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GROUP III

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THE INSTITUTE OF COST AND WORKS ACCOUNTANTS OF INDIA

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GROUP - III

Paper-12 : FINANCIAL MANAGEMENT & INTERNATIONAL FINANCE

FINAL EXAMINATION

(REVISED SYLLABUS - 2008)

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Paper-12 : FINANCIAL MANAGEMENT & INTERNATIONAL FINANCE

Q. 1. Choose the correct alternative and give your reasons/ workings for the same:

(i) Which of the following securities is not a part of money market?

(a) Commercial Paper

(b) Call money

(c) 91 day Treasury bill

(d) 5 year Public Deposit.

(ii) Which of the following assumption is wrong under MM approach?

(a) Capital market is perfect.

(b) There is no transaction cost.

(c) The dividend payout ratio is 0%.

(d) There are no corporate taxes.

(iii) The aim of foreign exchange risk management is :

(a) To maximize profits.

(b) To know with certainty the quantum of future cash flows.

(c) To minimize losses.

(d) To earn a minimum level of profit.

(iv) Z Ltd. Is a manufacturing company having asset turnover ratio of 2 and debt- asset ratio of 0.60 for the year ended 31st March ,2009 . If its net profit margin is 5%, the Return on Equity(ROE) of the company will be :

(a) 20%

(b) 25%

(c) 16.7%

(d) data insufficient.

(v) Which of the following conditions indicate that short term funds have been put to long term use?

(a) Current Ratio is less than 1.00

(b) Quick Ratio is less than 1.00

(c) Total debt to Equity ratio is more than 1.00

(d) Net working Capital is positive.

(vi) A company has paid Rs. 3 as current dividend, the growth rate of dividend paid by the company is 8%. If the cost of equity is 12%, the price of the company's share in nearest Rs. three year hence will be :

(a) Rs. 100

(b) Rs. 118

(c) Rs. 110

(d) 102

(vii) An Indian company is planning to invest in US. The US inflation rate is expected to be 3% and that of India is expected to be 8% annually. If spot rate currently is Rs. 45/US $, what spot rate you expect after 5 years?

(a) Rs.56.09/US $

(b) Rs. 57.00/ US $

(c) Rs. 57.04/ US $

(d) 57.13 /US $.

(viii) The average daily sales of a company are Rs. 5 lac.The company normally keeps a cash balance of Rs. 80000.If the weighted operating cycle of the company is 45 days, its working capital will be

(a) Rs.112.9 lac.

(b) Rs. 113.3 lac

(c) Rs. 5.8 lac

(d) Rs. 225.8 lac.

(ix) An Indian bank wants to find their Nostro A/c with a US correspondent by US $ 500000 against INRS when interbank rate is US $ 1= Rs.47.20/50 . The deal is struck and the overseas bank's Vostro A/c that is being maintained with the India bank will be credited by :

(a) Rs. 23,600,000

(b) Rs. 23,750,000

(c) Rs. 23,675,000

(d) Rs. 23,712,500

(x) The stock of ABC Ltd sells for Rs. 240. The present value of exercise price and value of call option are Rs. 217.40 and Rs. 39.60 respectively. What is the value of put option?

(a) Rs. 16.50

(b) Rs. 22.00

(c) Rs.17.00

(d) Rs.18.00

Answer 1.

(i) (d) 5 year Public Deposit. 5 year deposit has maturity of more than 1 year. Hence it is not a security in the money market.

(ii) (c) The dividend payout ratio is 0%. As per MM approach the dividend payout ratio is 100%, i.e there are no retained earnings.

(iii) (b) To know with certainty the quantum of future cash flows.

(iv) (b) 25%.

According to Du-Pont Analysis,

$$ROE = \left(\frac{\text{Net profit}}{\text{Sales}}\right) \times \left(\frac{\text{Sales}}{\text{Av.Assets}}\right) \times \left(\frac{\text{Av.Assets}}{\text{Av.Equity}}\right)$$

$$\frac{\text{Av. Assets}}{\text{Av. Equity}} = \frac{1}{(1-0.60)} = \frac{1}{0.40} = 2.50$$

ROE= 0.05 × 2 × 2.5 = 0.25 i.e 25%.

(v) (a) Current Ratio is less than 1.00. Current Ratio less than 1 indicates use of Current Assets in funding long term liabilities.

(vi) (d) 102

P3=D4/Ke – g=Do(1+g)^4 /Ke – g = 3(1+0.08)^4/0.12-0.08=3 × (1.360)/0.04=4.08 / 0.04=Rs. 102/-

(vii) (c) Rs. 57.04/ US $.

According to purchase power parity, spot rate after 5 years

= Rs. 45 × [(1+.08)/(1+.03)] = 45[1.469/1.159] = 45 × 1.2675 = 57.04.

