

MOCK TEST PAPER – 2
FINAL COURSE: GROUP – I
PAPER – 2: STRATEGIC FINANCIAL MANAGEMENT
SUGGESTED ANSWERS/HINTS

- 1 (a) Let the probability of attaining the maximum price be p

$$(500 - 420) \times p + (400 - 420) \times (1-p) = 420 \times (e^{0.02 \cdot 1})$$

$$\text{or, } 80p - 20(1 - p) = 420 \times 0.0202$$

$$\text{or, } 80p - 20 + 20p = 8.48$$

$$\text{or, } 100p = 28.48$$

$$p = 0.2848$$

$$\text{The value of Call Option in ₹} = \frac{0.2848 \times (500 - 450)}{1.0202} = \frac{0.2848 \times 50}{1.0202} = 13.96$$

- (b) In this question the effect of increasing running cost and decreasing resale value have to be weighted upto against the purchase cost of bike. For this purpose we shall compute Equivalent Annual Cost (EAC) of replacement in different years shall be computed and compared.

Year	Road Taxes (₹)	Petrol etc. (₹)	Total (₹)	PVF @10%	PV (₹)	Cumulative PV (₹)	PV of Resale Price (₹)	Net Outflow (₹)
1	3,000	30,000	33,000	0.909	29,997	29,997	31,815	(1,818)
2	3,000	35,000	38,000	0.826	31,388	61,385	17,346	44,039
3	3,000	43,000	46,000	0.751	34,546	95,931	6,759	89,172

Computation of EACs

Year	Purchase Price of Bike (₹)	Net Outflow (₹)	Total Outflow (₹)	PVAF @ 10%	EAC (₹)
1	55,000	(1,818)	53,182	0.909	58,506
2	55,000	44,039	99,039	1.735	57,083
3	55,000	89,172	1,44,172	2.486	57,993

Thus, from above table it is clear that EAC is least in case of 2 years, hence bike should be replaced every two years.

(c) Intrinsic Value $P_0 = \frac{D_1}{k - g}$

Using CAPM

$$k = R_f + \beta (R_m - R_f)$$

R_f = Risk Free Rate

β = Beta of Security

R_m = Market Return

$$= 9\% + 0.75 (15\% - 9\%) = 13.5\%$$

$$P = \frac{2.5 \times 1.1}{0.135 - 0.10} = \frac{2.75}{0.035} = ₹ 78.57$$

(d) First of all we shall find out the expected inflation rates in Petland over next 3 years

$$\text{Year 1} \quad 65\% \times 0.9 = 58.5\%$$

$$\text{Year 2} \quad 58.5\% \times 0.9 = 52.65\%$$

$$\text{Year 3} \quad 52.65\% \times 0.9 = 47.39\%$$

Now we shall compute the spot rate for next three years by using Purchasing Power Parity (PPP) as follows:

$$F = S \times \frac{1 + I_f}{1 + f_d}$$

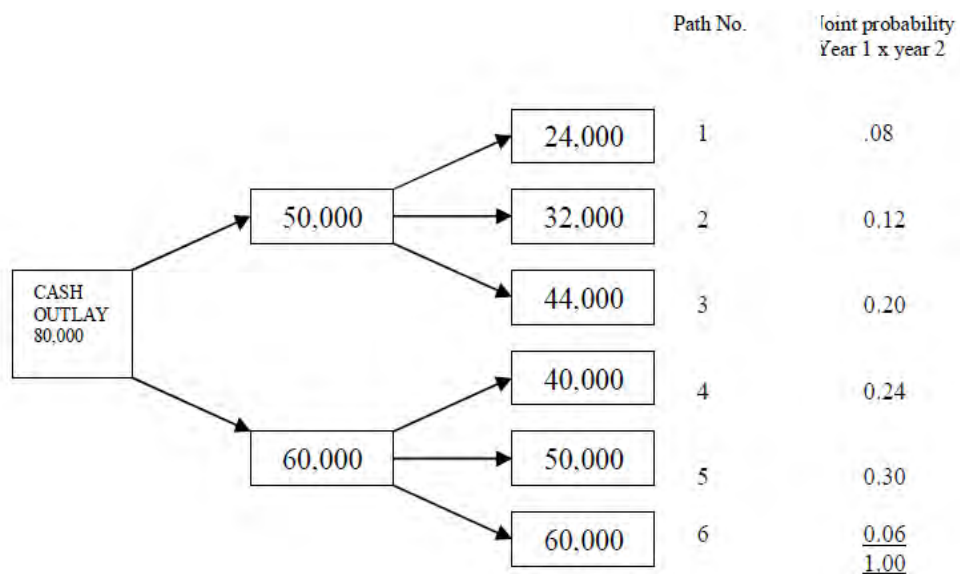
Accordingly, the expected future rates shall be

