

1

BOND VALUATION

PROBLEM: 1**(July 2021 Exam – 5 Marks)**

An investor has recently purchased substantial number of 7 year 6.75% ₹ 1,000 bond with 5% premium payable on maturity at a required Yield to Maturity (YTM) of 9%. However, due to a financial crunch he is looking to sell these bonds and has got a proposal from another investor, who is willing to purchase these bonds by shelling out a maximum amount of ₹ 897 per bond. Investors follow intrinsic value method for valuation of bonds.

- (i) You are required to determine
- (1) The Market Price, Duration and Volatility of the bond and
 - (2) Required YTM of the new investor
- (ii) What is relationship between the price of the bond and YTM?

Period (t)	1	2	3	4	5	6	7
PVIF (9%, t)	0.917	0.842	0.772	0.708	0.650	0.596	0.547

PROBLEM: 2 (Nov 2018 Sugg. Ans)

The following is the data related to 9% Fully convertible (into Equity Shares) debentures issued by Delta Ltd. at ₹ 1000.

Market Price of 9% Debenture ₹	1,000
Conversion Ratio (No. of shares)	25
Straight Value of 9% Debentures ₹	800
Market price of equity share on the date of conversion ₹	30
Expected Dividend per share ₹	1

Calculate:

- (a) Conversion value of Debenture
- (b) Market Conversion Price; (Conversion Parity Price)
- (c) Conversion Premium per share;
- (d) Ratio of Conversion Premium;
- (e) Premium over straight Value of Debenture;
- (f) Favorable Income Differential per share; and
- (g) Premium payback period

PROBLEM: 3

M/s Transindia Ltd. is contemplating calling Rs 3 crores of 30 years, ₹ 1,000 bond issued 5 years ago with a coupon interest rate of 14 per cent. The bonds have a call price of Rs 1,140 and had initially collected proceeds of ₹ 2.91 crores due to a discount of Rs 30 per bond. The initial floating cost was Rs 3,60,000. The Company intends to sell ₹ 3 crores of 12 per cent coupon rate, 25 years bonds to raise funds for retiring the old bonds. It proposes to sell the new bonds at their par value of Rs 1,000. The estimated floatation cost is Rs 4,00,000. The company is paying 40% tax and its after tax cost of debt is 8 per cent. As the new bonds must first be sold and their proceeds, then used to retire old bonds, the company expects a two months period of overlapping interest during which interest must be paid on both the old and new bonds. What is the feasibility of refunding bonds?

PROBLEM: 4 (Nov 2018 Sugg. Ans)

The following data are available for three bonds A, B and C. These bonds are used by a bond portfolio manager to fund an outflow scheduled in 6 years. Current yield is 9%. All bonds have face value of ₹100 each and will be redeemed at par. Interest is payable annually.

Bond	Maturity (Years)	Coupon rate
A	10	10%
B	8	11%
C	5	9%

- Calculate the duration of each bond.
- The bond portfolio manager has been asked to keep 45% of the portfolio money in Bond A. Calculate the percentage amount to be invested in bonds B and C that need to be purchased to immunise the portfolio.
- After the portfolio has been formulated, an interest rate change occurs, increasing the yield to 11%. The new duration of these bonds are: Bond A = 7.15 Years, Bond B = 6.03 Years and Bond C = 4.27 years.
Is the portfolio still immunized? Why or why not?
- Determine the new percentage of B and C bonds that are needed to immunize the portfolio. Bond A remaining at 45% of the portfolio.

Present values be used as follows :

Present Values	t ₁	t ₂	t ₃	t ₄	t ₅
PVIF _{0.09,t}	0.917	0.842	0.772	0.708	0.650
Present Values	t ₆	t ₇	t ₈	t ₉	t ₁₀
PVIF _{0.09,t}	0.596	0.547	0.502	0.460	0.4224

PROBLEM: :- 5 (Nov 2018 Sugg. Ans)

Below is a list of the prices of zero coupon bonds of various maturities issued by a company:

Maturity [Years(s)]	Price of Rs.1000 face value bond
1	943.40
2	873.52
3	816.37

Find the forward rates. Suppose an 8.50% Rs.1000 face value 3-year maturity bond of a similar company is available in the market, what should be its appropriate price?

2

VALUATION OF SHARES

PROBLEM:- 1 (NOV 2020 - 8 Marks)

An investor is considering to purchase the equity shares of LX Ltd., whose current market price (CMP) is ₹ 112. The company is proposing a dividend of ₹ 4 for the next year. LX Ltd. is expected to grow @ 20 per cent per annum for the next four years. The growth will decline line any to 16 per cent per annum after Inst four years. Thereafter, it will stabilise at 16 per cent per annum infinitely. The investor requires a return of 20 per cent per annum.

You are required

- To calculate the intrinsic value of the share of LX Ltd
- Whether it is worth to purchase the share at this price.

Period	1	2	3	4	5	6	7
PVIF(20%,n)	0.833	0.694	0.579	0.482	0.402	0.335	0.279

PROBLEM:- 2

NM Ltd. (NML) is aspiring to enter the capital market in a three years' time. The Board wants to attain the target price of ₹ 70 for its shares at the end of three years. The present value of its shares is ₹ 52.03. The dividend is expected to grow at a rate of 15% for the next three years. NML uses dividend growth model for its projections.