(viii) (d) Rs. 225.8 lac.

The working capital requirement is for 45 days of the weighted operating cycle plus normal cash balance = Sales per day × weighted operating cycle+ cash balance requirement

= Rs. 5 lac × 45 + Rs. 0.80 lac = Rs. 225.80 lac.

(ix) (a) Rs. 23,600,000. Rs. 47.20 × 5,00,000 = Rs. 2,36,00,000.

(x) (c) Rs.17.00.

Value of put option = Value of Call option + PV of exercise price – Stock price
= Rs. (39.60+217.40-240) = Rs. 17.

Q. 2. State two basic objectives of Financial Management.

Answer 2.

Financial Management deals with the procurement of funds and their effective utilization in the business. The first basic function of financial management is procurement of funds and the other is their effective utilization.

(i) *Procurement of funds* : Funds can be procured from different sources, their procurement is a complex problem for business concerns. Funds procured from different sources have different characteristics in terms of risk, cost and control.

(1) The funds raised by issuing equity share poses no risk to the company. The funds raised are quite expensive. The issue of new shares may dilute the control of existing shareholders.

(2) Debenture is relatively cheaper source of funds, but involves high risk as they are to be repaid in accordance with the terms of agreement. Also interest payment has to be made under any circumstances. Thus there are risk, cost and control considerations, which must be taken into account before raising funds.

(3) Funds can also be procured from banks and financial institutions subject to certain restrictions.

(4) Instruments like commercial paper, deep discount bonds, etc also enable to raise funds.

(5) Foreign direct investment (FDI) and Foreign Institutional Investors (FII) are two major routes for raising funds from international sources, besides ADR's and GDR's.

(ii) *Effective utilisation of funds* : Since all the funds are procured at a certain cost, therefore it is necessary for the finance manager to take appropriate and timely actions so that the funds do not remain idle. If these funds are not utilised in the manner so that they generate an income higher than the cost of procuring them then there is no point in running the business.

Q. 3. What do you understand by Foreign Exchange Risk? State the different types of Foreign Exchange Exposure?

Answer 3.

Foreign Exchange risk is an exposure of facing uncertain future exchange rate. When firms and individuals are engaged in cross- border transactions, they are potentially exposed to foreign exchange risk that they would not encounter in purely domestic transactions.

The following three categories are the most commonly used classification of foreign exchange risk exposure:

(i) **Transaction Exposure** — It occurs when one currency is to be exchanged for another and when a change in foreign exchange rate occurs between the time a transaction is executed and the time it is settled.

(ii) **Consolidation (Translation) Exposure** — When the assets and liabilities of trading transactions are denominated in foreign currencies, then there may be risk of translation from such denominations into home currencies. This will also be due to fluctuations in the rates of different currencies.

(iii) **Economic Exposure** — It is the risk of a change in the rate affecting the company's competitive position in the market. It is normally defined as the effect on future cash flows of unpredicted future movements in exchange rates. This affects a firm's competitive position across the various markets and products and hence the firm's real economic value.

Q. 4. Write short notes on :

(a) Leads and lags.

(b) Forfaiting

(c) Marking to market.

Answer 4. (a)

Leads and lags technique consists of accelerating or delaying receipt or payment in foreign exchange as warranted by the position /expected position of the exchange rate. If depreciation of national currency is apprehended, importers would like to clear their dues expeditiously in foreign currencies; exporters would like to delay the receipt from debtors abroad. The converse is true if appreciation in national currency is anticipated. These actions however if generalized all over the country may weaken or strengthen the national currency further.

Answer 4. (b)

Forfaiting is a mechanism of financing exports,

- By discounting export receivables.
- Evidence by bills of exchange or promissory notes.
- Without recourse to the seller
- Carrying medium to long maturities.
- On a fixed rate basis(discount)
- Upto 100% of the contract value.

Simply put, Forfaiting is the non-recourse discounting of export receivables. In a forfaiting transaction, the exporters surrenders without recourse to him, his rights to claim for payment on goods delivered to an importer in return for immediate cash payment from a forfeiter. As a result, an exporter in India can convert a credit sale into a cash sale with no recourse to the exporter or his banker.

Answer 4. (c)

The expression 'marking to market' implies doing a current valuation of an existing investment. In the context of an organized futures market one evaluates the current outstanding futures position with closing prices. At the end of each trading session, all outstanding contracts are appraised at the settlement price of that trading session. This is known as 'marking to market'. The 'marking to market' convention determines the required cash flows into and out of the customers' margin account as market price of the futures contract falls and rises.

This would means that some participants would make a loss while others would stand to gain. The exchange adjusts this by debiting the margin accounts of those members who made a loss and crediting the accounts of those members who have gained. Thus the value of the future contracts is set to zero at the end of each trading day.

