreciation is assumed to be zero.
- 2) Question is silent regarding repayment of debt under second option. Hence it is assumed that acquiring company will retain the debt of target company.

Option 1: Consideration equal to 7 times EBITDA

Option 2: One share in T for 2 shares in E.

(i) Net Consideration Payable

Option 1: EBITDA x 7 – Outstanding Debt
 $516.57 \times 7 - 240$
 570

Option 2: No. of shares = 6 lakhs x $\frac{1}{2}$ = 3 Lakhs
 $3 \text{ Lakhs} \times 220 = 660 \text{ Lakhs}$

(ii) No. of Shares to be issued by T Ltd.

Option 1:

Shares to be issued to the shareholder to E Ltd. = $570 \text{ lakhs} / \text{Rs. } 220 = 2.59 \text{ Lakhs}$

Shares to be issued to discharge Debt = $240 \text{ lakhs} / \text{Rs. } 220 = 1.09 \text{ Lakhs}$

Total shares to be issued = $2.59 + 1.09 = 3.68 \text{ Lakhs}$

Option 2: $6 \text{ Lakhs} \times \frac{1}{2} = 3 \text{ Lakhs}$

(iii), (iv) & (v) EPS, Market Price and Advantages:

Particulars	Option 1	Option 2
EBITDA	516.57	516.57
Interest @10%	-58.00	-58.00
Interest @12.5%	-	-30.00
Profit Before Tax	458.57	428.57
Tax @30%	-137.57	-128.57
Profit After Tax	321.00	300.00
No. of Shares	15.68	15.00
EPS	20.47	20.00
Price Earning Ratio	11.00	11.00
Post merger MPS	225.19	220.00
Pre merger MPS	-220.00	-220.00
Advantage to T	5.19	0.00

Question 4(b)

Briefly explain what is an exchange traded fund.

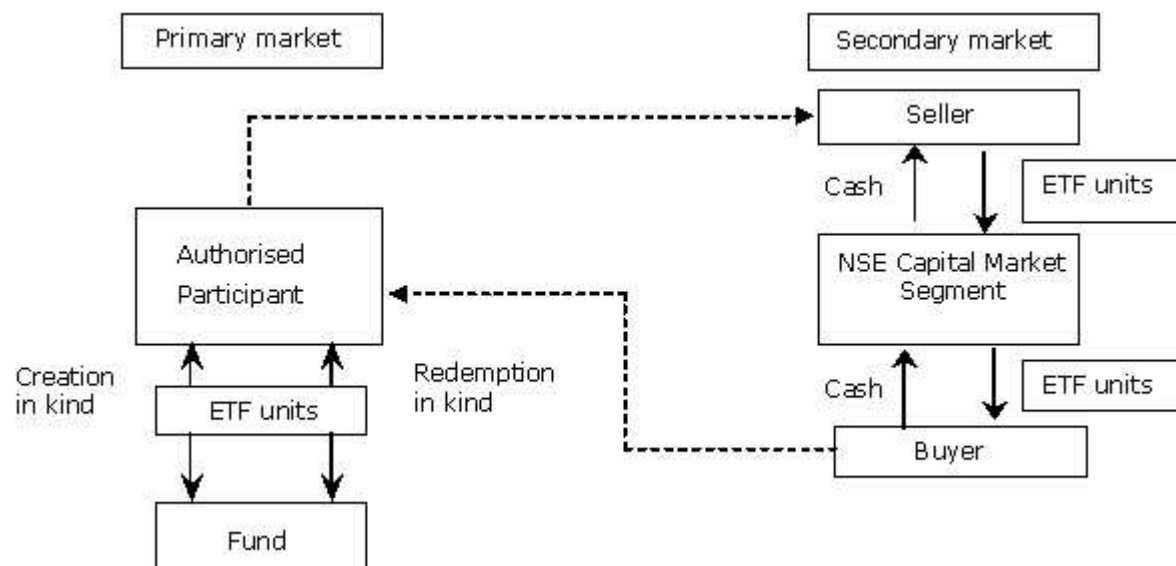
Answer 4(b)

A security that tracks an index, a commodity or a basket of assets like an index fund, but trades like a stock on an exchange. ETFs experience price changes throughout the day as they are bought and sold.

Because it trades like a stock, an ETF does not have its net asset value (NAV) calculated every day like a mutual fund does.

