

PAPER – 2 : MANAGEMENT ACCOUNTING AND FINANCIAL ANALYSIS

Question No. 1 is compulsory. Answer any four questions from the rest.
Figures in the margin indicate marks allotted to each question.
Working notes should form part of the answer.

Question 1

- (a) ABC Company has decided to acquire a Rs.5,00,000 pulp control device that has a useful life of ten years. A subsidy of Rs.50,000 is available at the time the device is acquired and placed into service. The device would be depreciated on straight-line basis and no salvage value is expected. The company is in the 50% tax bracket. If the acquisition is financed with a lease, lease payments of Rs.55,000 would be required at the beginning of each year. The company can also borrow at 10% repayable in equal instalments. Debt payments would be due at the beginning of each year:
- What is the present value of cash outflow for each of these financing alternatives, using the after-tax cost of debt?
 - Which of the two alternatives is preferable?
- (b) A company is considering to engage a factor, the following information is available:
- The current average collection period for the Company's debtors is 80 days and $\frac{1}{2}\%$ of debtors default. The factor has agreed to pay money due after 60 days and will take the responsibility of any loss on account of bad debts.
 - The annual charge for the factoring is 2% of turnover payable annually in arrears. Administration cost saving is likely to be Rs.1,00,000 per annum.
 - Annual sales, all on credit, are Rs.1,00,00,000. Variable cost is 80% of sales price. The Company's cost of borrowing is 15% per annum. Assume the year is consisting of 365 days.

Should the Company enter into a factoring agreement. (15+5 = 20 Marks)

Answer

- (a) Initial amount borrowed = Rs.5,00,000 – Rs.50,000 = Rs.4,50,000
- This amount of Rs.4,50,000 is the amount which together with interest at the rate of 10% on outstanding amount is repayable in equal installments i.e., annuities in the beginning of each of 10 years. The PVAF at the rate of 10% for 9 years is 5.759 and for the year 0 it is 1.000. So, the annuity amount may be ascertained by dividing Rs.4,50,000 by (5.759 + 1.000).
- So Annual payment = Rs.4,50,000/6.759 = Rs.66,578
- Amount owed at time 0 = Rs.4,50,000 – Rs. 66,578 = Rs.3,83,422.

SCHEDULE OF DEBT PAYMENT

<i>End of Year</i>	<i>Total Payment</i>	<i>Interest</i>	<i>Principal Amount Outstanding</i>
	<i>Rs.</i>	<i>Rs.</i>	<i>Rs.</i>
0	66,578	0	3,83,422
1	66,578	38,342	3,55,186
2	66,578	35,519	3,24,127
3	66,578	32,413	2,89,962
4	66,578	28,996	2,52,380
5	66,578	25,238	2,11,040
6	66,578	21,104	1,65,566
7	66,578	16,557	1,15,545
8	66,578	11,555	55,023
9	66,578	5,502	NIL

SCHEDULE OF CASH OUTFLOWS : DEBT ALTERNATIVE

<i>(Amount in Rs.)</i>							
<i>(1) End of year</i>	<i>(2) Debt Payment</i>	<i>(3) Interest</i>	<i>(4) Dep</i>	<i>(5) Tax Shield [(3)+(4)]0.5</i>	<i>(6) Cash outflows (2) – (5)</i>	<i>(7) PV factors @ 5%</i>	<i>(8) PV</i>
0	66,578	0	0	0	66,578	1.000	66,578
1	66,578	38,342	50,000	44,171	22,407	0.952	21,331
2	66,578	35,519	50,000	42,759	23,819	0.907	21,604
3	66,578	32,413	50,000	41,206	25,372	0.864	21,921
4	66,578	28,996	50,000	39,498	27,080	0.823	22,287
5	66,578	25,238	50,000	37,619	28,959	0.784	22,704
6	66,578	21,104	50,000	35,552	31,026	0.746	23,145
7	66,578	16,557	50,000	33,279	33,299	0.711	23,676
8	66,578	11,555	50,000	30,777	35,801	0.677	24,237
9	66,578	5,502	50,000	27,751	38,827	0.645	25,043
10	-	0	50,000	25,000	(-25,000)	0.614	(-15,350)

Total present value of Outflows = Rs.2,57,176

SCHEDULE OF CASH OUTFLOWS: LEASING ALTERNATIVE

(Amount in Rs.)					
End of year	Lease Payment	Tax Shield	Cash Outflow	PVIFA @ 5%	PV
0	55,000	0	55,000	1.000	55,000
1-9	55,000	27,500	27,500	7.109	1,95,498
10	0	27,500	-27,500	0.614	(-16,885)
Total Present value of Outflows =2,33,613					

The present values of cash outflows are Rs.2,57,176 and Rs.2,33,613 respectively under debt and lease alternatives. As under debt alternatives the cash outflow would be more, the lease is preferred.

