

COMMENCING
NEW REGULAR
BATCH FOR
SFM (NEW
COURSE)
15TH APRIL
65 CLASSES
JANAKPURI
DELHI

LIST OF FAVOURITE SFM EXAMINATION QUESTIONS (With solutions)

This is the list of favourite questions which examiner use as filler. According to opinion of author these questions cover 16 – 40 marks.

This list is diff from list of important questions of each chap

Disclaimer - Purpose of this list is to assist students in their preparation and summarise past attempts. This list in no way substitute efforts required in each chapter. Paper by ICAI can go in any direction

Nov 17	– Q18 , Q19	– 16 marks
May 17	– Q21, Q24 , Q27	– 17 marks
Nov 16	– Q15 , Q18 , Q14	– 21 marks
May 16	– Q23, Q22, Q8, Q6, Q20	– 37 marks
Nov 15-	Q19, Q17, recommended Q2	- 26 marks
May 15	- Q15 , Q18 , Q24 , Q28, Q30	– 31 marks
Nov 14	– Q5, Q30 , Q26, Q8, Q27	– 32 marks
May 14	– Q5, Q21, Q29, Q22, Q25, Q4, recommended Q1	–50 marks
Nov 13	- Q19, Q28, Q17, Q24 , Q10	– 37 marks
M13	– Q5, Q13, Q15 , Q26	- 26 marks
Nov 12	– Q30 , Q14, Q12, Q9	– 32 marks

This list provides specific questions which gives specified coverage.

Besides these questions there are simple and repetitive questions of all chapters (specially merger, forex, valuation) which are given in “List of important questions of each chapter”

So Little extra endeavours will give rich dividends in SFM and student can get more than exemption.

WHEN SMART WORK COMPLIMENTS HARD WORK, RESULTS ARE EXTRAORDINARY

- Q1 The 6 month forward price of a security is Rs 208.18. The borrowing rate is 8% p.a payable with monthly rests. What should be the spot price? **N06,N11**
derivative Q64 pg 2.2
- Q2 Calculate the price of 3 months PQR futures, if PQR (FV Rs 10) quotes Rs 220 on NSE and the 3 months future price quotes at Rs 230 and the one month borrowing rate is given as 15% and the expected annual dividend yield is 25% p.a payable before expiry. Also examine the arbitrage opportunities **N08 (derivative Q74 pg 2.3)**

- Q3 A company is long on 10MT of copper @ Rs 474 per Kg (spot) and intends to remain so for the ensuing quarter. The standard deviation of changes of its spot and future prices are 4% and 6% respectively, having correlation coefficient of 0.75. What is its hedge ratio? What is the amount of the copper future it should short to achieve a perfect hedge?

May-12

derivative Q100 pg 2.10

- Q4 On Jan 28, 2005 an importer customer requested a Bank to remit Singapore \$(SGD) 25, 00,000 under an irrevocable L.C. However due to Bank strikes, the bank could affect the remittance only on Feb 4, 2005. The inter-Bank market rates were as follows

	28 Jan	4 Feb
Bombay US\$ 1	Rs 45.85/ 45.90	Rs 45.91/ 45.97
London £ 1	US\$ 1.7841/1.7850	US\$ 1.7765/1.7775
London £ 1	SGD 3.1575/3.1590	SGD 3.1380/3.1390

Bank wishes to retain an exchange margin of 0.125% on SGD. How much does the customer stand to gain or lose due to the delay? (calculate rates in multiples of .0001)

(May 05), N11, M14**(forex Q17 pg 3.4)**

- Q5 You sold HKD 1 Lac value spot to your customer at Rs 5.70 & covered yourself in London market on the same day, when the exchange rates were

US \$ 1 = HK \$ 7.5880 – 7.5920 **N05, N14, M13**

Local interbank market rates for US \$ were

Spot US \$ 1 = Rs 42.70 – 42.85

(forex Q149, pg 3.46)

Calculate cover rate & ascertain the profit or loss in the transaction. Ignore brokerage

- Q6 Spot Canadian \$ 0.665/DM Interest Rate (DM) = 7%
 3 months forward Canadian \$ 0.670/ DM Interest Rate (can\$) = 9%
 Explain arbitrage? **(Forex Q86 pg 3.22) May 16**

- Q7 XYZ Ltd. is considering merger with ABC Ltd. XYZ Ltd.'s shares are currently traded at Rs. 25. It has 2,00,000 shares outstanding and its earning after taxes (EAT) amount to Rs. 4,00,000. ABC Ltd. has 1,00,000 shares outstanding, its current market price is Rs. 12.50 and its EAT is Rs. 1,00,000. The merger will be effected by means of a stock swap (exchange). ABC Ltd. has agreed to a plan under which XYZ Ltd. will offer the current market value of ABC Ltd.'s shares.

- (i) What is the pre-merger Earnings Per Share (EPS) and P /E ratios of both the companies?
- (ii) If ABC Ltd.'s P /E ratio is 8, what is its current market price? What is the exchange ratio? What will XYZ Ltd.'s post merger EPS be ?
- (iii) What must the exchange ratio be for XYZ Ltd.'s pre-merger and post-merger EPS to be the same? **(M05) (merger Q7 pg 4.3)**

Q8 An investor is holding 1,000 shares of Fatless company. Presently the rate of dividend being paid by the company is Rs 2 per share and the share is being sold at Rs 25 per share in the market. However, several factors are likely to change during the course of the year as indicated below:

	Existing	Revised	
Risk free rate	12%	10%	(portfolio q75 pg 5.17)
Market risk premium	6%	4%	
β value	1.4	1.25	
Expected growth rate	5%	9%	May 16, Nov 14

In view of the above factors whether the investor should hold or sell the shares?

Q9 On the basis of following information-

Current dividend (D_0)	Rs 2.50
Discount rate	10.50%
Growth rate	2%

- Calculate the present value of stock of ABC Ltd. **N07, M02, N12**
- Is its stock overvalued if stock price is Rs 35, ROE 9% and EPS Rs 2.25? show detailed calculation **(div Q28 pg 6.7)**

Q10 A share of Tension-free Economy Ltd. is currently quoted at a price earning ratio of 7.5times. The retained earning per share being 37.5% is Rs. 3 per share. Compute:

- The company's cost of equity, if investors expect annual growth rate of 12%.
- If anticipated growth rate is 13% p.a., calculate the indicated market price, with same cost of capital.
- If the company's cost of capital is 18% and anticipated growth rate is 15% p.a.,

Calculate the market price per share, assuming other conditions remain the same

(div Q36 pg 6.9)

Q11 A company has a book value per share of Rs. 137.80. Its return on equity is 15% and it follows a policy of retaining 60% of its earnings. If the Opportunity Cost of capital is 18%, what is the price of share today? **M02, N11 (div Q11 pg 6.3)**

Q12 A company is presently working with an earnings before interest and taxes (EBIT) of Rs 45 lakhs. Its present borrowings are:

	(Rs Lakhs)
12% term loan	150
Working capital:	
Borrowing from bank at 15%	100
Public deposit at 11%	45

The sales of the company is growing and to support this the company proposes to obtain additional borrowing of Rs 50 lakhs expected to cost 16%. The increase in EBIT is expected to be 16%. Calculate the change in interest coverage ratio after additional borrowings and commitment **(Q8 misc pg 13.3) N17(Chennai), N12**

Q13 ABC Company is considering acquisition of XYZ LTD which has 1.5 crores shares outstanding and issued. The market price per share is Rs 400 at present. ABC's average cost of capital is 12%. Available information from XYZ indicates its expected cash accruals for the next 3 years as follows: year 1 – Rs 250 crores, Year 2 – Rs 300 crores, Year 3 – Rs 400 crores. Calculate the range of valuation that ABC has to consider

(val of bs q3 pg 12.2) M13,

Q14 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 extra-ordinary items Rs 10 lakhs and an extra-ordinary loss of Rs 3 lakhs. The existing operations, except for the extra-ordinary 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 lakhs
Sales	60
Material costs	15
Labour costs	10
Fixed costs	8

You are required to –

- Compute the value of the business, given 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 PE ratio being 8 times

M09, M16, N12 (val of bs Q2 pg 12.1)

Q15 A has invested in 3 mutual fund scheme as per details below:

	MF A	MF B	MF C
Date of investment	01.12.03	01.01.04	01.03.04
Amount of investment	Rs 50,000	Rs 1,00,000	Rs50,000
NAV at entry date	Rs 10.50	Rs 10	Rs 10
Dividend received upto 31.03.04	Rs 950	Rs1,500	nil
NAV as at 31.03.04	Rs 10.40	Rs 10.10	Rs 9.80

What is the effective yield on per annum basis in respect of each of the 3 schemes to

Mr A upto 31.03.04 **N04, N09, N16, M15, M13 (Mutual fund Q10 pg 9.3)**

Q16 Based on the credit rating of bonds, Mr Z has decided to apply the following discount rates for valuing bonds

Credit Rating	Discount Rate
AAA	364 day T-Bill+ 3% Spread
AA	AAA + 2% spread
A	AAA + 3% spread

He is considering to invest in AA rated, Rs 1,000 face value bond currently selling at Rs 1,025.86. The bond has five years to maturity and the coupon rate on the bond is 15% p.a. payable annually. The next interest payment is due one year from today and the bond is redeemable at par. (Assume 364 day T- bill rate to be 9%) You are required to calculate the intrinsic value of the bond for Mr Z. Should he invest in the bond? Also calculate the current yield and the YTM of the bond.