$$\text{Year 1} \quad 144 \times (1.585/1.08) = 211$$

$$\text{Year 2} \quad 211 \times (1.5265/1.07) = 301$$

$$\text{Year 3} \quad 301 \times (1.4739/1.06) = 419$$

2. (a) (i) The decision tree diagram is presented in the chart, identifying various paths and outcomes, and the computation of various paths/outcomes and NPV of each path are presented in the following tables:



The Net Present Value (NPV) of each path at 10% discount rate is given below:

Path	Year 1 Cash Flows (₹)	Year 2 Cash Flows (₹)	Total Cash Inflows (PV) (₹)	Cash Inflows NPV (₹) (₹)	
1	$50,000 \times .909 = 45,450$	$24,000 \times .826 = 19,824$	65,274	80,000	(-) 14,726
2	45,450	$32,000 \times .826 = 26,432$	71,882	80,000	(-) 8,118
3	45,450	$44,000 \times .826 = 36,344$	81,794	80,000	1,794
4	$60,000 \times .909 = 54,540$	$40,000 \times .826 = 33,040$	87,580	80,000	7,580
5	54,540	$50,000 \times .826 = 41,300$	95,840	80,000	15,840
6	54,540	$60,000 \times .826 = 49,560$	1,04,100	80,000	24,100

Statement showing Expected Net Present Value

z	NPV(₹)	Joint Probability	Expected NPV
1	-14,726	0.08	-1,178.08
2	-8,118	0.12	-974.16
3	1,794	0.20	358.80
4	7,580	0.24	1,819.20
5	15,840	0.30	4,752.00
6	24,100	0.06	1,446.00
			<u>6,223.76</u>

Conclusions:

- (ii) If the worst outcome is realized the project will yield NPV of – ₹ 14,726. The probability of occurrence of this NPV is 8% and a loss of ₹ 1,178 (path 1).
- (iii) The best outcome will be path 5 when the NPV is at ₹ 15,840. The probability of occurrence of this NPV is 30% and a expected profit of ₹ 4,752.
- (iv) The project should be accepted because the expected NPV is positive at ₹ 6,223.76 based on joint probability.

$$\begin{aligned}
 \text{(b) Effective Interest} &= \left[\frac{F - P}{P} \right] \times \frac{12}{m} \times 100 \\
 &= \frac{1,00,000 - 97,350}{97,350} \times \frac{12}{3} \times 100 \\
 &= 0.02722 \times 4 \times 100 = 10.888 \\
 &= 10.89
 \end{aligned}$$

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>

3. (a) Profit at current exchange rates

$$2400 [\text{€ } 500 \times \text{S\$ } 51.50 - (\text{S\$ } 800 \times \text{₹ } 27.25 + \text{₹ } 1,000 + \text{₹ } 1,500)]$$

$$2400 [\text{₹ } 25,750 - \text{₹ } 24,300] = \text{₹ } 34,80,000$$

Profit after change in exchange rates

$$2400 [\text{€ } 500 \times \text{₹ } 52 - (\text{S\$ } 800 \times \text{₹ } 27.75 + \text{₹ } 1000 + \text{₹ } 1500)]$$

$$2400 [\text{₹ } 26,000 - \text{₹ } 24,700] = \text{₹ } 31,20,000$$

LOSS DUE TO TRANSACTION EXPOSURE

$$\text{₹ } 34,80,000 - \text{₹ } 31,20,000 = \text{₹ } 3,60,000$$

Profit based on new exchange rates

$$2400 [\text{₹ } 25,000 - (800 \times \text{₹ } 27.15 + \text{₹ } 1,000 + \text{₹ } 1,500)]$$

$$2400 [\text{₹ } 25,000 - \text{₹ } 24,220] = \text{₹ } 18,72,000$$

Profit after change in exchange rates at the end of six months

$$2400 [₹ 25,000 - (800 \times ₹ 27.75 + ₹ 1,000 + ₹ 1,500)]$$

$$2400 [₹ 25,000 - ₹ 24,700] = ₹ 7,20,000$$

Decline in profit due to transaction exposure

$$₹ 18,72,000 - ₹ 7,20,000 = ₹ 11,52,000$$

$$\text{Current price of each unit in S\$} = \frac{₹ 25,000}{₹ 51.50} = \text{S\$ } 485.44$$

$$\text{Price after change in Exch. Rate} = \frac{₹ 25,000}{₹ 51.75} = \text{S\$ } 483.09$$