- Note:
- The repayment of loan as well as payment of lease rental is made in the beginning of the years. So, at the end of year 10, there will not be any payment in either option, but the tax benefit of depreciation for the year 10 as well as of lease rentals paid in the beginning of year 10, will be available only at the end of year 10.
 - Students may also calculate depreciation after subtracting the amount of subsidy from original cost, however, even in this situation, lease alternative is preferable.

- (b) The annual change in cash flows through entering into a factoring agreement is:

(Amount in Rs.)	
Savings	
Administration cost saved	1,00,000
Existing average debtors	21,91,781
[Rs.1,00,00,000/365) x 80 days]	
Average New Debtors	16,43,836
[(Rs.100,00,000/365) x 60 days]	
Reduction in debtors	5,47,945
Cost there of @80%	4,38,356
Add: Interest saving @15% P.A on Rs.4,38,356	65,753
Add: Bad Debts saved @.½% of Rs.1,00,00,000	50,000
Total	2,15,753
Less: Annual charges @2% of Rs.1,00,00,000	2,00,000
Net annual benefits of factoring	15,753

Therefore, the factoring agreement is worthwhile and should be undertaken.

Question 2

- (a) From the following particulars, calculate the effective interest p.a. as well as the total cost of funds to ABC Ltd., which is planning a CP issue:

Issue Price of CP → Rs.97,350

Face Value → Rs.1,00,000

Maturity period → 3 months.

Issue Expenses:

Brokerage : 0.125% for 3 months.

Rating Charges : 0.5% p.a.

Stamp duty : 0.125% for 3 months.

- (b) Distinguish between:

(i) Forward and Futures contracts.

(ii) Intrinsic value and Time value of an option.

- (c) A Mutual Fund having 300 units has shown its NAV of Rs.8.75 and Rs.9.45 at the beginning and at the end of the year respectively. The Mutual Fund has given two options:

(i) Pay Rs.0.75 per unit as dividend and Rs.0.60 per unit as a capital gain, or

(ii) These distributions are to be reinvested at an average NAV of Rs.8.65 per unit.

What difference it would make in terms of return available and which option is preferable?
(6+8+6= 20 Marks)

Answer

$$\begin{aligned} \text{(a) Effective Interest} &= \left[\frac{F-P}{P} \right] \times \frac{12}{m} \times 100 \\ &= \left[\frac{100,000 - 97,350}{97,350} \right] \times \frac{12}{3} \times 100 \\ &= 0.02722 \times 4 \times 100 \\ &= 10.888 \\ &= 10.89 \end{aligned}$$

Effective Interest = 10.89% p.a

Cost of Funds to the Company:

Effective Interest 10.89%

Brokerage (0.125 x 4) 0.50%

Rating Charge	.0.50%
Stamp Duty (0.125 x 4)	<u>0.50%</u>
Cost of funds	<u>12.39%</u>

(b) (i) Forward and Future Contracts:

Forward contracts are private bilateral contracts which have well established commercial usage. On the other hand future contracts are standardized tradeable contract fixed in terms of size, contract and other features and traded on an exchange.

In forward contracts, price is not publicly disclosed, whereas in future contracts, price is transparent.

Forward contract is exposed to the problem of liquidity whereas to futures there is no liquidity problem.

Forward contracts are usually settled on one specified delivery date. In the case of futures, there is a range of delivery dates.

Forward contracts are settled at the end of contract, but futures are settled daily.

In forwards, delivery or final cash settlement usually takes place whereas in futures, contract is closed out prior to maturity.

(ii) Intrinsic value and the time value of An Option: Intrinsic value of an option and the time value of an option are primary determinants of an option's price. By being familiar with these terms and knowing how to use them, one will find himself in a much better position to choose the option contract that best suits the particular investment requirements.