(Bond valuation Q31 pg 8.5)

Q17 Agrani Ltd. Is in the business of manufacturing bearings. Some more product lines are being planned to be added to the existing system. The machinery required may be bought or may be taken on lease. The cost of machine is Rs 40, 00,000 having a useful life of 5 years with the salvage value of Rs 8, 00,000. The full purchase value of machine can be financed by 20% loan repayable in 5 equal instalments due at the end of each year.

Alternatively, the machine can be procured on a 5 years lease, yearend lease rentals being Rs 12,00,000 p.a. The company follows the WDV method of Depreciation @ 25%. Company's tax rate is 35% and cost of capital is 16%:

- i. Advise the company which option it should choose- lease or borrow.
- ii. Assess the proposal from lessors point of view examining whether leasing the machine is financially viable @ 14% cost of capital

(Detailed working notes should be given. Calculations can be rounded off to Rs. Lakhs)

(Leasing Q5 pg 7.2)

Q18 XYZ is an export oriented business house in Mumbai. The company invoices in customers currency. Its receipt of US \$ 1,00,000 is due on September 1, 2009.

Market information as at June 1 2009 is:

Exchange rates	US \$/₹	Currency futures	US \$/₹
Spot	0.02140	June	0.02126
1 month forward	0.02136	September	0.02118
3 month forward	0.02127	Contract size	₹ 4, 72,000
	Initial margin	interest rates in India	
June	₹ 10,000	7.50%	
September	₹ 15,000	8.00%	

On September 1, 2009 the spot rate US \$/₹ is 0.02133 and currency future rate is 0.02134. Comment which method would be most advantageous for XYZ Ltd.

(a) Using forward contract

(b) Using currency futures **(Q147 forex pg 3.45)**

(c) Not hedging currency risks

It may be assumed that variation in margin would be settled on the maturity of the futures contract.
Nov 2006, May 15, Nov 16 ,Nov 17

Q19 Mr.X on 1.7.2000, during the initial offer of some Mutual Fund invested in 10,000 units having face value of Rs.10 for each unit. On 31.3.2001 the dividend operated by the M.F. was 10% and Mr.X found that his annualized yield was 153.33%. On 31.12.2002, 20% dividend was given. On 31.3.2003 Mr.X redeemed all his balance of 11,296.11 units when his annualized yield was 73.52%. What are the NAV's as on 31.3.2001, 31.12.2002 and 31.3.03? **Nov 17, Nov 15, Nov 13 (Mutual Funds Q2 pg 9.1)**

- Q20 ABC Co.is considering a new sales strategy that will be valid for next 4 years. They want to know the value of new strategy.
Following information relating to the year which has just ended is available-

Income statement

	Rs
Sales	20,000
Gross margin (20%)	4,000
Less administration, Selling and distribution expenses	(2,000)
Profit before tax	2,000
Less tax @ 30%	(600)
PAT	1,400

Balance sheet information

	Fixed Assets	8,000
(cap budg Q104, pg11.46)	Current Assets	4,000
	Equity	12,000

If it adopts the new strategy, sales will grow @ 20% per year for 3 years. The gross margin ratio, asset turnover ratio, the capital structure and the income tax rate will remain unchanged. Depreciation would be @ 10% of net fixed assets at the beginning of the year. The company's target rate of return is 15%.
Determine incremental value due to adoption of the strategy **M07, N11, M16**

- Q21 AXY Ltd is able to issue Commercial Paper of ₹ 50,00,000 every 4 months at a rate of 12.5% p.a. The cost of placement of Commercial Paper Issue is ₹ 2,500 per issue. AXY Ltd, is required to maintain line of credit ₹ 1,50,000 in bank balance. The applicable income tax rate for AXY Ltd, is 30%. What is the cost of funds (after taxes) to AXY Ltd, for Commercial Paper Issue? The maturity of Commercial Paper is four months.**May 14, May 17(Bond Valuation Q70, pg 8.14)**
- Q22 Based on the following information, determine the NAV .of regular income scheme on per unit basis:-
- | | Rs 'Crores |
|---|------------|
| Listed share 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 FV 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. M10, M16, M14 (Mutual fund Q, pg 9.1)**

(Q22 comes with slight variation sometimes. Either highlighted line in question is missing or annual operating expenses {which is to be ignored in solution} are given May 14)

- Q23 Calculate the value of share from the following information- **M09, May 16**
(Valuation of bs Q4, pg 12.2)

Profit of the company	Rs 290 crores
Equity capital of the company	Rs 1,300 crores
Par value of share	Rs 40 each
Debt ratio	27
Long run growth rate of company	8%
Beta of share	0.1
Risk free interest rate	8.70%
Market return	10.30%
Capital expenditure per share	Rs 47
Depreciation per share	Rs 39
Change in working capital	Rs 3.45 per share

- Q24 M/s Atlantic Company Limited with a turnover of ₹ 4.80 crores is expecting **growth of 25% for forthcoming year**. Average credit period is 90 days. The past experience shows that bad debt losses are 1.75% on sales. The Company's administering cost for collecting receivables is Rs 6,00,000/-. It has decided to take factoring services of Pacific Factors on terms that factor will buy receivables by charging 2% commission and **20% risk with recourse**. The Factor will pay advance on receivables to the firm at 16% interest rate per annum after withholding 10% as reserve. Calculate the effective cost of factoring to the firm, (Assume 360 days in a year) **N13, M17, M15 (Factoring Q2a, pg 13.1)**
(This question is repeated most of the times without bold lines. Bold lines used in N13 and May 17)
- Q25 Credit sales and receivables of M/s M Ltd at the end of the year are estimated at ₹ 374,00,000 and ₹ 46,00,000 respectively.
Average variable overdraft interest rate is 5%. MLtd is considering a proposal for factoring its debts on a non-recourse basis at an annual fee of 3% on credit sales. As a result MLtd will save Rs 1,00,000 p.a in administrative cost and ₹ 3,50,000 as bad debts. The factor will maintain receivables collection period of 30 days and advances 80% of the face value thereof at an annual interest rate of 7%. Evaluate the validity of the proposal. 365 days are to be taken in a year for the purpose of collection of receivables. **M10, N17(Chennai), M14 (Factoring Q2b, pg 13.1)**
- Q26 A chemical company belongs to a risk class for which the appropriate P/E ratio is 12.5. It currently has 40,000 equity shares (face value Rs.100) selling at Rs. 125 each. The firm is contemplating the declaration of dividend of Rs. 6 per share at the current fiscal year which has just started. Given the assumptions of Modigliani and Miller, answer the following questions:
- What will be the price of the share at the end of the year (a) if dividend is not declared; and (b) if it is declared?
 - Company has a net income (Y) of Rs. 4,00,000 and makes new investments of Rs. 8,00,000 during the period, how many new shares must be issued if dividend is declared and not declared?
 - What would be the current value of the firm: (a) if a dividend is declared, (b) if a dividend is not declared? **N14, M13 (Dividend Q2, pg 6.1)**

Q27 The following figures are collected from the annual report of XYZ Ltd.