By owning an ETF, you get the diversification of an index fund as well as the ability to sell short, buy on margin and purchase as little as one share. Another advantage is that the expense ratios for most ETFs are lower than those of the average mutual fund. When buying and selling ETFs, you have to pay the same commission to your broker that you'd pay on any regular order.

One of the most widely known ETFs in India is Nifty Bees.

**Question 5(a)**

Consider the following data for Government Securities:

Face Value (Rs.)	Interest Rate %	Maturity (Years)	Current Price (Rs.)
1,00,000	0	1	91,000
1,00,000	10.5	2	99,000
1,00,000	11.0	3	99,500
1,00,000	11.5	4	99,900

Calculate the forward interest rates.

Answer 5(a)

Step 1: **One year forward rate as of today:**

$$\text{One year forward rate} = \frac{\text{Maturity Value at the end of first year}}{\text{Current Price}} - 1 = \frac{100000}{91000} - 1 = 9.89\%$$

Step 2: **One year forward rate one year from now (${}_1f_1$):**

$$\text{Current Price} = \frac{C_1}{(1+{}_1f_1)} + \frac{C_2 + M}{(1+{}_1f_0) \times (1+{}_1f_1)}$$

$$99000 = \frac{10500}{(1.0989)} + \frac{10500 + 100000}{(1.0989) \times (1+{}_1f_1)}$$

$${}_1f_1 = 12.42\%$$

Step 3: **One year forward rate two year from now (${}_1f_2$):**

$$\text{Current Price} = \frac{C_1}{(1+{}_1f_1)} + \frac{C_2}{(1+{}_1f_0) \times (1+{}_1f_1)} + \frac{C_3 + M}{(1+{}_1f_0) \times (1+{}_1f_1) \times (1+{}_1f_2)}$$

$$99500 = \frac{11000}{(1.0989)} + \frac{11000}{(1.0989) \times (1.1242)} + \frac{11000 + 100000}{(1.0989) \times (1.1242) \times (1+{}_1f_2)}$$

$${}_1f_2 = 11.5\%$$

Step 4: **One year forward rate three years from now (${}_1f_3$):**

Current Price =

$$\frac{C_1}{(1+{}_1f_1)} + \frac{C_2}{(1+{}_1f_0) \times (1+{}_1f_1)} + \frac{C_3}{(1+{}_1f_0) \times (1+{}_1f_1) \times (1+{}_1f_2)} + \frac{C_4 + M}{(1+{}_1f_0) \times (1+{}_1f_1) \times (1+{}_1f_2) \times (1+{}_1f_3)}$$

$$99900 = \frac{11500}{(1.0989)} + \frac{11500}{(1.0989) \times (1.1242)} + \frac{11500}{(1.0989) \times (1.1242) \times (1.1150)}$$

$$+ \frac{11500 + 100000}{(1.0989) \times (1.1242) \times (1.1242) \times (1+{}_1f_3)}$$

$${}_1f_3 = 12.77\%$$

Question 5(b)

The following market data is available :

Spot USD/JPY 116.00

Deposit rates p.a.

3 months

6 months

USD

4.50%

5.00%

JYP

0.25%

0.25%

Forward Rate Agreement (FRA) for YEN is NIL.

1. What should be 3 months FRA rate at 3 months forward?
2. The 6 & 12 months LIBORS are 5% & 6.5% respectively. A bank is quoting 6/12 USD FRA at 6.50 – 6.75%. Is any arbitrage opportunity available ?
Calculate profit in such cases.

Answer 5(b)

(1) 3 months forward rate 3 months from now (${}_3f_3$)

$$\begin{aligned} {}_3f_3 &= (1 + 6\text{months spot rate}) / (1 + 3\text{ months spot rate}) - 1 \\ &= 1.025 / 1.01125 - 1 \\ &= 1.0136 - 1 \\ &= 0.0136 \text{ per quarter} \\ &= 5.44\% \text{ p.a.} \end{aligned}$$

(2) 6 months forward rate 6months from now (${}_6f_6$)

$$\begin{aligned} {}_6f_6 &= (1 + 12\text{ months spot rate}) / (1 + 6\text{ months spot rate}) - 1 \\ &= 1.065 / 1.025 - 1 \\ &= 1.0390 - 1 \end{aligned}$$

= 0.0390 per half year
= 7.80% p.a.

Ideal 6/12 FRA rate is 7.8% p.a. While the actual 6/12 FRA is 6.5% (Lending) -6.75% (Borrowing) p.a.