Q. 5. AKG Ltd. is presently operating at 60% level producing 54,000 packets of namkeen and proposes to increase capacity utilisation in the coming year by $33\frac{1}{3}$% over the existing level of production. The following data has been supplied :

(i) Unit cost structure of the product at current level :

	Rs.
Raw Material	**6**
Wages (Variable)	**3**
Overheads (Variable)	**3**
Fixed Overhead	**1.5**
Profit	**4.5**
Selling Price	**18**

(ii) Raw materials will remain in stores for 1 month before being issued for production. Material will remain in process for further 1 month. Suppliers grant 3 months credit to the company.

(iii) Finished goods remain in godown for 1 month.

(iv) Debtors are allowed credit for 2 months.

(v) Lag in wages and overhead payments is 1 month and these expenses accrue evenly throughout the production cycle.

(vi) No increase either in cost of inputs or selling price is envisaged.

Prepare a projected profitability statement and the working capital requirement at the new level, assuming that a minimum cash balance of Rs. 29250 has to be maintained.

Answer 5.

AKG LIMITED
Projected Profitability Statement at 80% capacity
Units to be produced (54000/60 × 80) = 72000 packets

		Rs.		Rs.
A.	Cost of Sales :			
	Raw material	6 × 72,000	=	432,000
	Wages	3 × 72,000	=	216,000
	Overheads (Variable)	3 × 72,000	=	216,000
	Overheads (Fixed)	1 × 54000	=	54000
				918,000
B.	Profit	5.25 × 72,000	=	378000
C.	Sale value	18 × 72,000	=	1296000

Working Note :

Capacity		**60%**		**80%**
Number of units of production		54,000		72,000
	Cost/Unit	**Rs.**		**Rs.**
Raw material stock (1 month)	6	27,000		36,000
WIP Stock:				
Material (1 month)	6	27,000		36,000
Wages (1/2 month)	3	4,500		9,000
Variable overheads (1/2 month)	3	4,500		9,000
Fixed overheads (1/2 month)	1.5	2,250	(0.75)	2,250
Finished goods (1 month)	13.5	60,750	(12.75)	76,500
		1,26,000		1,68,750
Increase in Stock				42,750

Working Notes :

Cost of Sales-average per month

	Per annum	**Per month**
Raw material	432,000	36,000
Wages	216,000	18000
Overheads (Variable)	216,000	18,000
Overheads (Fixed)	54,000	4500
	918,000	76500
Profit	378,000	31500
Sale value	1296,000	108,000

Projected Statement of Working Capital at 80% capacity

Current Assets :			
Raw material (72000/12 × 6)		36,000	
Work in process		56,250	
Materials (72,000 × 6 × 1/12)	36,000		
Wages (72,000 × 3 × 1/24)	9,000		
Variable overheads (72,000 × 3 × 1/24)	9,000		
Fixed overheads (72,000 × 0.75 × 1/24)	2,250		
Finished goods (72,000 × 12.75 × 1/12)		76,500	
		1,68,750	
Sundry debtors		2,16,000	
		3,84,750	
Add : Cash balance		29,250	4,14,000(A)
Less: **Current Liabilities :**			
Creditors for goods (72000 × 6 × 3/12)		1,08,000	
Creditors for expenses (72000 × 6.75 × 1/12)		40,500	1,48,500(B)
Net working capital (A) – (B)			2,65,500

Note: (i) Since wages and overheads payments accrue evenly, it is assumed that they will be in process for half a month in average.

(ii) Fixed overheads per unit = Rs. 54,000/75,000 = Rs. 0.75.

Q. 6. (a) Define EVA.

Answer 6. (a)

EVA (Economic Value Added) measures economic profit/loss as opposed to accounting profit/loss. EVA calculates profit/loss after taking into account the cost of capital, which is weighted average cost of equity and debt. Accounting profit, on other hand , ignores cost of equity and thus overstates profit or understates loss.

EVA = NOPAT – K × WACC

Where, NOPAT = Net Operating Profit after Tax = EBIT × (1 – T)

K = Capital employed (equity + debt)

WACC = Weighted average cost of capital.

The estimates are fine tuned through several adjustments. For instance, NOPAT is estimated excluding non-recurring income or expenditure.

EVA is a residual income which a company earns after capital costs are deducted. It measures the profitability of a company after having taken into account the cost of all capital including equity. Therefore, EVA represents the value added to the shareholders by generating operating profits in excess of the cost of capital employed in the business.

EVA increases if :

(i) Operating profits grow without employing additional capital.

(ii) Additional capital is invested in projects that give higher returns than the cost of incurring new capital and

(iii) Unproductive capital is liquidated i.e. curtailing the unproductive uses of capital.

In India, EVA has emerged as a popular measure to understand and evaluate financial performance of a company.