Net profit	Rs 30 lac
Outstanding 12% preference shares	Rs 100 lacs
No. of equity shares	3 lac
Return on investment	20%

What should be the approximate dividend pay-out ratio so as to keep the share price at Rs 42 by using Walter model? **M05, M17, N17 (Chennai) (Dividend Q8, pg 6.3)**

Q28 Your client is holding following securities:

Particulars of securities	Cost	Dividend/interest	Market price	β
Equity shares				
Gold Ltd	10,000	1,725	9,800	0.6
Silver Ltd	15,000	1,000	16,200	0.8
Bronze Ltd.	14,000	700	20,000	0.6
GOI bonds	36,000	3,600	34,500	1.0

Average return of the portfolio is 15.7%,

calculate: (i) Expected rate of return in each using CAPM

(ii) Risk free return. **N05, M15, N13 (Portfolio Q72, pg 5.16)**

Q29 X Ltd an Indian co. has an export exposure of 10 million (100 lacs) Yen, value September end, Yen is not directly quoted against Re. The current spot rates are INR/USD = 41.79 and JPY/USD = 129.75

It is estimated that ¥ will depreciate to 144 level and rupee to depreciate against \$ to 43. Forward rate of September, 1998 JPY/USD = 137.35 and INR/USD = 42.89. You are required : **(Forex Q44, pg 3.11)**

- To calculate the expected loss if hedging is not done. How the position will change with co. taking forward cover?
- If the spot on 30 sept. 1998 was eventually JPY/USD = 137.85 and INR / USD = 42.78 is the decision to take forward cover justified

Q30a PQR India Ltd is to pay £ 2,00,000 to U.K firm for goods purchased from it. PQR has two options

- Pay immediately without any interest charge
- Pay after 4 months, with interest @5% p.a

Indian Bank provides overdraft @ 15% p.a. Following exchange rates are available

Spot	Rs/£	78.56/78.60
4 month forward rate		79.02/79.04 (Forex Q50, pg 3.12)

Advise the company which option is more economical for it.

B A firm is contemplating import of goods from U.S.A for 50,000\$. Payment is to be made in 90 days. The supplier has offered 60 days interest free credit and is willing to offer additional 30 days credit @ 6% p.a. The bankers of the firm offered a short term loan for 30 days @ 9% p.a. Following quotes are available

Spot	Rs	45.00/\$,
60 day forward	Rs	45.30/\$, (Forex Q52, pg 3.13)
90 day forward	Rs	45.55/\$

Advise whether payment should be made in 60 days or 90 days.

Besides above 30 questions these 2 questions are strongly recommended

- Q1 TVS Ltd is one of the largest automobile manufactures in India. The company reported an EBIT of Rs 500 lakh in 2001. The capital expenditure in 2001 amounted to Rs 300 lakh and the working capital was 20% of revenue (which were 7000 lakh). Depreciation in 2001 was 200 lakh. The firm is expected to operate with high growth for 5 years. Other information for this high growth phase is as follows:

Length of high growth phase	5 years
Expected growth rate	9%
Beta	1.2
Cost of debt	10%
Weight of equity	50%

The firm expects revenue, earning, capital expenditure and depreciation to grow at 9% a year from 2002 – 2006 after which growth rate is expected to drop to 4%. Capital spending will off-set depreciation in the steady state period. The tax rate for the firm is 35%. The treasury bill rate is 7% and the market premium is 5.5%. Other information for the steady state is as follows:

Beta	1
Cost of debt	9%
Weight of debt	0.25

Estimate the value of firm. **May14** **(Valuation Q8, pg 12.4)**

- Q2 The following information 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:

Particulars	Abhiman Ltd	Abhishek Ltd
Share Capital	200 Lakh	100 Lakh
Free reserve and surplus (Rs)	800 Lakh	500 Lakh
Paid up value per share (Rs)	100	10
Free float market capitalization (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 - 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 – **(Merger Q17, pg 4.7)**
- Promoter's revised holding in the Abhiman Ltd,
 - Free float market capitalization,
 - Also calculate No. of Shares, Earning per Share and Book Value, if after acquisition of Abhishek Ltd., Abhiman Ltd. decided to:
 - Issue Bonus shares in the ratio of 1 :2; and
 - Split the stock (share) as Rs. 5 each fully paid. **M09,N15**

This ques covers all points which are asked in most ques of merger generally in every attempt.

Post acq EPS, MPS.

And specially post acq MPS if post merger PE ratio is given.

Chk solution for simple method to compute post acq BV

Solutions to list of favourite questions

Q1 Value of future = cost of asset + cost to carry asset

$$208.18 = x \left(1 + \frac{0.08}{12} \right)^6$$

$$208.18 = x \left(\frac{12.08}{12} \right)^6$$

$$208.18 = x (1.0066)^6$$

$$X = \frac{208.18}{(1.0066)^6}$$

$$X = \frac{208.18}{1.040} = 200.173$$

Stock price is Rs 200.173

CA FINAL SFM / IPC COST-FM by
CA PRAVIIN MAHAJAN
9871255244

Q2 Value of future = Spot price + carrying cost – dividend
 = 220 + 220 x 0.15 x 0.25 – 10 x 0.25
 = 220 + 8.25 – 2.5
 = Rs 225.75

Q3 A company is long on Copper to the amount of 10 x 1000 x 474 = 47,40,000

$$\text{Hedge ratio} = \beta = r \frac{SDc}{SDm} = 0.75 \frac{4}{6} = 0.5 \text{ Or } 50\%$$

To obtain perfect hedge Company will short Copper future for
 47,40,000 x 0.5 = ₹ 23,70,000

Q4 An importer requested Bank to remit SGD\$ 25,00,000 on 28 Jan 2005, However due to bank strike Bank was able to remit payment on 4th Feb.

Since Importer has to buy SGD \$, thus from cross rate $\frac{Rs}{SGD}$ relevant rate is Ask rate

- Amount to be paid for purchasing 25,00,000 SGD \$ if bank had remitted on 28th jan 2005.

On 28th jan 2005 importer could purchase SGD \$ at

$$\begin{aligned} \frac{Rs}{SGD} &= \frac{Rs}{\$} \times \frac{\$}{\pounds} \times \frac{\pounds}{SGD} \\ &= 45.90 \times 1.7850 \times \frac{1}{3.1575} \\ &= 25.948219 \end{aligned}$$

$$\begin{aligned} + \text{Exchange margin } 0.125\% &= + \frac{0.032435}{25.980654} \end{aligned}$$

Payment to be made for remitting 25,00,000 SGD on 28th Jan 2005

$$25,00,000 \times 25.980654 = \text{Rs } 649,51,635$$

- Amount actually paid for purchasing 25,00,000 SGD \$ on 4th jan 2005.

On 4th 2005 importer could purchase SGD \$ at

$$\begin{aligned} \frac{Rs}{SGD} &= \frac{Rs}{\$} \times \frac{\$}{\pounds} \times \frac{\pounds}{SGD} \\ &= 45.97 \times 1.7775 \times \frac{1}{3.1380} \\ &= 26.039412 \end{aligned}$$

$$\begin{aligned} + \text{Exchange margin } 0.125\% &= + \frac{0.032549}{26.071961} \end{aligned}$$

Payment made for remitting 25,00,000 SGD on 4th Feb 2005

$$25,00,000 \times 26.071961 = \text{Rs } 651,79,903$$

Thus net loss to importer due to delay in payment = 651,79,903 - 649,51,635

$$= \text{Rs } 2,28,268$$

Q5 Trader sold HKD 1,00,000 @ ₹ 5.70 / HKD
 Trader also covered himself in london market i.e he book a contract to purchase 1,00,000 HKD in London

<u>Statement of profit</u>	
Amount received on sale of HKD, 1,00,000 x 5.70	5,70,000 ₹
Amount payable on Purchase of 1,00,000 HKD	
$\frac{\text{₹}}{\text{HKD}} = \frac{\text{₹}}{\text{\$}} \times \frac{\text{\$}}{\text{HKD}}$	
$= 42.85 \times \frac{1}{7.5880} = ₹ 5.647 / \text{HKD}$	<u>5,64,700</u>
Profit on cover deal	₹ 5300

Q6 Spot rate Can \$ 0.665 per DM

$$\begin{aligned} \text{Synthetic forward rate} &= 0.665 \times \frac{1 + 0.09 \times \frac{3}{12}}{1 + 0.07 \times \frac{3}{12}} \\ &= 0.665 \times \frac{1.0225}{1.0175} \\ &= \text{can \$ } 0.6682678 \text{ per DM} \end{aligned}$$

3 month forward rate = Can \$ 0.670 / DM

Synthetic rate is less than forward rate. Investor will borrow can \$ and deposit DM

- Suppose investor borrowed 1,00,000 can \$ @ 9% p.a for 3 months
 Amount payable after 3 months 1,00,000 x 1.0225 = can \$ 1,02,250
- He will convert 1,00,000 Can \$ into DM @ can \$ 0.665 / DM
 He will receive $\frac{1,00,000}{0.665} = 1,50,375.938 \text{ DM}$
- He will deposit DM 1,50,375.938 DM @ 7% for 3 months and receive
 $1,50,375.938 \times 1.0175 = \text{DM } 1,53,007.5187 \text{ DM}$
- He will purchase DM at 3months forward rate of can\$ 0.670 / DM
 He will receive $1,53,007.5187 \times 0.670 = \text{Can \$ } 1,02,515.0375 \text{ per DM}$
- After repayment of amount borrowed, net profit is
 $1,02,515.0375 - 1,02,250 = 265.0375 \text{ can \$}$