The required rate of return is 15%.

You are required to calculate the amount of dividend to be declared by the board in the base year so as to achieve the target price.

Period (t)	1	2	3
PVIF (15%, t)	0.8696	0.7561	0.6575

PROBLEM:- 3

Aggressive Ltd., is proposing to fund its expansion plan of ₹ 12 crore by making a rights issue. The current market price (CMP) is ₹ 40. The Board is willing to offer a discount of 20% on the CMP for the rights issue. The Board is also desirous that the fall in Ex-right price of the shares be restricted to 10% of CMP.

You are required to calculate:

- The number of new equity shares to be offered for each rights held,
- Theoretical value of right and
- The total number of equity shares to be issued.

PROBLEM:- 4 (MAY, 2019 Sugg. Ans)

Following financial information's are available of XP Ltd. for the year 2018:

Equity Share Capital (₹10 each)	₹200 Lakh
Reserves and Surplus	₹600 Lakh
10% Debentures (₹100 each)	₹350 Lakh

Total Assets	₹1200 Lakh
Assets Turnover Ratio	2 times
Tax Rate	30%
Operating Margin	10%
Dividend Payout Ratio	20%
Current Market Price per Equity Share	₹28
Required Rate of Return of Investors	18%

You are required to:

- (i) Prepare Income Statement for the year 2018.
- (ii) Determine its Sustainable Growth Rate.
- (iii) Determine the fair price of the company's share using Dividend Discount Model.
- (iv) Give your opinion on investment in the company's share at current price.

PROBLEM:- 5 (MAY, 2018 RTP)

SAM Ltd. has just paid a dividend of ₹ 2 per share and it is expected to grow @ 6% p.a. After paying dividend, the Board declared to take up a project by retaining the next three annual dividends. It is expected that this project is of same risk as the existing projects. The results of this project will start coming from the 4th year onward from now. The dividends will then be ₹ 2.50 per share and will grow @ 7% p.a.

An investor has 1,000 shares in SAM Ltd. and wants a receipt of at least ₹ 2,000 p.a. from this investment.

Required:

- (i) EVALUATE whether the market value of the share is affected by the decision of the Board.
- (ii) RECOMMEND how the investor can maintain his target receipt from the investment for first 3 years and improved income thereafter, given that the cost of capital of the firm is 8%.

PROBLEM:- 6 (MAY, 2021 RTP)

ABC Limited, just declared a dividend of ₹ 28.00 per share. Mr. A is planning to purchase the share of ABC Limited, anticipating increase in growth rate from 8% to 9%, which will continue for three years. He also expects the market price of this share to be ₹ 720.00 after three years.

You are required to determine:

- (i) the maximum amount Mr. A should pay for shares, if he requires a rate of return of 13% per annum.
- (ii) the maximum price Mr. A will be willing to pay for share, if he is of the opinion that the 9% growth can be maintained indefinitely and require 13% rate of return per annum.
- (iii) the price of share at the end of three years, if 9% growth rate is achieved and assuming other conditions remaining same as in (ii) above.

Note : Calculate rupee amount up to two decimal points and use PVF upto 3 decimal points.

3

PORTFOLIO MANAGEMENT

PROBLEM:- 1 (July 2021 Exam – 10 Marks)

Mr. X is having 1 lakh shares of M/s. Kanyaka Ltd. The beta of the company is 1.40. Mr. Y a financial advisor has suggested having the following portfolio:

Security	Beta	% holding
S	1.20	10
K	0.75	10
P	0.40	30
D	1.40	50
		100

Market Return is 12%

Risk free rate is 8%

You are required to calculate the following for the present investment and suggested portfolio:

- (i) What is the expected return based on CAPM and also
 - (a) If the market goes up by 2.5%.
 - (b) If the market goes down by 2.5%
 - (c) If the market gives Negative Returns of 2.5%
- (ii) If the probability of market giving negative return is more, please advise Mr. X whether to continue the holdings of M/s. Kanyaka Ltd. or to buy the portfolio as per the suggestion of Mr. Y. If so why?

PROBLEM:- 2 (May. 2021 – RTP)

The following information pertains to Golden Ltd:

Profit before tax	₹ 75 crore
Tax rate	30%
Equity capitalization rate	15%
Return on investment (ROI)	18%
Retention ratio	80%
Number of shares outstanding	75,00,000

The market price of the share of the company in the bull market was somewhere around ₹ 2100 per share. Advice, whether the share of the Golden Ltd. should be purchased or not. Further, also suggest the form of Market prevalent as per EMH Theory.

Note: Use Gordon's Growth Model.

PROBLEM:- 3 (May 2021 RTP)

K Ltd. has invested in a portfolio of short-term equity investments. You are required to calculate the risk of K Ltd.'s short-term investment portfolio relative to that of the market from the information given below:

Investment	A	B	C	D
No. of shares	1,20,000	1,60,000	2,00,000	2,50,000
Market price per share (₹)	8.58	5.84	4.34	6.28
Beta	2.32	4.56	1.80	3.00
Expected Dividend Yield	9.50%	14.00%	7.50%	16.00%

The current market return is 20% and the risk free return is 10%.