Change in Price due to change in Exch. Rate

$$\text{S\$ } 485.44 - \text{S\$ } 483.09 = \text{S\$ } 2.35$$

or (-) 0.48%

Price elasticity of demand = 1.5

$$\text{Increase in demand due to fall in price} \quad 0.48 \times 1.5 = 0.72\%$$

$$\text{Size of increased order} = 2400 \times 1.0072 = 2417 \text{ units}$$

$$\text{Profit} = 2417 [₹ 25,000 - (800 \times ₹ 27.75 + ₹ 1,000 + ₹ 1,500)]$$

$$= 2417 [₹ 25,000 - ₹ 24,700] = ₹ 7,25,100$$

$$\text{Therefore, decrease in profit due to operating exposure} \quad ₹ 18,72,000 - ₹ 7,25,100 \\ = ₹ 11,46,900$$

- (b) In order to find out the NAV, the cash balance at the end of the year is calculated as follows-

Particulars	₹
Cash balance in the beginning	
(₹ 100 lakhs – ₹ 98 lakhs)	2,00,000
Dividend Received	12,00,000
Interest on 7% Govt. Securities	56,000
Interest on 9% Debentures	45,000
Interest on 10% Debentures	50,000
	<u>15,51,000</u>
(-) Operating expenses	<u>5,00,000</u>
Net cash balance at the end	<u>10,51,000</u>
Calculation of NAV	₹
Cash Balance	10,51,000
7% Govt. Securities (at par)	8,00,000
50,000 equity shares @ ₹ 175 each	87,50,000

9% Debentures (Unlisted) at cost	5,00,000
10% Debentures @90%	<u>4,50,000</u>
Total Assets	<u>1,15,51,000</u>
No. of Units	10,00,000
NAV per Unit	₹ 11.55

Calculation of NAV, if dividend of ₹ 0.80 is paid –

Net Assets (₹ 1,15,51,000 – ₹ 8,00,000)	₹ 1,07,51,000
No. of Units	10,00,000
NAV per unit	₹ 10.75

4. (a) Cash Balances: (‘000)
Acting independently

	<u>Capital</u>	<u>Interest</u>	<u>₹ in 30 days</u>
India	-5,00,000	-2,666.67	-5,02,667
U.S.	12,500	15.63	5,76,757
U.K.	6,000	18.50	<u>4,01,233</u>
			<u>4,75,323</u>

Cash Balances:-

Immediate Cash pooling

	₹
India	– 5,00,000
U.S.	$\frac{12,500}{0.0215} = 5,81,395$
U.K.	$\frac{6,000}{0.0149} = 4,02,685$
	<u>4,84,080</u>

Immediate cash pooling is preferable as it maximizes interest earnings

Note: If the company decides to invest pooled amount of ₹4,84,080/- @ 6.2% p.a. for 30 days an interest of ₹2,501/- will accrue.

- (b) (i) The Betas of two stocks:
- | | | |
|------------------|---|--------------------------------|
| Aggressive stock | - | $40\% - 4\%/25\% - 7\% = 2$ |
| Defensive stock | - | $18\% - 9\%/25\% - 7\% = 0.50$ |
- (ii) Expected returns of the two stocks:-
- | | | |
|------------------|---|---|
| Aggressive stock | - | $0.5 \times 4\% + 0.5 \times 40\% = 22\%$ |
|------------------|---|---|

Defensive stock - $0.5 \times 9\% + 0.5 \times 18\% = 13.5\%$

(iii) Expected return of market portfolio = $0.5 \times 7\% + 0.5 \times 25\% = 16\%$