Q. 6. (b) Calculate economic value added (EVA) with the help of the following information of HPC Limited :

Financial leverage	**:**	**1.4 times**
Capital structure	**:**	**Equity Capital Rs. 425 lacs** **Reserves and surplus Rs. 325 lacs** **10% Debentures Rs. 1000 lacs**
Cost of Equity	**:**	**17.9%**
Income Tax Rate	**:**	**30%.**

Answer 6. (b)

Financial Leverage = PBIT/PBT

1.4 = PBIT / (PBIT – Interest)

1.4 = PBIT / (PBIT – 100)

1.4 (PBIT – 100) = PBIT

1.4 PBIT – 140 = PBIT

1.4 PBIT – PBIT = 140

0.4 PBIT = 140

PBIT = 140/.4 = 350 lacs

NOPAT = PBIT – Tax = Rs. 350 lacs (1 – 0.30) = Rs. 245 lacs.

Weighted average cost of capital (WACC) = 17.9% (750 / 1750) + (1 – 0.30) × (10%) × (1000 / 1750)

= 11.67%

EVA = NOPAT – (WACC × Total Capital)

= Rs. 245 lacs – 0.117 × Rs. 1750 lacs

= Rs. 245-204.75 lacs = Rs. 40.25

Q. 7. Write short notes on :

(a) Role of a Financial Adviser in a Public Sector Undertaking

(b) Strategic Financial Planning in Public Sector.

Answer 2. (a)

Ans: a) The financial adviser occupies an important position in all public sector undertakings. He functions as the principal advisor to the chief executive of the enterprise on all financial matters. The committee on public sector undertakings has specified the following functions and responsibilities for a financial adviser :

(i) Determination of financial needs of the firm and the ways these needs are to be met.

(ii) Formulation of a programme to provide most effective cost-volume profit relationship.

(iii) Analysis of financial results of all operations and recommendations concerning future operations.

(iv) Examination of feasibility studies and detailed project reports from the point of view of overall economic viability of the project.

(v) Conduct of special studies with a view to reduce costs and improve efficiency and profitability.

Answer 2. (b)

An important aspect in the management of public sector enterprises is the relevance of strategic financial planning technique in dealing with conflicting objectives. It is an effective mode to optimize the flow of funds required by the overall corporate strategy and to make adequate provisions to meet contingencies. This requires :

1. The development of adequate financial information system.
2. The existence of clear strategic financial objectives.
3. The co-ordination of plan with the Government's economic, social, fiscal and monetary policies.

In fact, the public sector is set for a major change. It is poised for a major face lift. "The public sector will become selective in the coverage of activities and its investment will be focused on strategic high-tech and essential infrastructure." The Government has also clarified that the public sector has to mend for itself and stop relying on Government's budgetary support.

Q. 8. GDL Ltd. is having an expansion plan to cater to a growing market for its products. The company may finance the expansion either through an issue of 12% debentures or through an issue of shares at a price of Rs. 10 per share. The total funds requirement is Rs. 120 lac. The company's profitability statement prior to expansion is summarized as follows :

Particulars	*Rs. in lacs*
Sales	1600
Less, Costs excluding depreciation	1100
EBDIT	500
Less depreciation	70
EBIT	430
Less Interest	80
PBT	350
Less, income tax @ 30%	105
PAT	245
No. of shares(lacs)	65
EPS	3.77

The various possible values of EBIT, after expansion and probabilities associated with each of the values are as follows :

EBIT(Rs. in lac)	Probability
470	0.15
500	0.25
520	0.50
550	0.10

You are required to calculate :

(a) The companies expected EBIT, EPS and their standard deviation for each plan. What can you infer from the values?

(b) Is there an EBIT indifference point between both plans? What does this imply?

Answer 8.

Expected EBIT for for plans I and II

= (470 × 0.15) + (500 × 0.25) + (520 × 0.50) + (550 × 0.10)

= 70.5 + 125 + 260 + 55 = Rs. 510.5 lacs

Standard Deviation in EBIT for Plans I and II

$[(470 – 510.5)^2 \times 0.15 + (500 – 510.5)^2 \times 0.25 + (520 – 510.5)^2 \times 0.50 + (550 – 510.5)^2 \times 0.10]^{1/2}$

$=[246.03 + 27.56 + 45.125 + 156.025]^{1/2}$

$= \sqrt{475.74}$ = Rs. 21.79

Plan I : Issue of 12% Debentures

Probability	0.15	0.25	0.50	0.10
EBIT	470	500	520	550
Less : Int. [80 + (120 × 12)	94.4	94.4	94.4	94.4
PBT	375.6	405.6	425.6	455.6
Tax@30%	112.68	121.68	127.68	136.68
PAT	262.92	283.92	297.92	318.92
No. of shares (in units)	65	65	65	65
EPS (Rs.)	4.04	4.37	4.58	4.91