Advise whether K Ltd. should change the composition of its portfolio. If yes, then how.

Note: Make calculations upto 4 decimal points.

PROBLEM:- 4 (May 2019 Sugg. Ans)

Ms. Preeti, a school teacher, after retirement has built up a portfolio of ₹ 1,20,000 which is as follow:

Stock	No. of shares	Market price per share (₹)	Beta
ABC Ltd.	1000	50	0.9
DEF Ltd.	500	20	1.0
GHI Ltd.	800	25	1.5
JKL Ltd.	200	200	1.2

Her portfolio consultant Sri Vijay has advised her to bring down the, beta to 0.8. You are required to compute:

- Present portfolio beta
- How much risk free investment should be bought in, to reduce the beta to 0.8 ?

PROBLEM :- 5 (May 2019 Sugg. Ans)

As an investment manager, you are given the following information:

Particulars	Initial price (₹)	Dividend (₹)	Market price of the dividends (₹)	Beta (Risk factor)
A. Equity Shares:				
Manufacturing Ltd.	30	2	55	0.8
Pharma Ltd.	40	2	65	0.7
Auto Ltd.	50	2	140	0.5
B. Government of India Bonds	1005	140	1010	0.99

By assuming risk free return as 16%, Calculate:

- Expected rate of return on the portfolio (aggregate) of investor;
- Expected rate of return of portfolio in each above stated share/ bond using Capital Asset Pricing Model (CAPM); and
- Average Rate of Return.

PROBLEM :- 6 (May 2017 Sugg. Ans)

The following information are available with respect of Krishna Ltd.

Year	Krishna Ltd. Average share price	Dividend per Share	Average Market Index	Dividend Yield	Return on Govt. bonds
2012	245	20	2013	4%	7%
2013	253	22	2130	5%	6%
2014	310	25	2350	6%	6%
2015	330	30	2580	7%	6%

Compute Beta Value of the Krishna Ltd. at the end of 2015 and state your observation.

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PROBLEM :- 7 APTM - June 2009 Exam (New) (8 Marks)

Mr. X owns a portfolio with the followings characteristics:

	Security A	Security B	Risk Free security
Factor 1 sensitivity	0.80	1.50	0
Factor 2 sensitivity	0.60	1.20	0
Expected Return	15%	20%	10%

It is assumed that security returns are generated by a two factor model.

- If Mr. X has Rs.1,00,000 to invest and sells short Rs.50,000 of security B and purchases Rs.1,50,000 of security A what is the sensitivity of Mr. X's portfolio to the two factors?
- If Mr. X borrows Rs.1,00,000 at the risk free rate and invests the amount he borrows along with the original amount of Rs.1,00,000 in security A and B in the same proportion as described in part (i), what is the sensitivity of the portfolio to the two factors?
- What is the expected return premium of factor 2?

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PROBLEM :- 1 (July 2021 Exam - 5 Marks)

The Asset Management Company of the mutual fund (MF) has declared a dividend of 9.98% on the units under the dividend reinvestment plan for the year ended 31st March, 2021. The investors are issued additional units for the dividend at the rate of closing Net Asset Value (NAV) for the year as per the conditions of the scheme.

The closing NAV was ₹ 24.95 as on 31st March, 2021. An investor Mr. X who is having 20,800 units at the year-end has made an investment in the units before the declaration of the dividend and at the rate of opening NAV plus an entry load of ₹ 0.04. The NAV has appreciated by 25% during the year.

Assume the face value of the unit as ₹ 10.00.

You are required to calculate:

- (i) Opening NAV,
- (ii) Number of the units purchased,
- (iii) Original amount of the investment.

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PROBLEM :-2 (July 2021 Exam - 4 Marks)

M/s. Strong an AMC has floated a dividend bonus plan on 1st April, 2016 at a certain net asset value (NAV). The fund has a robust growth and has declared a bonus of 1:5 (1 bonus unit for 5 right units held) on 30th September, 2017 and a second bonus of 1:4 (1 bonus unit for 4 right units held) on 30th September 2019. The fund, as on 31st March 2021, has generated an average yield of 17.5%.

Mr. Optimistic has made an investment of ₹ 16 lakhs in the plan before the declaration of the first bonus and remain invested thereafter.

The following information is also available :

Date	01.04.2016	30.09.2017	30.09.2019	31.03.2021
NAV (₹)	?	85	92	100

You are required to advise to Mr. Optimistic the opening NAV, which is required by him to calculate the capital appreciation.

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PROBLEM :-1 (Nov. 2020 – RTP)

Mr. SG sold five 4-Month Nifty Futures on 1st February 2020 for ₹ 9,00,000. At the time of closing of trading on the last Thursday of May 2020 (expiry), Index turned out to be 2100. The contract multiplier is 75.

Based on the above information calculate:

- (i) The price of one Future Contract on 1st February 2020.
- (ii) Approximate Nifty Sensex on 1st February 2020 if the Price of Future Contract on same date was theoretically correct. On the same day Risk Free Rate of Interest and Dividend Yield on Index was 9% and 6% p.a. respectively.
- (iii) The maximum Contango/ Backwardation.
- (iv) The pay-off of the transaction.

Note: Carry out calculation on month basis.