To make arbitrage profit one can borrow money at the actual rate of 6.75% and lend that money at the Ideal rate of 7.8% p.a. With a base amount of Rs.1,00,000 it can be executed as follows:

Now:

Contract 1: Borrow Rs.1,00,000 @5%p.a. for six months

Contract 2: Invest the above amount @6.5% p.a. for one year

Contract 3: 6/12 FRA (borrowing) for Rs.102500 @6.75% p.a.

6 Months Later:

Repay borrowing under contract (1) Rs. 102500

Borrow Rs.102500 by Execution of contract (3).

1 Year Later:

Receive Rs.106500 as maturity amount under contract 2.

Repay borrowing under contract (3) with interest: Rs.105959 (102500 x 1+ (.0675/2))

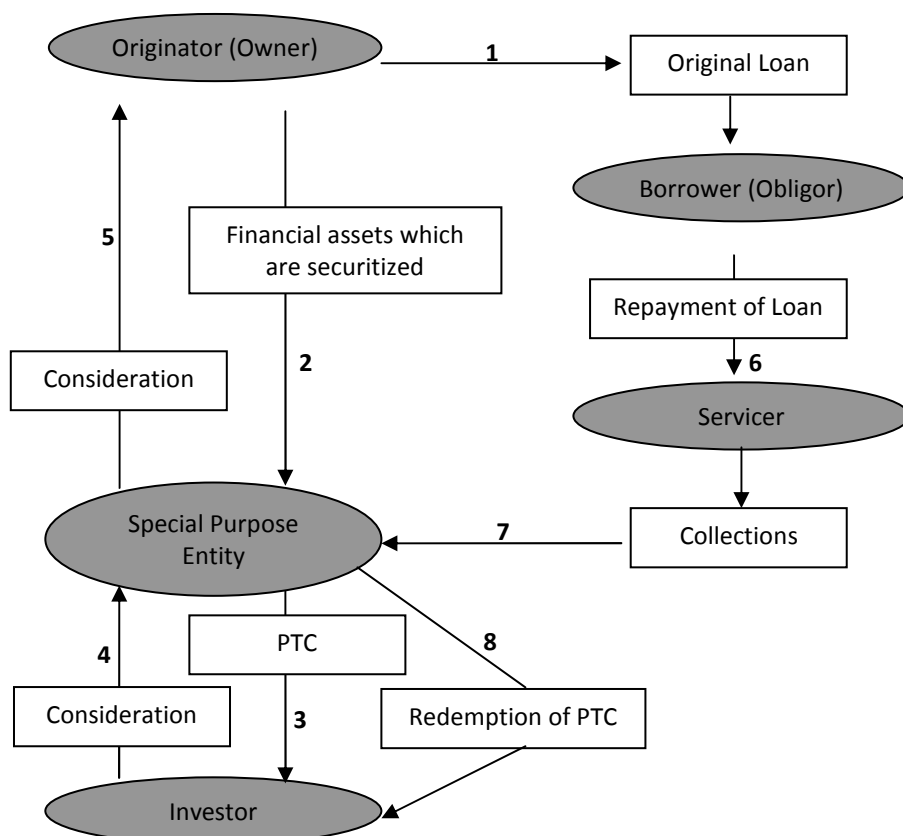
Net profit Rs. 106500 – 105959 = Rs.541.

Question 5(c)

Write a short note on Debt Securitisation.

Answer 5(c)

Debt Securitization (also known as asset securitization) is the process by which financial assets such as loan receivables, mortgage backed receivables, credit card balances, Hire-purchase debtors, lease receivables, trade debtors, etc. are transformed into securities.



It is a method of recycling of funds. It is especially beneficial to financial intermediaries to support the lending volumes. The basic debt securitization process can be classified in the following three functions:

1. **The origination function:** Whenever a bank, financial institution, leasing company, Hire Purchase Company, credit card company, housing finance company etc. lends money (whether directly or indirectly) to a borrower, there comes into existence an asset in the books of bank. This creation of financial asset is called the origination function.
2. **The pooling function:** Similar loans or receivables are clubbed together to create an underlying pool of assets. This pool is transferred in favor of a SPV (Special Purpose Vehicle), which acts as a trustee for the investor. This pooling of assets in SPV's portfolio is called the pooling function.
3. **The securitization function:** Once the assets are transferred, SPV issue its securities (Called Pass through certificates) to the investor. This issue of securities is called the securitization function.