$\therefore$ Market risk prem. = $16\% - 7.5\% = 8.5\%$

$\therefore$ SML is, required return = $7.5\% + \beta_i 8.5\%$

(iv) $R_s = \alpha + \beta R_m$

Where

α = Alpha

β = Beta

R_m = Market Return

For Aggressive Stock

$22\% = \alpha_A + 2(16\%)$

$\alpha_A = -10\%$

For Defensive Stock

$13.5\% = \alpha_D + 0.50(16\%)$

$\alpha_D = 5.5\%$

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

Savings	(Amount in ₹)	(Amount in ₹)
Administration cost saved		1,00,000
Existing average debtors [₹ 1,00,00,000/365) x 80 days]	21,91,781	
Average New Debtors [(₹ 1,00,00,000/365) x 60 days]	<u>16,43,836</u>	
Reduction in debtors	<u>5,47,945</u>	
Cost there of @80%	<u>4,38,356</u>	
Add: Interest saving @15% p.a. on ₹ 4,38,356		65,753
Add: Bad Debts saved @.005 of ₹ 1,00,00,000		<u>50,000</u>
	Total	2,15,753
Less: Annual charges @2% of ₹ 1,00,00,000		<u>2,00,000</u>
Net annual benefits of factoring		<u>15,753</u>

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

(b)

Opportunity gain of A Inc under currency swap	Receipt	Payment	Net
Interest to be remitted to B. Inc in \$ 2,00,000x9%=\$18,000 Converted into (\$18,000x¥120)		¥21,60,000	
Interest to be received from B. Inc in \$ converted into ¥ (6%x\$2,00,000 x ¥120)	¥14,40,000	-	
Interest payable on ¥ loan	-	<u>¥12,00,000</u>	
	¥14,40,000	¥33,60,000	
Net Payment	<u>¥19,20,000</u>	-	
	<u>¥33,60,000</u>	<u>¥33,60,000</u>	
\$ equivalent paid ¥19,20,000 x (1/¥120)			\$16,000
Interest payable without swap in \$			<u>\$18,000</u>
Opportunity gain in \$			<u>\$ 2,000</u>

Opportunity gain of B inc under currency swap	Receipt	Payment	Net
Interest to be remitted to A. Inc in (\$ 2,00,000 x 6%)		\$12,000	
Interest to be received from A. Inc in ¥ converted into \$ =¥21,60,000/¥120	\$18,000		
Interest payable on \$ loan@10%	-	<u>\$20,000</u>	
	\$18,000	\$32,000	
Net Payment	<u>\$14,000</u>	-	
	<u>\$32,000</u>	<u>\$32,000</u>	
¥ equivalent paid \$14,000 X ¥120			¥16,80,000
Interest payable without swap in ¥ (\$2,00,000X¥120X8%)			<u>¥19,20,000</u>
Opportunity gain in ¥			<u>¥ 2,40,000</u>

Alternative Solution

Cash Flows of A Inc

(i) At the time of exchange of principal amount

Transactions		Cash Flows
Borrowings	\$2,00,000 x ₹120	+ ₹240,00,000
Swap		- ₹240,00,000
Swap		<u>+\$2,00,000</u>
Net Amount		<u>+\$2,00,000</u>

(ii) At the time of exchange of principal amount

Transactions		Cash Flows
Interest to the lender	₹240,00,000X5%	₹12,00,000
Interest Receipt from B Inc.	₹2,00,000X120X6%	₹14,40,000
Net Saving (in \$)	₹2,40,000/₹120	\$2,000
Interest to B Inc.	\$2,00,000X9%	<u>-\$18,000</u>
Net Interest Cost		<u>-\$16,000</u>

A Inc. used \$2,00,000 at the net cost of borrowing of \$16,000 i.e. 8%. If it had not opted for swap agreement the borrowing cost would have been 9%. Thus there is saving of 1%.

Cash Flows of B Inc

(i) At the time of exchange of principal amount

Transactions		Cash Flows
Borrowings		+ \$2,00,000
Swap		- \$2,00,000
Swap	\$2,00,000X₹120	<u>+₹240,00,000</u>
Net Amount		<u>+₹240,00,000</u>

(ii) At the time of exchange of principal amount

Transactions		Cash Flows
Interest to the lender	\$2,00,000X10%	- \$20,000
Interest Receipt from A Inc.		+\$18,000
Net Saving (in ₹)	-\$2,000X₹120	- ₹2,40,000
Interest to A Inc.	\$2,00,000X6%X₹120	<u>- ₹14,40,000</u>
Net Interest Cost		<u>- ₹16,80,000</u>

B Inc. used ₹ 240,00,000 at the net cost of borrowing of ₹16,80,000 i.e. 7%. If it had not opted for swap agreement the borrowing cost would have been 8%. Thus there is saving of 1%.