**PROBLEM :-2 (Nov. 2019 – Exam - 8 Marks)**

The NSE-50 Index futures are traded with rupee value being ₹ 100 per index point. On 15th September, the index closed at 1195, and December futures (last trading day December 15) were trading at 1225. The historical dividend yield on the index has been 3% per annum and the borrowing rate was 9.5% per annum.

- (i) Determine whether on September 15, the December futures were underpriced or overpriced?
- (ii) What arbitrage transaction is possible to gain out this mispricing?
- (iii) Calculate the gains and losses if the index on 15th December closes at (a) 1260 (b) 1175.

Assume 365 days in a year for your calculations.



6

DERIVATIVES OPTIONS

PROBLEM :-1 (2008 Exam) (6 Marks + April 2022 MTP – 6 Marks)

Mr. X established the following spread on the Delta Corporation's stock:

- (i) Purchased one 3-month call option with a premium of Rs.30 and an exercise price of Rs.550.
- (ii) Purchased one 3-month put option with a premium of Rs.5 and an exercise price of Rs.450.

Delta Corporation's stock is currently selling at Rs.500. Determine profit or loss, if price of Delta Corporation's:

- (i) Remains at Rs.500 after 3 months.
- (ii) Falls at Rs.350 after 3 months.
- (iii) Rises to Rs.600.

Assume the size option is 100 shares of Delta Corporation

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PROBLEM :-2 (May, 2011 - 5 Marks)(Oct. 2018 – MTP - 6 Marks + Sept. 2022 – MTP – 4 Marks)

The current market price of an equity share of Penchant Ltd is Rs420. Within a period of 3 months, the maximum and minimum price of it is expected to be Rs. 500 and Rs. 400 respectively. If the risk free rate of interest be 8% p.a., what should be the value of a 3 months Call option under the "Risk Neutral" method at the strike rate of Rs.450 ? Given $e^{0.02} = 1.0202$

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PROBLEM :-3 (Final –June, 2009 - 8 Marks)

Consider a two year American call option with a strike price of Rs.50 on a stock the current price of which is also Rs.50. Assume that there are two periods of one year and in each year the stock price can be move up or down by equal percentage of 20%. The risk free interest rate is 6%. Using binomial option model, calculate the probability of price moving up and down. Also draw a two step binomial tree showing prices and payoffs at each node.

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PROBLEM :-4 Suggested - Nov. 2006 (8 Marks)

From the following data for certain stock, find the value of a call option :

Price of stock now = Rs. 80

Exercise price = Rs. 75

Standard deviation of continuously compounded annual return = 0.40

Maturity period = 6 months

Annual interest rate = 12%

Number of S.D. from Mean (z) Area of the left or right (one tail)

0.25 0.4013

0.30 0.3821

0.55 0.2912

0.60 0.2578

$e^{0.12 \times 0.05} = 1.0060$

$\ln 1.0667 = 0.0645$

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OVER THE COUNTER DERIVATIVES

PROBLEM :- 1 (May, 2011 - 8 Marks)

A Inc. and B Inc. intend to borrow \$200,000 and \$200,000 in ¥ respectively for a time horizon of one year. The prevalent interest rates are as follows:

Company	¥ Loan	\$ Loan
A Inc	5%	9%
B Inc	8%	10%

The prevalent exchange rate is \$1 = ¥120.

They entered in a currency swap under which it is agreed that B Inc will pay A Inc @ 1% over the ¥ Loan interest rate which the later will have to pay as a result of the agreed currency swap whereas A Inc will reimburse interest to B Inc only to the extent of 9%. Keeping the exchange rate invariant, quantify the opportunity gain or loss component of the ultimate outcome, resulting from the designed currency swap.

PROBLEM :- 2 (Source – RTP)

Companies AS and XY face the following interest rates:

	AS	XY
U.S. dollars (floating rate)	LIBOR + 0.5%	LIBOR + 1.0%
Canadian (fixed rate)	5%	6.5%

Assume that AS wants to borrow U.S. dollars at a floating rate of interest and XY wants to borrow Canadian dollars at a fixed rate of interest. A financial institution is planning to arrange a swap and requires a 50 basis point spread. If the swap is equally attractive to AS and XY what rates of interest will AS and XY end up paying?

PROBLEM :- 3

A Ltd is to borrow Euro 1 million for a period of 3 months after 24 months from today. It enters into a 24 x 27 FRA with agreed interest of 5 %. After 24 months, the 3 months interest is 5.5%. Explain the cash flow on account of FRA.

- What will be the amount borrowed by the company for a period of three months after 24 months from today?
- What amount will be paid by the company 27 months from today ?

PROBLEM :- 4 (Oct. 2021 MTP - 6 Marks)

CMT Pension Fund has a portfolio of shares of diversified companies valued at ` 800 crore enters into a swap arrangement with Boom Bank on the terms that it will get 1.15% quarterly on notional principal of ` 800 crore in exchange of return on portfolio which is exactly tracking the Sensex which is presently 43,200.

You are required to determine the net payment to be received/ paid if Sensex turns out to be 43,720, 43,560, 44,160 and 43,920 at the end of each quarter.