Expected EPS = (4.04*0.15)+(4.37*0.25)+(4.58*0.50)+4.91*0.10)

= 0.606+1.0925+2.29+0.491 = 4.4795

σEPS = $[(4.04-4.8)^2*0.15 +(4.37–4.48)^2*.25+(4.58–4.48)^2*.50+(4.9–4.48)^2*0.10]^{1/2}$

= $[0.029+.003+.005+.018]^{1/2}$

= $[.055]^{1/2}$

= 0.0523

Plan II : Issue of shares

Probability	0.15	0.25	0.50	0.10
EBIT	470	500	520	550
Less: Int	80	80	80	80
PBT	390	420	440	470
Less: Tax@30%	117	126	132	141
PAT	273	294	308	329
No. of shares(in units)	77	77	77	77
EPS(Rs.)	3.545	3.818	4	4.273

Expected EPS=(3.545*0.15)+(3.818*0.25)+(4*0.50)+(4.273*0.10)

=0.532+0.955+2+0.427=3.914

σEPS = $[(3.545–3.914)^2*0.15+(3.818–3.914)^2*0.25+(4–3.914)^2*0.5+(4.273–3.914)^2*0.10]^{1/2}$

= $[0.020+.002+.004+.013]^{1/2}$

= $[0.039]^{1/2}$

= 0.197

Co-efficient of variation=.197/3.914=0.050

As Co-efficient of Variation is a little lower in case of issue of shares, it is preferable.

(b) EBIT indifference point :

$[(EBIT-I_1)(1-t)]/n_1 = [(EBIT-I_2)(1-t)]/n_2$

or, [(EBIT-94.4)(0.7)]/65 = [(EBIT-80)(.7)]/77

or, (.7EBIT-66.08)/65 = (.7EBIT-56)/77

or, 77(0.7EBIT -66.08) = 65(0.7EBIT-56)

or, (53.9-45.5) EBIT = 5088.16-3640

or, 8.4 EBIT = 1448.16

or, EBIT = 172.4 lac

The EBIT indifference point of Rs. 172.4 lac means that if EBIT is below Rs.172.4 lac, Equity finance is preferable to debenture financing.

Q. 9. (a) From the following details of HPL Ltd. Calculate the Cost of Capital.

Debt	Amount	Nominal Interest
Foreign Loan	US $ 100 million	5%
Local Currency Loan	Rs. 2200 million	12%

Expected depreciation of rupee	: 3% per annum
Current exchange rate	: Rs. 45 per US $
Bank /FI guarantee for raising foreign capital	: 1%

Equity Capital	:	Rs. 3000 million
Unlevered Beta	:	0.6
Risk-free Rate	:	6%
Market Premium	:	8%

The project expected to have an effective tax rate of 30 per cent.

Answer 9. (a)

HPL Ltd.

	Amount (Rs. Million	Interest (%)
Foreign loan	4,500 (100 × 45)	5 + 3 + 1 = 9%
Local currency	2,200	12%
Total	6,700	

Average interest rate (i) = (9 × 4,500 + 12 × 2,200)/6,700 = 9.985%

After tax cost of borrowing (K_d) = I × (1–t) = 9.985 × (1– 0.30) = 6.99%

Debt-equity ratio = 6,700/3,000 = 2.23

Levered beta (β_L) = (β_{uL}) × {E + D (1–t)}/E

= 0.6 × {1 + 2.23 (1–0.30)}/1

= 0.6 × (1 + 1.561)

= 1.537

Cost of equity = $R_f + \beta_L \times (R_m - R_f)$

= 0.06 + 1.537 × 0.08

= 0.18296 i.e. 18.30%

Weighted average Cost of Capital is given by :

WACC = K_e (E/E+D) + K_d(D/E+D)

= 0.1830 × (3000/{3000 + 6700}) + 0.0699 × (6700/{3000 + 6700})

= 0.1830 × 0.31 + 0.0699 × 0.691 = 0.1050 i.e. 10.50%

Q. 9. (b) MB Leasing Company has been approached by a client to write a 5-year lease on an equipment. The equipment is eligible for depreciation at 25 per cent for Income Tax purpose. In the terminal year, the client will be required to pay 1 per cent of the equipment cost to acquire the ownership of the asset. The post-tax rate of return of the leasing company is 12 per cent. Assuming that the lessor is subject to a Corporate tax rate of 35 per cent, calculate pre-tax annual lease rental payable in arrear, and express the same in terms of standard lease quotation i.e. rupees per THOUSAND per month.

Note : Extracted from the table :

(i) The present value factors at 12% discount rate for 0 to 5 years are : 1,0000, 0.8928, 0.7972, 0.7118, 0.6355 and 0.5674.