Q7

	XYZ	ABC
MP	25	12.50
No. of shares	2,00,000	1,00,000
Earnings	4,00,000	1,00,000

a. Pre merger EPS	$\frac{\text{Total earnings}}{\text{No. of shares}} =$	$\frac{4,00,000}{2,00,000} = 2$	$\frac{1,00,000}{1,00,000} = 1$
Pre merger PE ratio	$\frac{\text{MP}}{\text{EPS}}$	$\frac{25}{2} = 12.5$	$\frac{12.5}{1} = 12.5$

b. If ABC ltd PE ratio is 8, its MP will be

$$\begin{aligned} \text{MP} &= \text{PE} \times \text{EPS} \\ &= 8 \times 1 = \text{Rs } 8 \end{aligned}$$

$$\begin{aligned} \text{Exchange ratio of the basis of MP} &= \frac{\text{MP of ABC}}{\text{MP of XYZ}} = \frac{8}{25} = 0.32 : 1 \\ \text{post merger EPS} &= \frac{\text{Combined earnings}}{\text{No. of shares after acquisition}} \\ &= \frac{4,00,000 + 1,00,000}{2,00,000 + 1,00,000 \times 0.32} \\ &= \text{Rs 2.16} \end{aligned}$$

- c. for XYZ Ltd's pre merger and post merger EPS to be same, Exchange ratio should be on the basis of EPS

$$\begin{aligned} \text{Exchange ratio} &= \frac{\text{EPS of ABC}}{\text{EPS of XYZ}} = \frac{2}{1} = 0.5 : 1 \\ &= \text{i.e 0.5 share in XYZ for 1 share in ABC} \end{aligned}$$

Q8 $D_0 = 2$ $P_0 = 25$

$$\begin{aligned} \text{Required Return} &= R_f + \beta(R_M - R_f) \\ &= 12 + 1.4(6) = 20.4\% \end{aligned}$$

$$\begin{aligned} P_0 &= \frac{d_1}{K_e - g} \\ &= \frac{2(1.05)}{0.204 - 0.05} = \text{R 13.63} \end{aligned}$$

Existing price is more than equilibrium price, so currently share is overvalued

$$\begin{aligned} \text{Revised RR} \quad \text{Required Return} &= R_f + \beta(R_M - R_f) \\ &= 10 + 1.25(4) = 15\% \end{aligned}$$

$$P_0 = \frac{d_1}{K_e - g} = \frac{2(1.09)}{(0.15 - 0.09)} = 36.33$$

Existing price is less than revised equilibrium price, so currently share is undervalued, Investor should hold the share.

- Q9 a. Current market price of share is present value of all future dividends.

$$\begin{aligned} P_0 &= \frac{d_1}{K_E - g} \\ &= \frac{2.5(1.02)}{0.1050 - 0.02} = \text{Rs 30} \end{aligned}$$

- B i. According to PE model

$$\begin{aligned} \text{BV} &= \text{EPS} / \text{ROE} \\ &= 2.25 / 0.09 \\ &= 25 \\ \text{MP} &= 35 \end{aligned}$$

Since $\text{MP} > \text{BV}$ so share is overvalued

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- ii. Earning Price Model

$$\begin{aligned} P_0 &= \frac{E_1}{K_E - g} \\ &= \frac{2.25(1.02)}{0.09 - 0.02} = \text{Rs 32.786} \end{aligned}$$

If Current market price per share is Rs 35, share is overvalued

Q10 PE ratio = 7.5
 Retained earnings Rs 3 (37.5%)
 Total earnings $\frac{3}{0.375} = \text{Rs } 8 \text{ per share}$ Div per sh = 8 – 3 = 5

i. MP = PE x EPS
 = 7.5 x 8
 = Rs 60

$K_E = \frac{d_1}{P_0} + g$
 = $\frac{5(1.12)}{60} + 0.12$
 = 21.33%

ii. $P_0 = \frac{d_1}{K_E - g}$
 = $\frac{5(1.13)}{.2133 - .13}$
 = Rs 67.80

iii. $P_0 = \frac{d_1}{K_E - g}$
 = $\frac{5(1.15)}{0.18 - .15}$
 = Rs 191.67

Q11 MP per share according to Gordon Model

Book value per share = Rs 137.80
 Return on Equity = 15%
 Thus earnings = 15% x 137.80
 = Rs 20.67

DP Ratio = 1 - 0.6
 = 0.4 or 40%

$P_0 = \frac{E(1 - b)}{K_E - b.r}$
 = $\frac{20.67(1 - 0.6)}{0.18 - 0.6 \times 0.15}$
 = Rs 91.87

MP per share according to Walter Model

$P_0 = \frac{d + \frac{r}{k_E}(E - d)}{K_E}$
 = $\frac{8.268 + \frac{0.15}{0.18}(20.67 - 8.268)}{0.18}$
 = Rs 103.35

MP per share according to perpetual growth model

$P_0 = \frac{d_1}{K_E - g}$
 = $\frac{8.27}{0.18 - 0.09}$
 = Rs 91.89

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Q12

statement of current interest obligation

12% term loan	18
15% bank loan	15
11% public deposits	<u>4.95</u> 37.95

$$\text{Interest coverage ratio} = \frac{EBIT}{Interest} = \frac{45}{37.95} = 1.19$$

$$\text{Interest obligation after additional borrowing} = 37.95 + 8 = 45.95$$

$$\text{Interest coverage ratio after additional borrowing} = \frac{45 (1.16)}{45.95} = 1.14$$

Due to additional borrowings intt covrg ratio is reduced by 4.20 %

Q13 Range of valuation of company refers to Maximum and minimum value of business

Minimum value of business means premerger value of business i.e 1.5 cr x 400
600 cr

Maximum value of business is present value all future cash flows

1	250	0.893	223.25
2	300	0.797	239.1
3	400	0.712	<u>284.84</u>
			747.15

Q14 Current value of business is capitalised value of all future maintainable profits

Statement of FMP

PAT	65
PBT	100
Extrordinary income	(10)
Extraordinary exp	3
Income of new project	<u>27</u>
FMP before tax	120
Tax 35 %	42
FMP after tax	78
Value of business	$\frac{78}{0.15} = 520$

b. FMP	78
Pref dividend	(11)
Profir for equity	67 lac
No. of shares	40 lac
EPS	$\frac{67}{40} = 1.675$

$$\begin{aligned} MP &= EPS \times PE \\ &= 1.675 \times 8 \\ &= 13.4 \end{aligned}$$

Q15

	A	B	C
Amount of Investment	50,000	1,00,000	50,000
NAV at entry date	10.50	10	10
Number of units purchased	4761.905	10,000	5,000
Dividend	950	1500	nil
Dividend per unit	0.1995	0.15	nil
Period of investment (days)	122	91	31

$$\text{Return on M.F} = \frac{\text{Year end NAV} + \text{Dividend} + \text{Capital Gain} - \text{NAV at Beginning}}{\text{NAV at the beginning}}$$

$$A = \frac{10.40 + 0.1995 - 10.50}{10.50} = \frac{0.0995}{10.50} \times 100 = 0.9476$$

$$\text{Annual} = \frac{0.9476}{122} \times 365 = 2.835\%$$

$$B = \frac{10.10 + 0.15 - 10}{10} = \frac{0.25}{10} \times 100 = 2.5\%$$

$$\text{Annual} = \frac{2.5}{91} \times 365 = 10.03\%$$

$$C = \frac{9.80 + 0 - 10}{10} = \frac{(0.20)}{10} \times 100 = (2)\%$$

$$\text{Annual} = \frac{2}{31} \times 365 = (23.548)\%$$

Q16 Z is considering investment in AA rated bonds.

$$\begin{aligned} \text{Discount rate of AA rated bond} &= \text{AAA} + 2\% \text{ spread} \\ &= 364 \text{ T-bill} + 3\% \text{ spread} + 2\% \text{ spread} \\ &= 9\% + 3\% + 2\% \\ &= 14\% \end{aligned}$$

$$\begin{aligned} \text{Current market price of bond is} &= 1025 \\ \text{Rate of Interest} &= 15\% \end{aligned}$$

Value of bond or current market price of bond is present value of all future cash outflows of the bond at Expected rate of return or cost of capital. It is also known as Intrinsic value or equilibrium price.

$$\text{Value of the bond} = \text{P.V of all cash outflow}$$

$$\begin{aligned} \text{Current market price} &= \text{P.V of Interest at 14\%} + \text{P.V of redeemable} \\ &\quad \text{For 5 years} \quad \quad \quad \text{amount of bond @ 14\% for 5th year} \\ &= 150 \times 3.433 + 1000 \times 0.519 \\ &= 514.95 + 519 \\ &= 1033.95 \end{aligned}$$

Intrinsic value of the bond is more than current market price, investor should buy this bond.