Intrinsic value is the value that any given option would have if it were exercised today. This is defined as the difference between the option's strike price (x) and the stock's actual current price (c.p). In the case of a call option, one can calculate the intrinsic value by taking $CP - X$. If the result is greater than Zero (In other words, if the stock's current price is greater than the option's strike price), then the amount left over after subtracting $CP - X$ is the option's intrinsic value. If the strike price is greater than the current stock price. Then the intrinsic value of the option is zero – it would not be worth anything if it were to be exercised today. An option's intrinsic value can never be below zero. To determine the intrinsic value of a put option, simply reverse the calculation to $X - CP$

Example: Let us assume Wipro Stock is priced at Rs.105/-. In this case, a Wipro 100 call option would have an intrinsic value of $(Rs.105 - Rs.100 = Rs.5)$. However, a Wipro 100 put option would have an intrinsic value of zero $(Rs.100 - Rs.105 = -Rs.5)$. Since this figure is less than zero, the intrinsic value is zero. Also, intrinsic value can never be negative. On the other hand, if we are to look at a Wipro put option with a strike price of Rs.120. Then this particular option would have an intrinsic value of Rs.15 $(Rs.120 - Rs.105 = Rs.15)$.

Time Value: This is the second component of an option's price. It is defined as any value of an option other than the intrinsic value. From the above example, if Wipro is trading at Rs.105 and the Wipro 100 call option is trading at Rs.7, then we would conclude that this option has Rs.2 of time value (Rs.7 option price – Rs.5 intrinsic value = Rs.2 time value). Options that have zero intrinsic value are comprised entirely of time value.

Time value is basically the risk premium that the seller requires to provide the option buyer with the right to buy/sell the stock upto the expiration date. This component may be regarded as the Insurance premium of the option. This is also known as "Extrinsic value." Time value decays over time. In other words, the time value of an option is directly related to how much time an option has until expiration. The more time an option has until expiration. The greater the chances of option ending up in the money.

- (c) (i) Returns for the year:

(All changes on a Per -Unit Basis)

Change in Price:	Rs.9.45 – Rs.8.75 =	Re. 0.70
Dividends received:		Re. 0.75
Capital gains distribution		<u>Re. 0.60</u>
Total reward		<u>Rs. 2.05</u>

$$\text{Holding period reward : } \frac{\text{Rs. 2.05}}{\text{Rs. 8.75}} = 23.43\%$$

- (ii) When all dividends and capital gains distributions are re-invested into additional units of the fund @ (Rs. 8.65/unit)

Dividend + Capital Gains per unit

$$= \text{Re.0.75} + \text{Re 0.60} = \text{Rs. 1.35}$$

$$\text{Total received from 300 units} = \text{Rs.1.35} \times 300 = \text{Rs.405/-}$$

Additional Units Acquired

$$= \text{Rs.405/Rs.8.65} = 46.82 \text{ Units.}$$

$$\text{Total No. of Units} = 300 \text{ units} + 46.82 \text{ units}$$

$$= 346.82 \text{ units.}$$

Value of 346.82 units held at the end of the year

$$= 346.82 \text{ units} \times \text{Rs.9.45} = \text{Rs.3277.45}$$

Price Paid for 300 Units at the beginning of the year

$$= 300 \text{ units} \times \text{Rs.8.75} = \text{Rs.2,625.00}$$

Holding Period Reward

$$\text{Rs.}(3277.45 - 2625.00) = \text{Rs.}652.45$$

%age of Holding Period Reward

$$\frac{\text{Rs.}652.45}{\text{Rs.}2625.00} \times 100 = 24.85\%$$

Conclusion: Since the holding period reward is more in terms of percentage in option-two i.e., reinvestment of distributions at an average NAV of Rs.8.65 per unit, this option is preferable.

Question 3

- (a) (i) *What is Capital rationing?*
(ii) *What is take over by reverse bid?*
(b) *The distribution of return of security 'F' and the market portfolio 'P' is given below:*

Probability	Return %	
	F	P
0.30	30	-10
0.40	20	20
0.30	0	30

You are required to calculate the expected return of security 'F' and the market portfolio 'P', the covariance between the market portfolio and security and beta for the security.

- (c) *What is the procedure for the book building process? Explain the recent changes made in the allotment process.* (6+8+6= 20 Marks)

Answer

- (a) (i) **Capital Rationing:** When there is a scarcity of funds, capital rationing is resorted to. Capital rationing means the utilization of existing funds in most profitable manner by selecting the acceptable projects in the descending order or ranking with limited available funds. The firm must be able to maximize the profits by combining the most profitable proposals. Capital rationing may arise due to (i) external factors such as high borrowing rate or non-availability of loan funds due to constraints of Debt-Equity Ratio; and (ii) Internal Constraints Imposed by management. Project should be accepted as a whole or rejected. It cannot be accepted and executed in piecemeal.