PROBLEM :- 5 (Nov. 2021 – RTP – New Course)

Derivative Bank entered into a swap arrangement on a principal of ` 10 crores and agreed to receive MIBOR overnight floating rate for a fixed payment on the principal. The swap was entered into on Monday, 19th August, 2019 and was to commence on 20th August, 2019 and run for a period of 7 days.

Respective MIBOR rates for Tuesday to Monday were: 8.15%, 7.98%, 7.95%, 8.12%, 8.15%, 7.75%.

If Fixed Rate of Interest is 8%, then evaluate

- (i) the nature of this Swap arrangement.
- (ii) the Net Settlement amount.

Notes:

- (1) Sunday is Holiday.
- (2) Work in rounded rupees and avoid decimal working.
- (3) Consider 365 days in a year.

8

BUSINESS AND CORPORATE VALUATION

PROBLEM :- 1 June, 2009 (10 Marks)(Same Question Nov, 2012) (Nov. 2018 RTP + May 2019 Exam + July 2021 Exam – 8 Marks-, Sept. 2022 – MTP – 8 Marks)

X Ltd. reported a profit of Rs.65 lakhs after 35% tax for the financial year 2007-08. An analysis of the accounts revealed that the income included extraordinary items Rs.10 lakhs and an extraordinary loss Rs.3 lakhs. The existing operations, except for the extraordinary items, are expected to continue in the future; in addition, the results of the launch of a new product are expected to be as follows:

	Rs. in lakhs
Sales	60
Material costs	15
Labour Costs	10
Fixed costs	8

You are required to :

- Compute the value of the business, given that the capitalization rate is 15%.
- Determine the market price per equity share, with X Ltd.'s share capital being comprised of 1,00,000 11% preference shares of Rs. 100 each and 40,00,000 equity shares of Rs. 10 each and the P/E ratio being 8 times.



PROBLEM :- 2 (May 2018 Exam. + Similar Q. in Nov. 2019 RTP)

A valuation done of an established company by a well-known analyst has estimated a value of Rs.500 lakhs, based on the expected free cash flow for next year of Rs.20 lakhs and an expected growth rate of 5%. While going through the valuation procedure, you found that the analyst has made the mistake of using the book values of debt and equity in his calculation.

While you do not know the book value weights he used, you have been provided with the following information:

- Company has a cost of equity of 12%,
- After tax cost of debt is 6%,
- The market value of equity is three times the book value of equity, while the market value of debt is equal to the book value of debt.

You are required to estimate the correct value of the company.



**PROBLEM :- 3 (May, 2010 -10 Marks)(RTP May, 2012)(Nov 2022 RTP)
(May 2022 Exam – 8 Marks)**

Following information's are available in respect of XYZ Ltd. which is expected to grow at a higher rate for 4 years after which growth rate will stabilize at a lower level:

Base year information:

Revenue	Rs.2,000crores
EBIT	Rs.300 crores
Capital expenditure	Rs.280 crores
Depreciation	Rs.200 crores

Information for high growth and stable growth period are as follows:

	High Growth	Stable Growth
Growth in Revenue & EBIT	20%	10%
Growth in capital expenditure and depreciation	20%	Capital expenditure are offset by depreciation
Risk free rate		9%
Equity beta	10%	1
Market risk premium	1.15	5%
Pre tax cost of debt	6%	12.86%
Debt equity ratio	13%	2 : 3
	1 : 1	

For all time, working capital is 25% of revenue and corporate tax rate is 30%.

What is the value of the firm?

PROBLEM :- 4 (May 2018 RTP)

Using the chop-shop approach (or Break-up value approach), assign a value for Cranberry Ltd. whose stock is currently trading at a total market price of €4 million. For Cranberry Ltd, the accounting data set forth three business segments: consumer wholesale, retail and general centers. Data for the firm's three segments are as follows:

Business Segment	Segment Sales	Segment Assets	Segment Operating Income
Wholesale	€225,000	€600,000	€75,000
Retail	€720,000	€500,000	€150,000
General	€ 2,500,000	€4,000,000	€700,000

Industry data for "pure-play" firms have been compiled and are summarized as follows:

Business Segment	Sales/ Capitalization	Assets/Capitalization	Operating Income/ Capitalization
Wholesale	1.18	1.43	0.11
Retail	0.83	1.43	0.125
General	1.25	1.43	0.25

PROBLEM :- 5 (May 2020 RTP + Similar Nov. 2021 – MTP – 10 Marks)

ABC Co. is considering a new sales strategy that will be valid for the next 4 years. They want to know the value of the new strategy. Following information relating to the year which has just ended, is available:

Income Statement	
Sales	20,000
Gross margin (20%)	4,000
Administration, Selling & distribution expense (10%)	2,000
PBT	2,000
Tax (30%)	600

PAT	1,400
Balance Sheet Information	
Fixed Assets	8,000
Current Assets	4,000
Equity	12,000

If it adopts the new strategy, sales will grow at the rate of 20% per year for three years. The gross margin ratio, Assets turnover ratio, the Capital structure and the income tax rate will remain unchanged.

Depreciation would be at 10% of net fixed assets at the beginning of the year.

The Company's target rate of return is 15%.

Determine the incremental value due to adoption of the strategy.



PROBLEM :- 1

Intel Ltd., promoted by a Trans National Company, is listed on the stock exchange holding 80%.

The value of the floating stock is ` 45 crores. The Market Price per Share (MPS) is ` 150.