Current yield of the bond is interest earned on Bond on its current market price

$$\begin{aligned} \text{Current Yield} &= \frac{\text{Interest}}{\text{Current market price}} \\ &= \frac{150}{1025.86} = 14.62\% \end{aligned}$$

YTM is the rate of return on bond if it is purchased at current market price and held till the date of maturity. It is the rate at which present value of cash outflows of the bond is equal to present value of cash inflows or current market price of the bond.

$$\text{Approximate YTM} = \frac{\text{Interest} + \frac{\text{Redeemable value} - \text{Net proceeds}}{\text{life}}}{\frac{\text{Redeemable value} + \text{Net proceeds}}{2}}$$

$$= \frac{150 + \frac{1000 - 1025.86}{5}}{\frac{1000 + 1025.86}{2}} = 14.29\%$$

YTM of bond

Present value of Cash outflow at 14%

=	P.V of interest @ 14% for 5 years	+	P.V of redeemable value @ 14%
=	150 x 3.433	+	1000 x 0.519
=	514.95	+	519
=	1033.95		

Present value of cash outflows at 15%

=	P.V of interest @ 15% for 5 years	+	P.V of redeemable value @ 15%
=	150 x 3.352	+	1000 x 0.497
=	502.8	+	497
=	999.8		

YTM is the rate at which present value of cash outflow is equal to present value of cash inflows i.e present value of cash outflow = Rs 1025.86

For Present value of cash outflow of 1033.95 Rate is 14%

For Present value of cash outflow of 999.8 Rate is 15%

For present value of cash outflow of 1025.86 , rate is

$$= 14\% + \frac{8.09}{34.15} \times 1$$

$$= 14.237\%$$

1033.95	14%
1025.86	?
999.80	15%

For change in PV of (1033.95 – 999.80) 34.15
change in rate is 1%.

For change in PV of (1033.95 – 1025.86) 8.09
Change in rate (from 14%) is

$$14\% + \frac{8.09}{34.15} \times 1$$

Q17 Agrani ltd needs a machine costing Rs 40,00,000. Company has 2 options

Option 1 Acquire the Machine on Lease at an annual lease rent of Rs12,00,000

Lease Rent p.a	Rs 12,00,000		
Tax saving on lease rent	12,00,000 x 0.35	=	4,20,000

Statement of Present value of cash outflows
(if Asset is taken on lease)

	Amount	Period	Factor @ 16%	Present value
Lease Rent	12,00,000	1 – 5 end	3.274	39,28,800
Tax Savings on lease rent	4,20,000	1 – 5 end	3.274	<u>13,75,080</u>
Present Value of Cash outflow				25,53,720

Option 2

Purchase the asset by borrowing from bank

Amount of Loan = Rs 40,00,000 @ 20%

Loan is payable in 5 equal Installments. Amount of each installment is :

Amount x factor (5 yrs, 20%*) = 40,00,000
 Amount x 2.991 = 40,00,000
 Amount = 13,37,345

Statement of Principal and Interest

Year	Installment	Interest @ 20%	Principal	Principal Outstanding	Tax saving on intt @ 35%
1end	13,37,345	8,00,000	5,37,345	34,62,655	2,80,000
2end	13,37,345	6,92,531	6,44,814	28,17,841	2,42,386
3end	13,37,345	5,63,568	7,73,777	20,44,064	1,97,249
4end	13,37,345	4,08,813	9,28,532	11,15,532	1,43,085
5end	13,37,345	2,21,813	11,15,532	-	77,635
		(13,37,345 – 11,15,532)			

Depreciation @ 25% p.a WDV basis

Cost	40,00,000	Tax saving on dep @ 35%
Dep 1 year	<u>10,00,000</u>	3,50,000
	30,00,000	
Dep 2 nd yr	<u>7,50,000</u>	2,62,500
	22,50,000	
Dep 3 rd yr	<u>5,62,500</u>	1,96,875
	16,87,500	
Dep 4 th yr	<u>4,21,875</u>	1,47,656
	12,65,625	
Dep 5 th yr	<u>3,16,406</u>	1,10,742
WDV after 5 years	9,49,219	
Salvage value after 5 yrs	8,00,000	
Capital loss	1,49,219	
Tax savings on cap loss	52,226 (1,49,219 x 0.35)	
Net salvage value	8,00,000 + 52,226 =	8,52,226

Statement of Present value of cash outflow if Loan is taken from Bank

	Amount	Period	factor @ 16%	Present value
Installment (Principal + interest)	13,37,345	1 – 5 end	3.274	43,78,468
Tax savings on Interest and dep	6,30,000	1e	0.862	(5,43,060)
	(2,80,000 + 3,50,000)			
	504,886	2e	0.743	(3,75,130)
	(2,42,386 + 2,62,500)			
	3,94,124	3e	(0.641)	(2,52,633)
	2,90,741	4e	(0.552)	(1,60,490)
	1,88,377	5e	(0.476)	(89,667)
Salvage value	8,52,226	5e	(0.476)	<u>(4,05,660)</u>
				25,51,828

Present value of Cash outflow in loan option is lower than present value of cash outflow in lease option, so company should purchase the asset by borrowing from Bank

- b. Evaluation of Proposal from the point of view of lessor, If lessor's cost of capital is 14%
- Lessor will receive Lease rent and pay tax on such lease rent
 - Lessor will claim depreciation on asset and tax saving on such depreciation and will claim salvage value
 - Cash outflow will be purchase price of machine.

Statement of NPV of Lessor @ 14%

	Amount	Period	factor @ 14%	Present value
<u>Present value of cash inflows</u>				
Lease rent (net of tax)				
12,00,000 (1 – 0.35)	7,80,000	1 – 5e	3.433	26,77,740
Tax savings on Depreciation	3,50,000	1e	0.877	3,06,950
	2,62,500	2e	0.769	2,01,863
	1,96,875	3e	0.675	1,32,891
	1,47,656	4e	0.592	87,412
	1,10,742	5e	0.519	57,475
Salvage value	8,52,226	5e	0.519	<u>4,42,305</u>
	Cash Inflows			39,06,636
<u>Present value of cash outflows</u>				
Purchase price of machine	40,00,000	0	1	<u>40,00,000</u>
	NPV			(93,364)

Since NPV of lease is negative, so lessor should not lease the Asset

Q18 XYZ has to receive \$ 1,00,000 after 3 months on sept 1, 2009. XYZ has 3 options

- (i) Using forward market hedge

XYZ will book a forward contract today to sell 1,00,000 \$ after 3 months @ 3 months forward rate of \$ 0.02127 / Re.

XYZ will receive $\frac{100000}{0.02127}$ **₹ 47,01,457**

- (ii) Using hedge through currency futures i.e ₹ futures

XYZ will buy ₹ future today and sell 4 future after 3 months

Statement of ₹ Reciepts

₹ received on selling \$ 1,00,000 after 3 months at spot rate
after 3 months $\frac{1,00,000}{0.02133}$ **₹ 46,88,233**

Futures

Buy ₹ futures today @ \$ 0.02118 / ₹

₹ future to be bought $\frac{100000}{0.02118} = ₹ 47,21,435$

$(\frac{47,21,435}{4,72,000}) = 10$ contracts

\$ payable for purchasing 47,21,435 ₹ futures 1,00,000

\$ receivable after 3 months on selling

47,21,435 ₹ futures @ \$ 0.02134 / ₹ 1,00,755

\$ profits in future market 755

Converting \$ profit in ₹ at spot rate after 3 months $\frac{755}{0.02133}$ ₹ 35,396

₹ 47,23,629

Less interest on initial margin 15000 x 10 x 0.08 x 3/12

3,000

Net receipts

47,20,629

(iii) No hedging

XYZ will sell 1,00,000 \$ after 3 months at spot rate after 3 months. ₹ received

₹ 46,88,233

Since amount received in hedge through currency futures is higher, so currency future hedge is better.