IRR or NPV are the best basis of evaluation even under Capital Rationing situations. The objective is to select those projects which have maximum and positive NPV. Preference should be given to interdependent projects. Projects are to be ranked in the order of NPV. Where there is multi-period Capital Rationing, Linear Programming Technique should be used to maximize NPV. In times of

Capital Rationing, the investment policy of the company may not be the optimal one.

In nutshell Capital Rationing leads to:

- (i) Allocation of limited resources among ranked acceptable investments.
 - (ii) This function enables management to select the most profitable investment first.
 - (iii) It helps a company use limited resources to the best advantage by investing only in the projects that offer the highest return.
 - (iv) Either the internal rate of return method or the net present value method may be used in ranking investments.
- (ii) Take Over by Reverse Bid: When the smaller company gains control of a larger one. Then it is called "Take-over by reverse bid". This concept has been successfully followed for revival of sick industries. The concept of take-over by reverse bid, or of reverse merger, is thus not the usual case of amalgamation of a sick unit which is non-viable with a healthy or prosperous unit but is a case whereby the entire undertaking of the healthy and prosperous company is to be merged and vested in the sick company which is non-viable. Under the Sick Industrial Companies (Special Provision) Act, 1985, a company becomes a sick industrial company when there is erosion of its net worth. This alternative is also known as taking over by reverse bid.

The three tests in a takeover by reverse bid that are required to be satisfied are, namely, (i) the assets of the transferor company are greater than the transferee company; (ii) equity capital to be issued by the transferee company pursuant to the acquisition exceeds its original issued capital, and (iii) the change of control in the transferee company will be through the introduction of minority holder or group of holders.

In reverse takeover control goes to the shareholders (and usually management) of the company that is formally the target of the bid.

The term reverse takeover is also applied to the purchase of a listed company by an unlisted company with control passing to the shareholders and management of the unlisted company. This is sometimes known as a 'back door listing'.

A reverse takeover will almost always take place by way of a pure equity acquisition, also called a share swap.

A reverse takeover for the purpose of obtaining a back door listing is accomplished by the shareholders of the unlisted company selling all of their shares to the listed company in exchange for shares of the listed company.

This is a cost effective method of obtaining a public listing because it avoids the expenses associated with a floatation. Sometimes, the unlisted company usually takes over a listed company, a company i.e., listed but not actively traded on the stock exchange.

(b) Security F

Prob(P)	R_f	$P \times R_f$	Deviations of F ($R_f - ER_f$)	(Deviation) ² of F	(Deviations) ² $\times_p$
0.3	30	9	13	169	50.7
0.4	20	8	3	9	3.6
0.3	0	0	-17	289	86.7
		$ER_f = 17$			<u>$Var_f = 141$</u>

$$STDEV \sigma_f = \sqrt{141} = 11.87$$

Market Portfolio, P

R_M	P_M	Exp. Return $R_M \times P_M$	Deviation of P ($R_M -$ ER_M)	(Deviation of P) ²	(Deviation) ² P_M	Deviation of F) $\times$ (Deviation of P)	Deviation of F $\times$ P $\times$ P
-10	0.3	-3	-24	576	172.8	-312	-93.6
20	0.4	8	6	36	14.4	18	7.2
30	0.3	9	16	256	76.8	-272	-81.6
		$ER_M = 14$			$Var_M = 264$		$= Co Var P_M$
					$\sigma_M = 16.25$		$= -168$

$$\text{Beta} = \frac{Co Var P_M}{\sigma_M^2} = \frac{-168}{264} = -.636$$

- (c) The modern and more popular method of share pricing these days is the BOOK BUILDING route. After appointing a merchant banker as a book runner, the company planning the IPO, specifies the number of shares it wishes to sell and also mentions a price band. Investors place their orders in Book Building process that is similar to bidding at an auction. The willing investors submit their bids above the floor price indicated by the company in the price band to the book runner. Once the book building period ends, the book runner evaluates the bids on the basis of the prices received, investor quality and timing of bids. Then the book runner and the company conclude the final price at which the issuing company is willing to issue the stock and allocate securities. Traditionally, the number of shares are fixed and the issue size gets determined on the basis of price per share discovered through the book building process.