(ii) The present value factor of an annuity of Re. 1 for 60 months at 12% [using the formula : $1-(1+r)^{-n}/r$] = 44.9550.

Answer 9. (b)

MB Leasing Company
Computation of Standard Lease Quotation
(Rs. per 1000 per month)

Depreciation of the equipment is calculated as follows :

Year	Opening book value	WDV Depreciation @ 25%	Closing book value
1	1000.0	250.0	750.0
2	750.0	187.5	562.5
3	562.5	140.6	421.9
4	421.9	105.5	316.4
5	316.4	79.1	237.3

Present value of depreciation @ 12%

= 250.0 × .8928 + 187.5 × .7972 + 140.6 × .7118 + 105.5 × .6355 + 79.1 × .5674
= 584.68

Present value of Tax savings on depreciation : Rs. 584.68 × 0.35 = Rs. 204.64

Present value of Residual Cash flow :

Rs. 1000 × 0.01 (1% of equipment cost) × 0.5674 = Rs. 5.67

Amount to be recovered through post-tax lease rental :

			Rs.
Asset value :			1000.00
Less :	Tax savings on depreciation	204.64	
Less :	Residual cash flow	5.67	210.31
	Net post-tax lease Rental (Total)		**789.69**

Post-tax lease rental = Rs. 789.69 ÷ 44.955 = Rs. 17.57 (Per thousand per month)

Pre-Tax Lease Rental : 17.57/(1– 0.35) = 17.57/0.65
= Rs. 27.03 per thousand per month.

Q. 10. (a) What are the determinants of Dividend Policy?

Answer 10. (a)

The following are the important factors which generally determine the dividend policy of a firm.

(i) *Dividend payout ratio* : A major aspect of the dividend policy of a firm is its Dividend Payout (D/P) ratio, i.e., the percentage share of the net earnings distributed to shareholders as dividends. Since dividend policy of the firm affects both the shareholders' wealth and the long term growth of the firm, an optimum dividend policy should strike out a balance between current dividends and future growth which maximises the price of the firm's shares. The D/P ratio of a firm should be determined with reference to two basic objectives maximizing the wealth of the firm's owners and providing sufficient funds to finance growth/expansion plans.

(ii) *Stability of dividends* : Stability of dividends is another major aspect of dividend policy. The term dividend stability refers to the consistency or lack of variability in the stream of future dividends. Precisely, it means that a certain minimum amount of dividend is paid out regularly.

(iii) *Legal, contractual and internal constraints and restrictions* : The firms' dividend decision is also affected by certain legal, contractual and internal requirements and commitments. Legal factors stem from certain statutory requirements, contractual restrictions arise from certain loan covenants and internal constraints are the result of the firm's liquidity position. Though legal rules do not require a dividend declaration, they specify the conditions under which dividends can be declared. Such conditions pertain to (a) capital impairment, (b) net profits, (c) insolvency, (d) illegal accumulation of excess profit and, (e) payment of statutory dues before declaration of dividends.

(iv) *Tax consideration* : The firm's dividend policy is directed by the provisions of income-tax law. If a firm has a large number of owners, in high tax bracket, its dividend policy may be to have higher retention. As against this if the majority of shareholders are in lower tax bracket requiring regular income the firm may resort to higher dividend payout, because they need current income and the greater certainty associated with receiving the dividend now, instead of the less certain prospect of capital gains later.

(v) *Capital market consideration* : If the firm has an access to capital market for fund raising, it may follow a policy of declaring liberal dividend. However, if the firm has only limited access to capital markets, it is likely to adopt-low dividend payout ratio. Such firms are likely to rely more heavily on retained earnings.

(vi) *Inflation* : Lastly, inflation is also one of the factors to be reckoned with at the time of formulating the dividend policy. With rising prices, accumulated depreciation may be inadequate to replace obsolete equipments. These firms have to rely upon retained earnings as a source of funds to make up the deficiency. This consideration becomes all the more important if the assets are to be replaced in the near future. Consequently, their dividend payout ratio tends to be low during periods of inflation.

Q. 10. (b) X Ltd. is foreseeing a growth rate of 14% per annum in the next 2 years. The growth rate is likely to fall to 12 % for the third year and fourth year. After that the growth rate is expected to stabilize at 10% per annum. If the last dividend paid was Rs. 2.25 per share and the investors' required rate of return is 18%, find out the intrinsic value per share of X Ltd. as of date. You may use the following table :

Years	0	1	2	3	4	5
Discounting Factor at 18%	1	0.85	0.72	0.61	0.52	0.44

Answer 10. (b)

Present value of dividend stream for first 2 years.