Q19

	1.7.2000	31.3.2001	31.12.2002	31.3.2003
	10,000 @ 10 purch	div – 10%	div 20%	redeemed 11,296.11 units
	Yield 153.33%			annualized yield 73.52%

NAV on 31.03.01

Annualised yield as on 31.03.2001	153.33%
Yield for 9 months (1.07.2000 – 31.03.2001)	$\frac{153.33}{12} \times 9 = 115\%$

$$\text{Yield on MF} = \frac{\text{Dividend received} + (\text{NAV of units at end} - \text{NAV of units at beg})}{\text{NAV of units at Beg}} \times 100$$

$$1.15 = \frac{10,000 + (x - 1,00,000)}{1,00,000}$$

$$x = 2,05,000$$

$$\text{Thus NAV of units at end of the year is 31.03.2001} \quad \frac{2,05,000}{10,000} = \mathbf{20.50 \text{ per unit}}$$

X purchased 10,000 units on 1.7.2000 but he redeemed 11,296.11 units on 31.03.2002, this means that dividend received is reinvested and used to purchase new units

Total number of units on 31.03.2001

Units purchased		10,000
New units purchased		
Dividend received	10,000	
NAV on 31.03.2001	20.50	$\frac{10,000}{20.50}$
		<u>487.81</u>
		Total units on 31.03.2001
		10,487.81

NAV on 31.03.02

Opening units		10,487.81 units
Units on 31.03.03		11,296.11 units
Since no dividend is received on 31.03.03		
This implies that additional units were purchased		
From dividend received on 31.03.02, on the		
basis of NAV on 31.03,02		
Units purchased on 31.03.02	(11,296.11 – 10,487.81)	808.30 units
Dividend received on 31.03.02	(0.20 x 10,487.81 x 10)	Rs 20,975.62
NAV on 31.03.02	$\frac{20,975.62}{808.30}$	Rs 25.95 per unit

NAV on 31.03.03

Annualised yield on 31.03.03		73.52%
Yield for 33 months (1.7.200 - 31.03.2003)	$\frac{73.52}{12} \times 33$	202.18%
Total return on mutual fund of 1,00,000 in 33 months		
1,00,000 x 202.18%		2,02,180
Total value of units On 31.03.03 (1,00,000 + 2,02,180)		3,02,180
Total number of units on 31.03.03		11,296.11 units
NAV on 31.03.03	$\frac{3,02,180}{11,296.11}$	Rs 26.751 per unit

Q20 Sales	20,000		
Fixed Assets	8,000	Current assets	4,000
Fixed asset as a % of sale	$8,000/20,000 = 40\%$		
Current asset as a % of sale	$4000 / 20,000 = 20\%$		

Statement of assets in Next 4 years

	1e	2e	3e	4e
Sales	24,000	28,800	34,560	34,560
Fixed Assets	9,600	11,520	13,824	13,824
Current Assets	4,800	5,760	6,912	6,912
Equity	14,400	17,280	20,736	20,736

Statement of cash flow

	1e	2e	3e	4e
Sales	24,000	28,800	34,560	34,560
PBT 10% Of sales	2400	2880	3456	3456
PAT 70% of PBT	1680	2016	2419	2419
Dep	800	960	1152	1382
Addition to Fixed Assets (cl + dep-op)	2400	2880	3456	1382
Addition to CA	800	960	1152	0
Cash in flow	(720)	(864)	(1037)	2419

Value of New strategy is Present value of all future cash inflows

Year	cash inflow	factor	Present value
1	(720)	.870	(626.4)
2	(864)	.756	(653.184)
3	(1037)	.658	(682.346)
4	(2419)	.658	<u>10,611.566</u>
			8641.64

Value of existing strategy

	PAT	1400	
+	Depn	<u>nil</u>	1400
Present value of all cash inflows =		1400/ 0.15	= 9,333

Since value of New strategy is less than value of existing strategy, so New strategy is not viable.

Q21 A company issue Commercial paper of Rs 50,00,000 every 4 months

Statement of usable cash from commercial issue

Face value of commercial paper		50,00,000
Less interest		2,08,333
Less Cost of issue		2,500
Less Balance to be maintained in bank		<u>1,50,000</u>
Usable cash		46,39,167

$$\begin{aligned} \text{Cost of issue of commercial paper} &= \frac{(2,08,333 + 2,500) (1 - 0.30)}{46,39,167} \\ &= 9.5437\% \end{aligned}$$

Q22 NAV is the total market value of all the assets held in the mutual fund portfolio less the liabilities, divided by all the outstanding units. That amounts to nothing but the "book value" of each unit of Mutual Fund

The NAV measures how much each share of a mutual fund is worth. So, the NAV of a mutual fund is the cost of one share of the fund.

$$\text{NAV} = \frac{\text{Market value of Assets of Fund} - \text{Liabilities of Fund}}{\text{Number of outstanding units}}$$

$$\frac{M.V \text{ of funds Investments} + \text{Receivables} + \text{Accrued Income} + \text{other Assets} - (\text{Liabilities} + \text{Accrued Expenses})}{\text{Number of Outstanding units}}$$

Statement of Net assets of Mutual fund
(Market value of assets – Liabilities)

Particulars	Amount (Rs crores)
-------------	--------------------

Assets

Equity shares	$20 \times \frac{2,300}{1,000}$	46
Cash in hand		1.23
Bonds and debentures not listed (reduction in value by 20%)		0.80
Market value of Listed debentures		8.00
Market value of Other fixed interest securities (to be valued at cost – give in ques)		4.50
Dividend Accrued		0.80

Liabilities

Amount payable on shares	(6.32)
Expenditure Accrued	<u>(0.75)</u>
Net Assets	54.26

$$\text{NAV} = \frac{54.26}{0.20} = \text{Rs } 271.30 \text{ per unit}$$

Q23	Par value per share	=	₹ 40 / sh	
	Equity share cap	=	₹ 1300 crore	
	Number of shares	=	1300 / 40	= 32.5 crore shares
	PAT	=	290 crore	
	PAT per share	=	290 / 32.5	= 8.92 / share

Value per share is PV of all future FCFE

$$\begin{aligned} \text{FCFE} &= \text{PAT} - \left(1 - \frac{d}{d+E}\right) (\text{CE} - \text{depn} + \text{ch in WC}) \\ &= 8.92 - (1 - 0.27) (47 - 39 + 3.45) \\ &= 0.5615 \end{aligned}$$

$$\begin{aligned} K_e &= R_F + \beta_E (R_M - R_F) \\ &= 8.7 + 0.1(10.3 - 8.7) \\ &= 8.86\% \end{aligned}$$

$$\text{Value of share} = \frac{FCFE_1}{k_e - g} = \frac{0.5615 (1.08)}{0.0886 - 0.08} = ₹ 70.51 / \text{sh}$$

Q24	Current turnover		4.8 cr
	Turnover in coming year	4.8 x 1.25	6 cr
	Current ACP		90 days
	Current Avg debtors	$\frac{4.8}{360} \times 90$	1.2 cr
	Current Bad debts	0.0175 x 6	.105 cr
	Current Adm cost		0.06cr

Statement of evaluation of factoring proposal

Incremental approach / saving in cost (incremental cost of factoring)

Saving due to factoring

Saving in bad debts

If 20% is with recourse, then 80 % risk w/o recourse

So saving in bad debts 80% $0.8 \times 6 \times 0.0175$ 0.084 cr

Saving in administration cost 0.06 cr

Interest saved on average debtors reduced Nil

Cost of factoring (recurring)Commission 6×0.02 0.12 cr

Interest paid to factor on advance receivable from factor

 $(1.5 \times 0.9 - 1.5 \times .02) 0.16$ 0.2112 cr**incremental cost of factoring (0.1872) cr**Cost of 90 days $\frac{0.186}{360} \times 90$ 0.0468 cr**Cash received in 90 days**

Average debtors of 90 days 1.5 cr

Less commission for 90 days $\frac{0.12}{360} \times 90$ 0.03 cr

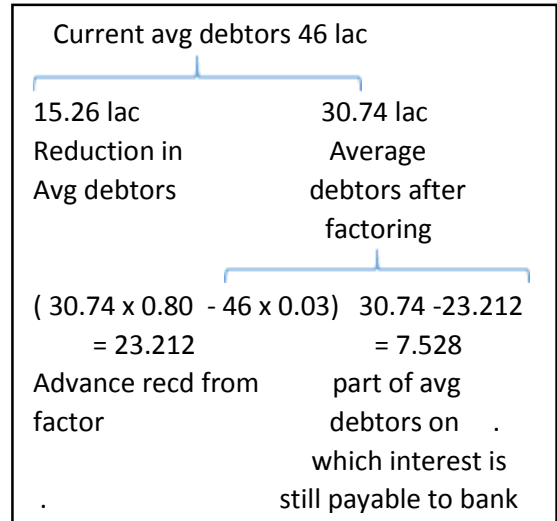
Less 10 % reserve 0.15 cr

Less interest paid to factor for 90 days $\frac{0.21}{360} \times 90$ 0.0528

1.2672

$$\text{Cost of factoring} \frac{0.0468}{1.2672} \times 100 \times \frac{360}{90} = 14.77\% \text{ p.a}$$