Public issues these days are targeted at various segments of the investing fraternity. Companies now allot certain portions of the offering to different segments so that everyone gets a chance to participate. The segments are traditionally three-qualified institutional bidders (QIBs), high net worth individuals (HNIs) and retail investors (the

general public). Indian companies now have to offer about 50% of the offer to Q1Bs, about 15% to high net worth individuals and the remaining 35% to retail investors. Earlier retail and high net worth individuals had 25% each. Also the Q1Bs are allotted shares on a pro-rata basis as compared to the earlier norm when it was at the discretion of the company management and the investment bankers. These investors (Q1B) also have to pay 10% margin on application. This is also a new requirement. Once the offer is completed, the company gets listed and investors and shareholders can trade the shares of the company in the stock exchange.

Question 4

(a) The following information pertains to M/s XY Ltd.

Earnings of the Company	Rs.5,00,000
Dividend Payout ratio	60%
No. of shares outstanding	1,00,000
Equity capitalization rate	12%
Rate of return on investment	15%

- What would be the market value per share as per Walter's model?
- What is the optimum dividend payout ratio according to Walter's model and the market value of Company's share at that payout ratio?

(b) Given the following information:

Exchange rate – Canadian dollar 0.665 per DM (spot)

Canadian dollar 0.670 per DM (3 months)

Interest rates – DM 7% p.a.

Canadian Dollar 9% p.a.

What operations would be carried out to take the possible arbitrage gains?

(c) What is Credit rating? (8+8+4= 20 Marks)

Answer

(a) M/s X Y Ltd.

(i) Walter's model is given by

$$P = \frac{D + (E - D)(r / k_e)}{K_e}$$

Where P = Market price per share.

E = Earnings per share = Rs.5

D = Dividend per share = Rs.3

r = Return earned on investment = 15%

K_e = Cost of equity capital = 12%

$$P = \frac{3 + (5-3) \times \frac{0.15}{0.12}}{0.12} = \frac{3 + 2.0 \times \frac{.15}{.12}}{0.12}$$

$$= \text{Rs.} 45.83$$

- (ii) According to Walter's model when the return on investment is more than the cost of equity capital, the price per share increases as the dividend pay-out ratio decreases. Hence, the optimum dividend pay-out ratio in this case is nil.

So, at a pay-out ratio of zero, the market value of the company's share will be:

$$\frac{0 + (5-0) \frac{0.15}{0.12}}{0.12} = \text{Rs.} 52.08$$

- (b) In this case, DM is at a premium against the Can\$.

Premium = $[(0.67 - 0.665) / 0.665] \times (12/3) \times 100 = 3.01$ per cent

Interest rate differential = $9 - 7 = 2$ per cent.

Since the interest rate differential is smaller than the premium, it will be profitable to place money in Deutschmarks the currency whose 3-months interest is lower.

The following operations are carried out:

- (i) Borrow Can\$ 1000 at 9 per cent for 3- months;
- (ii) Change this sum into DM at the spot rate to obtain DM
 $= (1000 / 0.665) = 1503.7$
- (iii) Place DM 1503.7 in the money market for 3 months to obtain a sum of DM

Principal: 1503.70

Add: Interest @ 7% for 3 months = 26.30

Total 1530.00

- (iv) Sell DM at 3-months forward to obtain Can\$ = $(1530 \times 0.67) = 1025.1$

- (v) Refund the debt taken in Can\$ with the interest due on it, i.e.,

Can\$

Principal 1000.00

Add: Interest @9% for 3 months 22.50

Total 1022.50

Net arbitrage gain = $1025.1 - 1022.5 = \text{Can\$ } 2.6$

- (c) Credit rating: Credit rating is a symbolic indication of the current opinion regarding the relative capability of a corporate entity to service its debt obligations in time with reference to the instrument being rated. It enables the investor to differentiate between instruments on the basis of their underlying credit quality. To facilitate simple and easy understanding, credit rating is expressed in alphabetical or alphanumerical symbols.

Credit rating aims to (i) provide superior information to the investors at a low cost; (ii) provide a sound basis for proper risk-return structure; (iii) subject borrowers to a healthy discipline and (iv) assist in the framing of public policy guidelines on institutional investment. Thus, credit rating financial services represent an exercise in faith building for the development of a healthy financial system. In India the rating coverage is of fairly recent origin, beginning 1988 when the first rating agency CRISIL was established. At present there are few rating agencies like:

- (i) Credit Rating Information Services of India Ltd. (CRISIL).
- (ii) Investment Information and Credit Rating Agency of India (ICRA).
- (iii) Credit Analysis and Research Limited (CARE).
- (iv) Duff & Phelps Credit Rating India Pvt. Ltd. (DCR I)
- (v) ONICRA Credit Rating Agency of India Ltd.