6. (a) M/s XY 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 = ₹5

D = Dividend per share = ₹3

r = Return earned on investment = 15%

K_e = Cost of equity capital = 12%

$$P = \frac{3 + (5 - 3) \times \frac{0.15}{0.12}}{0.12} = \frac{3 + 2 \times \frac{0.15}{0.12}}{0.12} = ₹45.83$$

(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:

$$\frac{0 + (5 - 0) \frac{0.15}{0.12}}{0.12} = ₹52.08$$

(b)

Swap Ratio	Efficient Ltd.	Healthy Ltd.
Market capitalisation	500 lakhs	750 lakhs
No. of shares	10 lakhs	7.5 lakhs
Market Price per share	₹ 50	₹ 100
P/E ratio	10	5
EPS	₹ 5	₹ 20
Profit	₹ 50 lakh	₹ 150 lakh
Share capital	₹ 100 lakh	₹ 75 lakh
Reserves and surplus	₹ 300 lakh	₹ 165 lakh

Total	₹ 400 lakh	₹ 240 lakh
Book Value per share	₹ 40	₹ 32

(i) **Calculation of Swap Ratio**

EPS	1 : 4 i.e.	$4.0 \times 40\%$	1.6
Book value	1 : 0.8 i.e.	$0.8 \times 25\%$	0.2
Market price	1 : 2 i.e.	$2.0 \times 35\%$	<u>0.7</u>
		Total	<u>2.5</u>

Swap ratio is for every one share of Healthy Ltd., to issue 2.5 shares of Efficient Ltd. Hence, total no. of shares to be issued $7.5 \text{ lakh} \times 2.5 = 18.75 \text{ lakh shares}$

Promoter's holding = $4.75 \text{ lakh shares} + (5 \times 2.5 = 12.5 \text{ lakh shares}) = 17.25 \text{ lakh i.e.}$ Promoter's holding % is $(17.25 \text{ lakh} / 28.75 \text{ lakh}) \times 100 = 60\%$.

Calculation of EPS, Market price, Market capitalization and free float market capitalization.

- (ii) Total No. of shares $10 \text{ lakh} + 18.75 \text{ lakh} = 28.75 \text{ lakh}$
Total capital $100 \text{ lakh} + 187.5 \text{ lakh} = ₹ 287.5 \text{ lakh}$
EPS $\frac{\text{Total profit}}{\text{No. of shares}} = \frac{50 \text{ lakh} + 150 \text{ lakh}}{28.75 \text{ lakh}} = \frac{200}{28.75}$
 $= ₹ 6.956$
- (iii) Expected market price $\text{EPS } 6.956 \times \text{P/E } 10 = ₹ 69.56$
Market capitalization $= ₹ 69.56 \text{ per share} \times 28.75 \text{ lakh shares}$
 $= ₹ 1,999.85 \text{ lakh}$
- (iv) Free float of market capitalization $= ₹ 69.56 \text{ per share} \times (28.75 \text{ lakh} \times 40\%)$
 $= ₹ 799.94 \text{ lakh}$

7. (a) Zero Date of a Project means a date is fixed from which implementation of the project begins. It is a starting point of incurring cost. The project completion period is counted from the zero date. Pre-project activities should be completed before zero date. The pre-project activities should be completed before zero date. The pre-project activities are:

- Identification of project/product
- Determination of plant capacity
- Selection of technical help/collaboration

- d. Selection of site.
- e. Selection of survey of soil/plot etc.
- f. Manpower planning and recruiting key personnel
- g. Cost and finance scheduling.

- (b) **Euro Convertible Bonds:** They are bonds issued by Indian companies in foreign market with the option to convert them into pre-determined number of equity shares of the company. Usually price of equity shares at the time of conversion will fetch premium. The Bonds carry fixed rate of interest.