Q25	Annual sales	374 lac
	Current Average debtors	46 lac
	Current Administration cost	1 lac
	Current bad debts	3.5 lac
	ACP after factoring	30 days
	Average debtors after factoring	30.74 lac
	$\frac{374}{365} \times 30$	



Statement of evaluation of factoring proposal

Incremental approach / saving in cost (incremental cost of factoring)

Saving due to factoring

Saving in bad debts (assuming non/without recourse factoring)	3.5 lac
Saving in administration cost	1 lac
Interest saved on average debtors reduced (46 lac – 30.74 lac) .05	0.763 lac

Cost of factoring

Commission 374 x 0.03	11.22 lac
Interest paid to factor on advance receivable from factor (30.74 x 0.80 - 46 x 0.03) (0.07 – 0.05)	<u>0.464 lac</u>
incremental cost of factoring	(6.421)

Q26 a. Market price per share of the company at the end of the year (i.e P₁)

i. When dividend not paid

$$P_0 = \frac{d_1 + P_1}{1 + K_e}$$

$$125 = \frac{0 + P_1}{1 + 0.08}$$

$$P_1 = 125(1.08) - 0$$

$$P_1 = 135$$

ii. When Dividend paid

$$P_0 = \frac{d_1 + P_1}{1 + K_e}$$

$$125 = \frac{6 + P_1}{1 + 0.12}$$

$$P_1 = 125(1.08) - 6$$

$$P_1 = 129$$

b. New shares to be issued by the company (i.e m)

i. When dividend not paid

$$m = \frac{I - (E - nd_1)}{P_1}$$

$$= \frac{8 \text{ lakh} - (4 \text{ lakh} - 0)}{135}$$

$$= 2962.962962 \text{ shares}$$

$$\begin{aligned}
 \text{ii. When dividend paid} \\
 m &= \frac{I - (E - nd_1)}{P_1} \\
 &= \frac{8 \text{ lakh} - (4 \text{ lakh} - 6 \times 40,000)}{129} \\
 &= 4961.240310 \text{ shares}
 \end{aligned}$$

c. Value of Firm (i.e nP₀)

$$\begin{aligned}
 \text{i. When dividend not paid} \\
 nP_0 &= \frac{(n + m) - I + E}{1 + K_e} \\
 &= \frac{(40,000 + 2962.962962)135 - 8 \text{ Lakh} + 4 \text{ lakh}}{1.08} \\
 &= \text{Rs 50 lakh}
 \end{aligned}$$

$$\begin{aligned}
 \text{ii. When dividend paid} \\
 nP_0 &= \frac{(n + m) - I + E}{1 + K_e} \\
 &= \frac{(40,000 + 4961.240310)129 - 8 \text{ lakh} + 4 \text{ lakh}}{1.08} \\
 &= \text{Rs 50 lakh}
 \end{aligned}$$

Thus market value of the Firm is same (Rs 50 lakh) whether dividend is paid or not

Q27 Statement of EPS

Earnings	30,00,000
Less Preference dividend	
12 % of 100 lakhs	<u>12,00,000</u>
Earnings for equity share holders	18,00,000
No. of shares	3,00,000
EPS	Rs 6 per share

$$r = 20\%$$

$$\begin{aligned}
 K_E &= \frac{1}{\frac{PE}{MP}} \\
 PE &= \frac{EPS}{MPS} \\
 K_E &= \frac{EPS}{MPS} \\
 &= \frac{6}{42} \times 100 = 14.285714\%
 \end{aligned}$$

Dividend per share if MP is Rs 42 per share

$$\begin{aligned}
 P_0 &= \frac{d + \frac{r}{k_E}(E - d)}{K_E} \\
 42 &= \frac{d + \frac{0.20}{0.14285714}(6 - d)}{0.14285714} \\
 42 \times 0.14285714 &= d + \frac{0.20}{0.14285714}(6 - d) \\
 6 &= d + 8.4 - d \frac{0.20}{0.14285714} \\
 6 - 8.4 &= d \left(1 - \frac{0.20}{0.14285714} \right)
 \end{aligned}$$

$$\begin{aligned}
 -2.4 &= -d(0.40) \\
 d &= \frac{2.4}{0.40} \\
 d &= 6 \\
 \text{DP ratio} &= \frac{6}{6} \times 100 \\
 &= 100\%
 \end{aligned}$$

Q28 $R_M = \frac{\text{Dividend} + (\text{Closing Price} - \text{opening Price})}{\text{opening price}}$

$$= \frac{7025 + (80,500 - 75,000)}{75,000} = \mathbf{0.167 \text{ or } 16.7\%}$$

Average Return

$$\mathbf{0.157} = \frac{R_F + 0.6(0.167 - R_F) + R_F + 0.8(0.167 - R_F) + R_F + 0.6(0.167 - R_F) + R_F + 1(0.167 - R_F)}{4}$$

$$R_F = 12.7\%$$

$$\text{Required Return} = R_F + \beta(R_M - R_F)$$

$$\text{Gold} = 12.7 + .6(16.7 - 12.7) = 15.1$$

$$\text{Silver} = 12.7 + .8(16.7 - 12.7) = 15.9$$

$$\text{Bronze} = 12.7 + .6(16.7 - 12.7) = 15.1$$

$$\text{GOI} = 12.7 + 1(16.7 - 12.7) = 16.7$$

Q29 An Indian company Exported goods for 100 lac ¥. ¥ is not quoted against Re. If Quote is $\frac{\text{Re}}{\text{¥}}$, then relevant rate is ASK rate, as Indian company had to buy ¥.

Spot rate today is $\frac{\text{¥}}{\text{\$}} 129.75$ and $\frac{\text{Re}}{\text{\$}} 41.79$

$$\begin{aligned}
 \text{So, } \frac{\text{Re}}{\text{¥}} &= \frac{\text{Re}}{\text{\$}} \times \frac{\text{\$}}{\text{¥}} \\
 &= 41.79 \times \frac{1}{129.75} \\
 &= \text{Re } 0.32208 \text{ per ¥}
 \end{aligned}$$

So according to today's spot rate company will receive 100 lac x 0.32208 = Rs 32,20,800

Spot rate after 6 months are $\frac{\text{¥}}{\text{\$}} 144$ and $\frac{\text{Re}}{\text{\$}} 43$

$$\begin{aligned}
 \text{So, } \frac{\text{Re}}{\text{¥}} &= \frac{\text{Re}}{\text{\$}} \times \frac{\text{\$}}{\text{¥}} \\
 &= 43 \times \frac{1}{144} \\
 &= \text{Re } 0.298611 \text{ per ¥}
 \end{aligned}$$

If 100 lac ¥ are sold at spot rate after 6 months, company will receive 100 lac x 0.298611 = Rs 29,86,110

So, loss to company if ¥ is sold at spot rate after 6 months (29,86,110 – 31,22,680) = Rs 1,36,570

This loss can be hedged if company book a forward contract today to sell ¥ in September

6 month forward contract is available at $\frac{\text{¥}}{\text{\$}} 137.35$ and $\frac{\text{Re}}{\text{\$}} 42.89$

$$\begin{aligned}
 \text{So, } \frac{\text{Re}}{\text{¥}} &= \frac{\text{Re}}{\text{\$}} \times \frac{\text{\$}}{\text{¥}} \\
 &= 42.89 \times \frac{1}{137.35} \\
 &= \text{Re } 0.312268 \text{ per ¥}
 \end{aligned}$$

If 100 lac ¥ are sold at forward rate after 6 months, company will receive 100 lac x 0.312268 =
Rs 31,22,680

So, loss to company if ¥ is sold at spot rate after 6 months (31,20,800 – 31,22,680) = Rs 98,120

If forward hedge is take , loss to company is reduced by (1,36,570 – 98,120) = Rs 38,450

b. If Spot rate after 6 months are $\frac{¥}{\$} 137.85$ and $\frac{Re}{\$} 42.78$

$$\begin{aligned} \text{So, } \frac{Re}{¥} &= \frac{Re}{\$} \times \frac{\$}{¥} \\ &= 42.78 \times \frac{1}{137.85} \\ &= \text{Re } 0.310337 \text{ per ¥} \end{aligned}$$

If 100 lac ¥ are sold at spot rate after 6 months, company will receive 100 lac x 0.310337 =
Rs 31,03,370

If 100 lac ¥ are sold at forward rate after 6 months, company will receive 100 lac x 0.312268 =
Rs 31,22,680

Since Re amount received in forward contract is more than amount received on basis of spot rate after 6 months, so it is justified to take forward cover .