Question 5

- (a) *ABC Leasing Ltd. has been approached by a client to write a five years lease on an asset costing Rs.10,00,000 and having estimated salvage value of Rs.1,00,000 thereafter. The company has a after tax required rate of return of 10% and its tax rate is 50%. It provides depreciation @33 $\frac{1}{3}$ % on written down value of the asset. What lease rental will provide the company its after tax required rate of return?*

- (b) *The market received rumour about ABC corporation's tie-up with a multinational company. This has induced the market price to move up. If the rumour is false, the ABC corporation stock price will probably fall dramatically. To protect from this an investor has bought the call and put options.*

He purchased one 3 months call with a striking price of Rs.42 for Rs.2 premium, and paid Re.1 per share premium for a 3 months put with a striking price of Rs.40.

- (i) *Determine the Investor's position if the tie up offer bids the price of ABC Corporation's stock up to Rs.43 in 3 months.*
 - (ii) *Determine the Investor's ending position, if the tie up programme fails and the price of the stocks falls to Rs.36 in 3 months.*
- (c) *Briefly explain the objectives of "Portfolio Management".* (7+7+6 = 20 Marks)

Answer

- (a) In order to find out the annual lease rent, the cash flows from the asset must be evaluated as follows:

Year	Depreciation (Rs.)	Tax Shield (Rs.)	Cash flow (Rs.)	PVF(10%)	PV (Rs.)
1.	3,33,333	1,66,667	1,66,666	.909	1,51,500
2.	2,22,222	1,11,111	1,11,111	.826	91,778
3.	1,48,148	74,074	74,074	.751	55,630
4.	98,766	49,383	49,383	.683	33,728
5.	65,844	32,922	32,922	.621	20,444
6.	Salvage Value		1,00,000	.621	<u>62,100</u>
Present Value of Inflows					<u>4,15,180</u>
Outflow					10,00,000
Net Present value					<u>.5,84,820</u>

The firm therefore, should have total recovery of Rs.5,84,820 through the lease rentals. The annual lease rental after tax may be calculated as follows:

$$\begin{aligned}
 \text{Lease rental (after tax)} &= \text{Total recovery required} \div \text{PVAF}_{(10\%n)} \\
 &= \text{Rs.5,84,820} \div 3.791 = \text{Rs.1,54,265}
 \end{aligned}$$

$$\begin{aligned}
 \text{Now, the lease rental before tax} &= \text{Rs.1,54,265} \div 0.5 \\
 &= \text{Rs.3,08,530}
 \end{aligned}$$

Therefore, the firm should charge a lease rental of Rs.3,08,530 in order to earn a required rate of return of 10% after tax.

- (b) Cost of call and put options

$$\begin{aligned}
 &= (\text{Rs.2 per share}) \times (100 \text{ share call}) + (\text{Rs.1 per share}) \times (100 \text{ share put}) \\
 &= \text{Rs.2} \times 100 + 1 \times 100 \\
 &= \text{Rs.300}
 \end{aligned}$$

- (i) Price increases to Rs.43. Since the market price is higher than the strike price of the put, the investor will exercise it.

$$\begin{aligned}
 \text{Ending position} &= (-\text{Rs.300 cost of option}) + (\text{Rs.1 per share gain on call}) \times 100 \\
 &= - \text{Rs.300} + 100
 \end{aligned}$$

$$\text{Net Loss} = \text{Rs.200}$$

- (ii) The price of the stock falls to Rs.36. Since the market price is lower than the strike price, the investor may not exercise the call option.

$$\begin{aligned}\text{Ending Position:} &= (-\text{Rs.300 cost of 2 option}) + (\text{Rs.4 per stock gain on put}) \times 100 \\ &= -\text{Rs.300} + 400 \\ \text{Gain} &= \text{Rs.100}\end{aligned}$$

(c) Objectives of Portfolio Management:

Portfolio management is concerned with efficient management of portfolio investment in financial assets, including shares and debentures of companies. The management may be by professionals or others or by individuals themselves. A portfolio of an individual or a corporate unit is the holding of securities and investment in financial assets. These holdings are the result of individual preferences and decisions regarding risk and return.