Rs. 2.25 (1.14) × .85 + 2.25 $(1.14)^2$ × .72

Rs. 2.565 × .85 + 2.924 × .72

Rs. 2.18 + 2.11 = 4.29 (A)

Present value of dividend stream for next 2 years

Rs. 2.924 (1.12) × .61 + 2.924 $(1.12)^2$ × .52

Rs. 3.27 × .61 + 3.67 × .52

Rs. 2 + 1.91 = 3.91 (B)

Market value of equity share at the end of 4th year computed by using the constant dividend growth model, would be :

$$P_4 = \frac{D_5}{K_s - g_n}$$

Where D_5 is dividend in the fifth year, g_n is the growth rate and K_s is required rate of return.

Now $D_5 = D_4 (1 + g_n)$

∴ D_5 = Rs. 3.67 (1 + 0.10)

= Rs. 4.037

∴ P_4 = Rs. 4.037/(.18–.10) = 4.037/.08 = Rs. 50.46

Present market value of P_4 = 50.46 × .52 = Rs. 26.239(C)

Hence, the intrinsic value per share of X Ltd. would be

A + B + C i.e. Rs. 4.29 + 3.91 + 26.239 = Rs. 34.439

Q. 11. Complete the Balance Sheet given below with help of the following information :

Gross Profits	**Rs. 40,500**
Shareholders' Funds	**Rs. 5,75,000**
Gross Profit margin	**15%**
Credit sales to Total sales	**60%**
Total Assets turnover	**0.3 times**
Inventory turnover	**4 times**
Average collection period (a 360 days year)	**20 days**
Current ratio	**1.35**
Long-term Debt to Equity	**45%**

Balance Sheet

Creditor	.....	**Cash**	.....
Long-term debt	.....	**Debtors**	.....
Shareholders' funds	.....	**Inventory**	.....
		Fixed assets	.....

Answer 11.

Gross Profits	Rs. 40,500
Gross Profit Margin	15%
∴ Sales	$= \frac{\text{Gross Profits}}{\text{Gross Profit Margin}}$
	= Rs. 40,500 / 0.15
	= Rs. 2,70,000
Credit Sales to Total Sales	= 60%
∴ Credit Sales	= Rs. 2,70,000 × 0.60
	= Rs. 1,62,000
Total Assets Turnover	= 0.3 times
∴ Total Assets	$= \frac{\text{Sales}}{\text{Total Assets Turnover}}$
	$= \frac{\text{Rs. 2,70,000}}{0.3}$
	= Rs. 9,00,000
Sales – Gross Profits = COGS	
∴ COGS = Rs. 2,70,000 – 40,500	= Rs. 2,29,500
Inventory turnover = 4 times	
Inventory = COGS/ Inventory turnover=229500/4	= Rs. 57375
Average Collection Period = 20 days	
∴ Debtors turnover	$= \frac{360}{\text{Average Collection Period}}$
	= 360/20=18
∴ Debtors	$= \frac{\text{Credit Sales}}{\text{Debtors turnover}}$
	= 162000/18
	= Rs. 9000
Current ratio	= 1.35
1.35	= [Debtors+ Inventory +Cash]/Creditors
1.35 Creditors	= (Rs. 9000 + Rs. 57375 + Cash)
1.35 Creditors	= Rs. 66375 + Cash
Long-term Debt to Equity	= 45%
Shareholders Funds	= Rs. 575000
∴ Long-term Debt	= Rs. 575,000 × 45%
	= Rs. 258750
Creditors (Balance figure)	= 9, 00,000 – (575000 + 258750)
	= Rs. 66250

∴ Cash = (66250×1.35) – 66375
= Rs.23062.50

Balance Sheet (in Rs.)

Creditors (Bal. Fig)	66250	Cash	23063.
		Debtors	9000
Long- term debt	258750	Inventory	57375
Shareholders' funds	575000	Fixed Assets (Bal fig.)	810562
	9,00,000		9,00,000

Q. 12. Balance Sheet of OP Ltd. as on 31st March, 2009 and 2010 are as follows :

Liabilities	Amount 31.3.2009 Rs.	Amount 31.3.2010 Rs.	Assets	Amount 31.3.2009 Rs.	Amount 31.3.2010 Rs.
Share capital	15,00,000	15,00,000	Land and Building	11,25,000	10,50,000
General Reserve	3,00,000	3,37,500	Plant and Machinery	13,50,000	13,12,500
Profit and Loss A/c	1,87,500	2,70,000	Investment	3,00,000	2,79,000
10% Debentures	7,50,000	6,00,000	Stock	3,60,000	6,37,500
Bank Loan (long-term)	3,75,000	4,50,000	Debtors	4,50,000	5,98,500
Creditors	3,00,000	4,35,000	Prepaid Expenses	37,500	30,000
Outstanding Expenses	15,000	18,750	Cash and Bank	1,05,000	63,750
Proposed Dividend	2,25,000	2,70,000			
Provision for taxation	75,000	90,000			
	37,27,500	39,71,250		3727500	3971250

Additional informations :

(i) New machinery for Rs. 2,25,000 was purchased but an old machinery costing Rs. 1,08,750 was sold for Rs. 37,500 and accumulated depreciation thereon was Rs. 56,250.