The issue of bonds may carry two options:

Call option: Under this the issuer can call the bonds for redemption before the date of maturity. Where the issuer's share price has appreciated substantially, i.e., far in excess of the redemption value of bonds, the issuer company can exercise the option. This call option forces the investors to convert the bonds into equity. Usually, such a case arises when the share prices reach a stage near 130% to 150% of the conversion price.

Put option: It enables the buyer of the bond a right to sell his bonds to the issuer company at a pre-determined price and date. The payment of interest and the redemption of the bonds will be made by the issuer-company in US dollars.

- (c) **Buy-outs:** A very important phenomenon witnessed in the Mergers and Acquisitions scene, in recent times is one of buy - outs. A buy-out happens when a person or group of persons gain control of a company by buying all or a majority of its shares. A buyout involves two entities, the acquirer and the target company. The acquirer seeks to gain controlling interest in the company being acquired normally through purchase of shares. There are two common types of buy-outs: Leveraged Buyouts (LBO) and Management Buy-outs (MBO). LBO is the purchase of assets or the equity of a company where the buyer uses a significant amount of debt and very little equity capital of his own for payment of the consideration for acquisition. MBO is the purchase of a business by its management, who when threatened with the sale of its business to third parties or frustrated by the slow growth of the company, step-in and acquire the business from the owners, and run the business for themselves. The majority of buy-outs is management buy-outs and involves the acquisition by incumbent management of the business where they are employed. Typically, the purchase price is met by a small amount of their own funds and the rest from a mix of venture capital and bank debt.

Internationally, the two most common sources of buy-out operations are divestment of parts of larger groups and family companies facing succession problems. Corporate groups may seek to sell subsidiaries as part of a planned strategic disposal programme or more forced reorganisation in the face of parental financing problems. Public companies have, however, increasingly sought to dispose of

subsidiaries through an auction process partly to satisfy shareholder pressure for value maximisation.

In recessionary periods, buy-outs play a big part in the restructuring of a failed or failing businesses and in an environment of generally weakened corporate performance often represent the only viable purchasers when parents wish to dispose of subsidiaries.

Buy-outs are one of the most common forms of privatisation, offering opportunities for enhancing the performances of parts of the public sector, widening employee ownership and giving managers and employees incentives to make best use of their expertise in particular sectors.

- (d) **Random Walk Theory:** Many investment managers and stock market analysts believe that stock market prices can never be predicted because they are not a result of any underlying factors but are mere statistical ups and downs. This hypothesis is known as Random Walk hypothesis which states that the behaviour of stock market prices is unpredictable and that there is no relationship between the present prices of the shares and their future prices. Proponents of this hypothesis argue that stock market prices are independent. A British statistician, M. G. Kendall, found that changes in security prices behave nearly as if they are generated by a suitably designed roulette wheel for which each outcome is statistically independent of the past history. In other words, the fact that there are peaks and troughs in stock exchange prices is a mere statistical happening – successive peaks and troughs are unconnected. In the layman's language it may be said that prices on the stock exchange behave exactly the way a drunk would behave while walking in a blind lane, i.e., up and down, with an unsteady way going in any direction he likes, bending on the side once and on the other side the second time.

The supporters of this theory put out a simple argument. It follows that:

- (i) Prices of shares in stock market can never be predicted. The reason is that the price trends are not the result of any underlying factors, but that they represent a statistical expression of past data.
 - (ii) There may be periodical ups or downs in share prices, but no connection can be established between two successive peaks (high price of stocks) and troughs (low price of stocks).
- (e) **Salient features of Financial Lease**
- (i) It is an intermediate term to long-term arrangement.
 - (ii) During the primary lease period, the lease cannot be cancelled.
 - (iii) The lease is more or less fully amortized during the primary lease period.
 - (iv) The costs of maintenance, taxes, insurance etc., are to be incurred by the lessee unless the contract provides otherwise.

- (v) The lessee is required to take the risk of obsolescence.
- (vi) The lessor is only the Financier and is not interested in the asset.

Salient features of Operating Lease

- (i) The lease term is significantly less than the economic life of the equipment.
- (ii) It can be cancelled by the lessee prior to its expiration date.
- (iii) The lease rental is generally not sufficient to fully amortize the cost of the asset.
- (iv) The cost of maintenance, taxes, insurance are the responsibility of the lessor.
- (v) The lessee is protected against the risk of obsolescence.
- (vi) The lessor has the option to recover the cost of the asset from another party on cancellation of the lease by leasing out the asset.