The investors would like to have the following objectives of portfolio management:

- (a) Capital appreciation.
- (b) Safety or security of an investment.
- (c) Income by way of dividends and interest.
- (d) Marketability.
- (e) Liquidity.
- (f) Tax Planning - Capital Gains Tax, Income tax and Wealth Tax.
- (g) Risk avoidance or minimization of risk.
- (h) Diversification, i.e. combining securities in a way which will reduce risk.

It is necessary that all investment proposals should be assessed in terms of income, capital appreciation, liquidity, safety, tax implication, maturity and marketability i.e., saleability (i.e., saleability of securities in the market). The investment strategy should be based on the above objectives after a thorough study of goals of the investor, market situation, credit policy and economic environment affecting the financial market.

The portfolio management is a complex task. Investment matrix is one of the many approaches which may be used in this connection. The various considerations involved in investment decisions are liquidity, safety and yield of the investment. Image of the organization is also to be taken into account. These considerations may be taken into account and an overall view obtained through a matrix approach by allotting marks for each consideration and totaling them.

Question 6

- (a) *Reliable Industries Ltd. (RIL) is considering a takeover of Sunflower Industries Ltd. (SIL). The particulars of 2 companies are given below:*

Particulars	Reliable Industries Ltd	Sunflower Industries Ltd.
Earnings After Tax (EAT)	Rs.20,00,000	Rs.10,00,000
Equity shares O/s	10,00,000	10,00,000

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Earnings per share (EPS)	2	1
PE Ratio (Times)	10	5

Required:

- (i) What is the market value of each Company before merger?
 - (ii) Assume that the management of RIL estimates that the shareholders of SIL will accept an offer of one share of RIL for four shares of SIL. If there are no synergic effects, what is the market value of the Post-merger RIL? What is the new price per share? Are the shareholders of RIL better or worse off than they were before the merger?
 - (iii) Due to synergic effects, the management of RIL estimates that the earnings will increase by 20%. What is the new post-merger EPS and Price per share? Will the shareholders be better off or worse off than before the merger?
- (b) Write short notes on:
- (i) Assumptions of CAPM.
 - (ii) Determinants of Dividend Policy.
- (c) Abhishek Ltd. has a surplus cash of Rs.90 lakhs and wants to distribute 30% of it to the shareholders. The Company decides to buyback shares. The Finance Manager of the Company estimates that its share price after re-purchase is likely to be 10% above the buyback price; if the buyback route is taken. The number of shares outstanding at present is 10 lakhs and the current EPS is Rs.3.

You are required to determine:

- (a) The price at which the shares can be repurchased, if the market capitalization of the company should be Rs.200 lakhs after buyback.
- (b) The number of shares that can be re-purchased.
- (c) The impact of share re-purchase on the EPS, assuming the net income is same.

(8+6+6= 20 Marks)

Answer

- (a) (i) Market value of Companies before Merger

Particulars	RIL	SIL
EPS	Rs.2	Re.1
P/E Ratio	10	5
Market Price Per Share	Rs.20	Rs.5
Equity Shares	10,00,000	10,00,000
Total Market Value	2,00,00,000	50,00,000

(ii) *Post Merger Effects on RIL*

	Rs.
Post merger earnings	30,00,000
Exchange Ratio (1:4)	
No. of equity shares o/s (10,00,000 + 2,50,000)	12,50,000
EPS: 30,00,000/12,50,000	2.4
Market Price per share	10.00
Market Value 10 x 2.4	24
Total Value (12,50,000 x 24)	3,00,00,000
<i>Gains From Merger:</i>	Rs.
Post-Merger Market Value of the Firm	3,00,00,000
<i>Less: Pre-Merger Market Value</i>	
RIL 2,00,00,000	
SIL <u>50,00,000</u>	<u>2,50,00,000</u>
Total gains from Merger	<u>50,00,000</u>

Apportionment of Gains between the Shareholders:

<i>Particulars</i>	<i>RIL</i>	<i>SIL</i>
<i>Post Merger Market Value:</i>	<i>Rs.</i>	<i>Rs.</i>
10,00,000 x 24	2,40,00,000	--
2,50,000 x 24	-	60,00,000
Less: Pre-Merger Market Value	2,00,00,000	50,00,000
Gains from Merger:	40,00,000	10,00,000

Thus, the shareholders of both the companies (RIL + SIL) are better off than before

(iii) *Post-Merger Earnings:*

Increase in Earnings by 20%

New Earnings: Rs.30,00,000 x 20% = Rs.36,00,000

No. of equity shares outstanding: 12,50,000

EPS: Rs. 36,00,000/12,50,000 = Rs.2.88

PE Ratio = 10

Market Price Per Share:

= Rs.2.88 x 10 = Rs.28.80

∴ Shareholders will be better-off than before the merger situation.