Q30a PQR Ltd an Indian company purchased goods for £ 2,00,000 from UK firm, payable after 4 months. Since PQR Ltd has to purchase 2,50,000 £, so relevant rate ASK rate

PQR has 2 options

1. Pay immediately without any interest charge

In this case company will borrow from bank @ 15% p.a and purchase £ for payment to UK firm

Amount borrowed from Indian bank to purchase £ at Spot rate of 78.60 per £ 2,00,000 x 78.60	=	Rs 157,20,000
Interest on amount borrowed @ 15% p.a for 4 months $157,20,000 \times 0.15 \times \frac{4}{12}$	=	<u>Rs 7,86,000</u>
Total cost of 2,50,000 £		Rs 165,06,000

2. Pay to UK firm 2,50,000 £ along with interest @ 5% p.a

In this case firm will book a forward contract today to buy £ payable along with interest after 4 months @ Rs 79.04 per £

Amount of consignment	£ 2,00,000
Interest on consignment amount $2,00,000 \times 0.05 \times \frac{4}{12}$	<u>£ 3,333</u>
£ payable to UK firm	2,03,333

Amount payable to purchase £ 2,03,333 x 79.04 Rs 160,71,440

Re payment is lower in 2nd option, so PQR Ltd should make payment to UK firm after 4 months at interest of 5 % p.a

- b. A firm is contemplating to purchase goods from US for 50,000\$, to be paid in 90 days. US supplier offered interest free credit of 60 days

Firm has two options

1. To avail additional 30 days credit from supplier

In this case firm will pay to US vendor after 90 days, along with interest @ 6% p.a, for 30 days. Firm will take a 90 days forward contract to buy \$ at Rs 45.55 per \$

Amount of consignment	\$ 50,000
Interest payable to vendor @ 6% p.a for 30 days	
$50,000 \times 0.06 \times \frac{30}{365}$	\$ 246.57
Total \$ payable to vendor	50,246.57

Firm will purchase \$ amount payable to vendor at $50,246.57 \times 45.55 = \text{Rs } 22,88,731.26$

2. To pay to supplier after 60 days.

In this case, firm will pay to US vendor after 60 days by borrowing from bank @ 9% p.a for 30 days. Firm will book a 60 days forward contract today, to purchase dollars after 60 days

Amount borrowed from bank for purchasing \$ after 60 days	
$50,000 \times 45.30$	22,65,000
Interest payable to bank for 30 days	
$22,65,000 \times 0.09 \times \frac{30}{365}$	16,754.79
Total amount payable to bank	22,81,754.79

Since Re outflow is lower in 2nd option so, firm should pay to vendor in 60 days, by taking 30 days credit from Bank

Solution of recommended questions

Q1

Statement of Free cash flow of firm

	02	03	04	05	06	07
EBIT	500(1.09) = 545	545(1.09) = 594	594(1.09) = 647.46	647.46(1.09) = 705.73	705.73(1.09) = 769.25	769.25(1.04) = 800
Tax (35%)	<u>190.75</u>	<u>207.9</u>	<u>226.61</u>	<u>247</u>	<u>269.25</u>	<u>280</u>
PAT	354.25	386.1	420.85	458.73	500	520
+Depn	200(1.09) = 218	218(1.09) = 237.62	237.62(1.09) = 259	259(1.09) = 282.31	282.31(1.09) = 307.72	CE = Depn
Less CE	300(1.09) = 327	327(1.09) = 356.43	356.43(1.09) = 388.51	388.51(1.09) = 423.48	423.48(1.09) = 461.59	CE = Depn
Less Ch in WC	7000(1.09) (0.2)-1400 = 126	7000(1.09) ² (0.2)-1526 = 137.34	7000(1.09) ³ (0.2)-1663.4 = 149.6	7000(1.09) ⁴ (0.2)-1813.04 = 163.17	7000(1.09) ⁵ (0.2)- 1976.21 = 177.86	7000(1.09) ⁵ (1.04) (0.2) – 2154.07 = 86.17
FCFF	119.25	129.95	141.74	154.39	168.27	433.83

Overall cost of capital from 2002 – 2006(5 yrs)

$$\begin{aligned} K_e &= R_F + \beta_E (R_M - R_F) \\ &= 7 + 1.2(5.5) \\ &= 13.6 \end{aligned}$$

$$K_d = 10\%$$

$$\begin{aligned} \text{WACC} &= W_E K_E + W_D K_D \\ &= 0.5 \times 13.6 + 0.5 \times 0.10(1 - 0.35) \\ &= 10.05\% \end{aligned}$$

Overall cost of capital from 2007

$$\begin{aligned} K_e &= R_F + \beta_E (R_M - R_F) \\ &= 7 + 1(5.5) \\ &= 12.5 \end{aligned}$$

$$K_d = 9\%$$

$$\begin{aligned} \text{WACC} &= W_E K_E + W_D K_D \\ &= 0.75 \times 12.5 + 0.25 \times 0.10(1 - 0.35) \\ &= 11\% \end{aligned}$$

Value of firm = PV of all future free cash flow of firm.

Year	FCFF	Factor	PV
1	119.25	0.909	108.40
2	129.95	0.826	107.34
3	141.74	0.750	106.31
4	154.39	0.681	105.14
5	168.27	0.619	104.16
6-5	$\frac{433.83}{0.11-0.04}$	0.619	$\frac{3836.30}{4367.65}$

Q2

	Abhiman Ltd	Abhshek Ltd
Book value per share	$\frac{200+800}{2} = 500$	$\frac{100+500}{10} = 60$
Market price per share		
Free float Market capitalization	400 lac	128 lac
Free float or Market holding	50%	40%
Total market capitalization	$\frac{400 \text{ lac}}{0.5} = 800 \text{ lac}$	$\frac{128 \text{ lac}}{0.4} = 320 \text{ lac}$
No. of shares	2 lac	10 lac
Mp per share	Rs 400	Rs 32
Earning per share		
PE ratio	10	4
EPS	$\frac{MP}{\text{PE ratio}} = 40$	8
Exchange ratio		
on the basis of book value	$\frac{\text{Book value of Abhishek}}{\text{Book value of Abhiman}} = \frac{60}{500} = 0.12$	
On the basis of EPS	$\frac{\text{EPS of Abhishek}}{\text{EPS of Abhman}} = \frac{8}{40} = 0.2$	

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On the basis of MP		$\frac{\text{MP of Abhishek}}{\text{MP of Abhman}}$	$= \frac{32}{400}$	$= 0.08$
Weighted exchange ratio	=	$0.12 \times 0.25 + 0.2 \times 0.5 + 0.08 \times 0.25$		
	=	$0.15 : 1$		
New shares to be issued	=	$0.15 \times 10 \text{ lac}$	=	1.5 lac
b.	Post acquisition Book value per share	=	$\frac{1600 \text{ lac}}{2 \text{ lac} + 1.5 \text{ lac}}$	= Rs 457.14
	Post Acquisition EPS	=	$\frac{160 \text{ lac}}{2 \text{ lac} + 1.5 \text{ lac}}$	= Rs 45.71
	Post acquisition MP (PE x EPS)	=	45.71×10	= Rs 457.10
	(PE ratio of Abhiman Ltd remain unchanged)			
c.	i.	Promoters revised holding in Abhiman Ltd		
		Pre acquisition holding of promoters in Abhiman	$2 \text{ lac} \times 50\%$	= 1 lac
		No of shares issued to promoters of Abhishek Ltd	$10 \text{ lac} \times 60\% \times 0.15$	= 0.90 lac
		Total promoters holding	=	$\frac{1.9 \text{ lac}}{3.5 \text{ lac}} = 54.29\%$
	ii.	Free float Market cap (3.5 lac – 1.9 lac)	457.10	= Rs 731.36 lac
	iii.	No of bonus shares issued (ratio 1 : 2)	=	$\frac{3.5 \text{ lac}}{2} = 1.75 \text{ lac}$
		No. of shares after Bonus issue	=	$1.75 \text{ lac} + 3.5 \text{ lac} = 5.25 \text{ lac}$ of Rs 100 each
		No of shares after Stock split		
		(Rs 100 per share into Rs 5 per share fully paid)	=	$\frac{100}{5} \times 5.25 \text{ lac} = 105 \text{ lac}$
		EPS after Bonus issue and stock split	=	$\frac{160 \text{ lac}}{105 \text{ lac}} = \text{Rs } 1.524$
		Book value per share after Bonus issue and stock split	=	$\frac{1600 \text{ lac}}{105 \text{ lac}} = \text{Rs } 15.2381$