The capitalisation rate is 20%.

The promoters holding is to be restricted to 75% as per the norms of listing requirement. The Board of Directors have decided to fall in line to restrict the Promoters' holding to 75% by issuing Bonus Shares to minority shareholders while maintaining the same Price Earnings Ratio (P/E).

You are required to calculate:

- (i) Bonus Ratio;
- (ii) MPS after issue of Bonus Shares; and

Free float Market capitalisation after issue of Bonus Shares.

PROBLEM :- 2 (July 2021 Exam – 5 Marks)

SM Limited has a market capitalization of ` 3,000 crore and the current earnings per share (EPS) is ` 200 with a price earnings ratio (PER) of 15. The Board of directors is considering a proposal to buy back 20% of the shares at a premium which can be supported by the financials of the company. The Board expects post buy back market price per share (MPS) of ` 3057. Post buy back PER will remain same. The company proposes to fund the buy back by availing 8% bank loan since available resources are committed for expansion plans.

Applicable income tax rate is 30%.

You are required to calculate :

- (i) The interest amount which can be paid for availing the bank loan,
- (ii) The loan amount to be raised and
- (iii) The premium per share and percentage premium paid. over the current MPS.

PROBLEM :- 3 (June, 2009 Exam)(20 Marks)

The following information relating to the relating to the acquiring Company Abhiman Ltd. and the target Company Abhishek Ltd. are available. Both the Companies are promoted by Multinational Company, Trident Ltd. The promoter`s holding is 50% and 60% respectively in Abhiman Ltd. and Abhishek Ltd.:

	Abhimam Ltd.	Abhishek Ltd.
Share Capital (Rs.)	200 lakh	100 lakh
Free Reserve and Surplus (Rs.)	800 lakh	500 lakh
Paid up Value per share (Rs.)	100	10
Free float Market Capitalisation (Rs.)	400 lakh	128 lakh
P/E ratio (times)	10	4

Trident Ltd. is interested to do justice to the shareholders of both the Companies. For the swap ratio weights are assigned to different parameters by the Board of Directors as follows:

Book Value	25%
EPS (Earnings per share)	50%

Market Price 25%

- (a) What is the swap ratio based on above weights?
- (b) What is the Book Value, EPS and expected Market price of Abhiman Ltd. after acquisition of Abhishek Ltd. (assuming P.E. ratio of Abhiman Ltd. remains unchanged and all assets and liabilities of Abhishek Ltd. are taken over at book value).
- (c) Calculate:
- (i) Promoter's revised holding in the Abhiman Ltd.
 - (ii) Free float market capitalization.
 - (iii) Also calculate No. of Shares, Earning per Share (EPS) and Book Value (B.V.), if after acquisition of Abhishek Ltd., Abhiman Ltd. decided to:
 - (a) Issue Bonus shares in the ratio of 1 : 2; and
 - (b) Split the stock (share) as Rs.5 each fully paid.

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PROBLEM :- 4 (5 Marks – Nov. 2014 Exam. + May 2022 Exam – 8 Marks)

Elrond Limited plans to acquire Doom Limited. The relevant financial details of the two firms prior to the merger announcement are:

	Elrond Limited	Doom Limited
Market price per share	Rs. 50	Rs. 25
Number of outstanding shares	20 lakhs	10 Lakhs

The merger is expected to generate gains, which have a present value of Rs. 200 lakhs. The exchange ratio agreed to is 0.5.

What is the true cost of the merger from the point of view of Elrond Limited?

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10**FOREIGN EXCHANGE EXPOSURE AND RISK MANAGEMENT (FOREX)****PROBLEM :- 1 (July 2021 Exam 6 Marks + Oct. 2022 – MTP – 6 Marks)**

Mr. Mammen, an Indian investor invests in a listed bond in USA. If the price of the bond at the beginning of the year is USD 100 and it is USD 103 at the end of the year. The coupon rate is 3% payable annually.

Find the return on investment in terms of home country currency if:

- (i) USD is Flat.
- (ii) USD appreciates during the year by 3%.
- (iii) USD depreciates during the year by 3%.
- (iv) Indian Rupee appreciates during the year by 5%.
- (v) Will your answer differs if Mr. Mammen invests in the bond just before the interest payable.

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PROBLEM :- 2 (Nov. 2022 RTP)

On April 3, 2016, a Bank quotes the following:

Spot exchange Rate (US \$ 1) INR 66.2525 INR 67.5945

months` swap points	70	90
months` swap points	160	186

In a spot transaction, delivery is made after two days.

Assume spot date as April 5, 2016.

Assume 1 swap point = 0.0001,

You are required to:

- (i) ascertain swap points for 2 months and 15 days. (For June 20, 2016),
- (ii) determine foreign exchange rate for June 20, 2016, and
- (iii) compute the annual rate of premium/discount of US\$ on INR, on an average rate. International Financial Management

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PROBLEM :- 3 (July 2021 Exam)

On 1st October, 2020 Mr. Guru, an exporter, enters into a forward contract with the Bank to sell USD 1,00,000 on 31st December 2020 at INR/USD 75.40. However, at the request of the importer, Mr. Guru received the amount on 30th November, 2020. Mr. Guru requested the bank take delivery of the remittance on 30th November, 2020 i.e. before due date.