(b) (i) Assumptions of Capital Assets Pricing Model (CAPM)

The Capital Assets Pricing Model is based on the following eight assumptions.

- (a) The Investor's objective is to maximize the utility of terminal wealth.
- (b) Investor's make choices on the basis of risk and return.
- (c) Investors have homogenous expectations of Risk and Return.
- (d) Investors have identical time horizon.
- (e) Information is freely and simultaneously available to investors.
- (f) There is a risk-free asset and investors can borrow and lend unlimited amount at the risk-free rate.
- (g) There are no taxes, transaction costs, restrictions on short term rates or other market imperfections.
- (h) Total asset quantity is fixed and all assets are marketable and divisible.

(ii) Determinants of Dividend Policy: Many factors determine the dividend policy of a company. The factors determining the dividend policy are as follows:

- (a) Dividend payout Ratio: A certain share of earnings to be distributed as dividend has to be worked out. This involves the decision to pay out or to retain. The payment of dividends results in the reduction of cash and therefore depletion of assets. In order to maintain the desired level of assets as well as to enhance the investment opportunities, the company has to decide upon the pay-out ratio. Dividend Payout Ratio should be determined with the basic objectives of maximising the wealth of the firm's owners and providing sufficient funds to finance growth.
- (b) Stability of Dividend: Generally investors favour a stable dividend policy. The policy should be consistent and there should be a certain minimum dividend that should be paid regularly. The policy can take any form, namely, constant dividend per share, stable D/P Ratio and constant dividend per share plus something extra.
- (c) Legal, Contractual and Internal Constraints and Restriction: Legal and Contractual requirements have to be followed. All requirements of Companies Act, SEBI Guidelines, Capital Impairment Guidelines, net profit and insolvency etc., have to be kept in mind while declaring dividends. Also, there may be some contractual requirements which are to be honoured. Maintenance of certain debt-equity ratio may be one of such requirements. In addition, there may be certain internal constraints which are unique to the firm concerned. There may be growth prospects, financial requirements, availability of funds, earning stability and control etc.

- (d) Owner's Considerations: This includes the tax status of shareholders, their opportunities for investment, dilution of ownership etc.
- (e) Capital Market Conditions and Inflation: Capital Market conditions and rate of inflation also play a dominant role in determining the dividend payout. The extent to which a firm has access to capital market, also affects the dividend policy. A firm having easy access to capital market will follow a unique dividend policy. During inflation, rising prices eat into the value of money of investors which they receive as dividends. Good companies will try to compensate for rate of inflation by paying higher dividend. Replacement decisions of the companies also affects the dividend policy.

- (c) (a) Let P be the buyback price decided by Abhishek Ltd.

Market Capitalisation After Buyback:

1.1 P (Original Shares – Shares Bought back)

$$= \left[1.1P(10\text{Lakhs} - \frac{30\% \text{ of } 90\text{lakhs}}{P}) \right]$$

$$= 11 \text{ Lakhs} \times P - 27 \text{ lakhs} \times 1.1$$

$$= 11 \text{ lakhs} \times P - 29.7 \text{ lakhs}$$

Market capitalization rate after buyback is 200 lakhs.

Thus, we have:

$$11 \text{ Lakhs} \times P - 29.7 \text{ lakhs} = \text{Rs.}200 \text{ lakhs}$$

$$\text{OR } 11P = 200 + 29.7$$

$$\text{OR } P = \frac{229.7}{11} = \text{Rs.}20.88$$

- (b) Number of shares to be bought back:

$$= \frac{27\text{Lakhs}}{20.88} = 1.29 \text{ lakhs (Approximately)}$$

- (c) New Equity Shares

$$= (10 - 1.29) \text{ lakhs} = 8.71 \text{ lakhs}$$

$$\text{EPS} = \frac{3 \times 10 \text{ lakhs}}{8.71 \text{ lakhs}} = \frac{30\text{L}}{8.71\text{L}} = \text{Rs.}3.44$$

Thus EPS of Abhishek Ltd., increases to Rs.3.44