The inter-bank rate on 30th November 2020 was as follows:

Spot INR/USD 75.22-75.27 One Month Premium 10/15 Assume 365 days in a year.

- (i) If bank agrees to take early delivery then what will be net inflow to Mr. Guru assuming that the prevailing prime lending rate is 18% per annum.
- (ii) If Mr. Guru can deploy these funds in USD, he gets return at the rate of 3% per annum. Which is better ? Why ?

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PROBLEM :- 4 (Oct. 2021 – MTP - 10 Marks)

Z has to remit USD \$1,00,000 for her daughter's education on 4th April 2021. Accordingly, she has booked a forward contract with his bank on 4th January 2021 @ ₹ 73.8775. The Bank has covered its position in the market @ ₹ 73.7575.

The exchange rates for USD \$ in the interbank market on 4th, 7th and 14th April 2021 were:

	4th April ₹	7th April ₹	14th April ₹
Spot USD 1 =	73.2775/73.2975	73.1575/73.1975	73.1375/73.1775
Spot/March	73.3975/73.4275	73.2775/73.3275	73.2575/73.3075
April	73.5275/73.5675	73.4075/73.4650	73.3875/73.4475
May	73.7775/73.8250	73.6575/73.7275	73.6375/73.7050
June	74.0700/74.1325	73.9575/74.0675	73.9500/74.0525

Exchange margin of 0.10 percent and interest outlay of funds @ 12 percent are applicable. The remitter, due to rescheduling of the semester, has requested on 14th April 2021 for extension of contract with due date on 14th June 2021.

Calculate:

- (i) Cancellation Rate;
- (ii) Amount Payable on \$ 100,000;
- (iii) Swap loss;
- (iv) Interest on outlay of funds, if any;
- (v) New Contract Rate; and
- (vi) Total Cost

Note: Rates must be rounded to 4 decimal places in multiples of 0.0025 and assume 365 days in a year.

PROBLEM :- 5 (July 2021 Exam - 8 Marks)

XP Pharma Ltd., has acquired an export order for ₹ 10 Million for formulation to a European company. The Company has also planned to import bulk drugs worth ₹ 5 million from a company in UK. The proceeds of exports will be realized in 3 months, from now and the payments for imports will be due after 6 months from now. The invoicing of these exports and imports can be done in any currency i.e. Dollar, Euro or Pounds sterling at company's choice. The following market quotes are available.

	Spot Rate	Annualised Premium
Rs / \$	67.10/67.20	\$ - 7%
Rs / Euro	63.15/63.20	Euro - 6%
Rs/ Pound	88.65/88.75	Pound - 5%

Advise XP Pharma Ltd. about invoicing in which currency.

(Calculation should be upto three decimal places).

PROBLEM :- 6 (Nov. 2020 – RTP)

Suppose you are a treasurer of XYZ plc in the UK. XYZ have two overseas subsidiaries, one is based in Amsterdam and another in Switzerland. The surplus position of funds in hand is as follows which it does not need for the next three months but will be needed at the end of that period (91 days).

Holding Company	£ 150,000
Swiss Subsidiary	CHF 1,996,154
Dutch Subsidiary	€ 1,450,000

Exchange Rate as on date are as follows:

Spot Rate (€) £0.6858 - 0.6869

91 day Pts 0.0037 0.0040

Spot Rate (£) CHF 2.3295 - 2.3326

91 day Pts 0.0242 0.0228

91-Day Interest rates on p.a. basis on the Deposits in Money Market are as follows:

Amount of Currency	£	€	CHF
0 - 200,000	1.00	0.25	Nil
200,001 - 1,000,000	2.00	1.50	0.25
1,000,001 - 2,000,000	4.00	2.00	0.50
Over 2,000,000	5.38	3.00	1.00

You have been approached by your banker wherein the above-mentioned surplus was lying, requesting you to swap the surplus lying with other two subsidiaries and place them in deposit with them.

Determine the minimum interest rate per annum (upto 3 decimal points) that should be offered by the bank to your organization so that your organization is ready to undertake such swap arrangement.

Note: Consider 360 days a year.

PROBLEM :- 7 (Nov. 2019 – Exam)

A German subsidiary of an US based MNC has to mobilize 100000 Euro's working capital for the next 12 months. It has the following options:

Loan from German Bank : @ 5% p.a.

Loan from US Parent Bank : @ 4% p.a.

Loan from Swiss Bank : @ 3% p.a.

Banks in Germany charge an additional 0.25% p.a. towards loan servicing. Loans from outside Germany attract withholding tax of 8% on interest payments. If the interest rates given above are market determined, examine which loan is the most attractive using interest rate differential.

PROBLEM :- 8 (May 2021 RTP)

Doom Ltd. is an export business house. The company prepares invoice in customers' currency. Its debtors of US\$ 48,00,000 is due on April 1, 2020.

Market information as at January 1, 2020 is:

Exchange rates US\$/INR		Currency Futures US\$/INR	
Spot	0.014285	Contract size: ` 2,58,16,368	
1-month forward	0.014184	1-month	0.014178
3-months forward	0.013889	3-month	0.013881
		Initial Margin	
1-Month			Interest rates in India
	` 27,500		5.5%
3-Months	` 32,500		9%

On April 1, 2020 the spot rate US\$/INR is 0.013894 and currency future rate is 0.013893.
Recommend as to which of the following methods would be most advantageous to Doom Ltd.

- (i) Using forward contract
- (ii) Using currency futures
- (iii) Not hedging the currency risk

Note: Round off calculation upto zero decimal points.



10**ECONOMIC VALUE ADDED (EVA)****PROBLEM :- 1 (Nov. 2021 – RTP)**

STR Ltd.'s current financial year's income statement reported its net income after tax as ₹ 50 Crore. Following is the capital structure of STR Ltd. at the end of current financial year:

Debt (Coupon rate = 11%)	80 Crore
Equity (Share Capital + Reserves & Surplus)	250 Crore
Invested Capital	330 Crore

Following data is given to estimate cost of equity capital:

Asset Beta of TSR Ltd.	1.11
Risk free Rate of Return	8.5%
Average market risk premium	9%

The applicable corporate income tax rate is 30%.

Estimate Economic Value Added (EVA) of RST Ltd. in ₹ lakh.



11**MONEY MARKET INSTRUMENTS****PROBLEM :- 1 (July 2021 Exam – 5 Marks)**

The Bank BK enters into a Repo for 9 days with Bank NE in 6% Government bonds 2022 for an amount of ₹ 2 crore. The other relevant details are as follows:

First Leg Payment (Start Proceed)	2,00,06,750
Second Leg Payment (Repayment Proceed)	2,00,31,759
Initial Margin	1.25%
Days of accrued interest	240

Assume 360 days in a year.

You are required to calculate:

- (i) Repo Rate
- (ii) Dirty Price and
- (iii) Clean Price

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PROBLEM :- 2

PNB wants to borrow Rs.500 Crores via REPO using 10% GOI 2032 Security presently trading at Rs.103.10 as on 11th August 2017. The Coupon dates are 24th March and 24th September. Repo is for a period of 12 days and repo interest rate is 8%. Show the nature of transaction involved.

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About CA, CPA Vinod Kumar Agarwal

(AIR -2nd rank, 4th rank, and 24th rank in CA Foundation, CA Intermediate and CA Final respectively).

Summary:

Founder Member of A.S. Foundation, India's Leading Academy for C.A. Course, CA Vinod Kumar Agarwal is a fellow member of ICAI and a past member of the Board of Studies, ICAI. With a teaching experience of twenty one years, he has guided more than 1,00,000 students and is ranked as one of the best teachers for Accounts and Financial Management at Intermediate level and Financial Reporting and AFM at Final Level. He has authored books on Accounts, Advanced Auditing for CA Final, Auditing for Intermediate, Accounting Standards, Ind AS, Costing and Financial Management, and his books have sold more than 2,00,000 copies.

Education:

- Passed the **Certified Public Accountant (CPA) (USA)** exam in 2007.
- Passed the **Chartered Accountancy (CA)** exam - **AIR -2nd rank, 4th rank, and 24th rank in CA Foundation, CA Intermediate and CA Final respectively.**
- Post-graduation, Pune University with First Class.
- Graduation from B.M.C.C, Pune with distinction.
- Passed the Diploma in Business Finance Conducted by ICFAI, Hyderabad.
- Passed the Derivative Module test conducted by National Stock Exchange.
- **Also appeared for UPSC exam and cleared Mains twice.**

Teaching Experience:

- Teaches Accounts, Advanced Accountancy, Financial management and Economics for Finance at CA Intermediate Level and Financial Reporting and Advanced Financial Management (AFM) at CA Final level.
- Pioneer of creating and distributing video tutorials in pen drives/google drive among students.
- Produced All India Toppers (1st Rank) in CPT examination and final examination apart from more than 250 all India merit- holders.
- More than 30,000 Facebook subscribers, more than 1,35,000 YouTube subscribers.
- Sold more than 40,000 video lectures in pen-drive and google-drive mode.
- In 2019, launched a brand VKNOW, to become a national brand for digital learning.

Publications and Achievements:

- A **merit holder in all the three levels of exams conducted by ICAI** (2nd rank, 4th rank, and 24th rank in CA Foundation, CA Intermediate and CA Final respectively).
- **Scored 99 marks in Accountancy in CA Foundation.**
- Authored books on Accounts, Advanced Auditing for CA Final, Auditing for Intermediate, Accounting Standards, Ind AS, Costing and Financial Management.
- Compiled a book "No Truth, Only Interpretations", a book on motivation, inspiration and guidance.
- Compiled a book, "Mind Candy", a book on motivation.
- Compiled a book, "Sweet Voice", a book on inspirational quotes.
- **Working experience** with India's top firms Firms like **M/s. S.B. Billimoria and A.F. Ferguson (both member firm of Deloitte).**
- Published article in the Students Newsletter of ICAI on "Valuation of Equity Shares" and "Stock Market Index".
- Presented a paper on "Corporate Governance and Role of Auditor" in National Students Conference held in Goa.

Teaching Approach:

- Simple and effective way of teaching through concept building, class-room practice, home-exercise, and regular revision.
- A large variety of problems are solved in the class to meet the examination requirements.
- Notes are updated frequently covering amendments and exam problems.