(ii) 10% debentures were redeemed at 20% premium.

(iii) Investment were sold for Rs. 33,750, and its profit was transferred to general reserve.

(iv) Income-tax paid during the year 2009-10 was Rs. 60,000.

(v) An interim dividend of Rs. 90,000 has been paid during the year 2009-10

(vi) Assume the provision for taxation as current liability and proposed dividend as non-current liability.

(vii) Investment are non-trade investment.

You are required to prepare:

(i) Schedule of changes in working capital.

(ii) Funds flow statement.

Answer 12.

(i) **Schedule of Changes in Working Capital**

Particulars	31st March		Working Capital	
	2009 Rs.	*2010 Rs.*	*Increase Rs.*	*Decrease Rs.*
A. Current Assets:				
Stock	3,60,000	6,37,500	2,77,500	—
Debtors	4,50,000	5,98,500	1,48,500	—
Prepaid Expenses	37,500	30,000	—	7,500
Cash and Bank	1,05,000	63,750	—	41,250
Total (A)	9,52,500	13,29,750		
B. Current Liabilities:				
Creditors	3,00,000	4,35,000	—	1,35,000
Outstanding Expenses	15,000	18,750	—	3,750
Provision for Taxation	75,000	90,000	—	15,000
Total (B)	3,90,000	5,43,750		
Working Capital (A – B)	5,62,500	7,86,000	4,26,000	2,02,500
Increase in Working Capital				2,23,500
Total			4,26,000	4,26,000

(ii) **Funds Flow Statement**
for the year ending 31st March, 2010

Sources of Funds	Amount Rs.	Application of Funds	Amount Rs.
Funds from operations	7,97,250	Redemption of debentures	1,80,000
Bank loan taken	75,000	Purchase of machinery	2,25,000
Sale of Machinery	37,500	Dividend paid	2,25,000
Sale of Investment	33,750	Interim Dividend paid	90,000
		Increase in working capital	2,23,500
	9,43,500		**9,43,500**

Workings :

1. Funds from operations :

Adjusted Profit and Loss A/c

	Rs.	Rs.		Rs.
To General Reserve		24,750	By Balance b/d	1,87,500
To Depreciation			By Funds from operations	7,97,250
On Land and Building	75,000		(Balancing figure)	
On Plant & Machinery	2,10,000	2,85,000		
To Loss on Sale of Machine		15,000		
To Premium on Redemption of Debentures		30,000		
To Proposed Dividend		2,70,000		
To Interim Dividend		90,000		
To Balance c/d		2,70,000		
		9,84,750		**9,84,750**

2. **Depreciation on Land and Building** = Rs. 11,25,000 – Rs. 10,50,000 = Rs. 75,000

3. **Loss on Sale of Old Machine** = Cost Rs. 1,08,750 – Rs. 56,250 (Cum-Dep.) – Rs. 37,500 (Sales value) = Rs. 15,000

4. **Depreciation on Plant and Machinery :**

Plant and Machinery A/c

Dr. *Cr.*

	Rs.		Rs.
To Balance b/d	13,50,000	By Bank A/c (Sold)	37,500
To Bank A/c (Purchases)	2,25,000	By Profit and Loss A/c (Loss on Sales)	15,000
		By Depreciation (Balancing figure)	2,10,000
		By Balance c/d	13,12,500
	15,75,000		**15,75,000**

5. **Premium on Redemption of Debentures :**

Amount of Debenture Redeemed = Rs. 750,000 – Rs. 6,00,000

= Rs. 150,000

Premium = Rs. 150,000 × 20/100

= Rs.30,000

6. Profit on sale of investment :

Investment A/c

Dr. *Cr.*

	Rs.		Rs.
To Balance b/d	3,00,000	By Bank A/c (Sales)	33,750
To General Reserve (Profit on Sales)	12,750	By Balance c/d	279,000
	3,12,750		3,12,750

7. Amount transferred to General Reserve from Profit and Loss A/c :

General Reserve A/c

Dr. *Cr.*

	Rs.		Rs.
To Balance c/d	3,37,500	By Balance b/d	3,00,000
		By Investment A/c	12,750
		By Profit and Loss A/c	24,750
	3,37,500		3,37,500

Q. 13. PQR Limited has the following Balance Sheets as on March 31, 2009 and March 31, 2008 :

Balance Sheet

Rs. in lacs

	March 31, 2009	*March 31, 2008*
Sources of Funds:		
Shareholders Funds	**3565.5**	**2208**
Loan Funds	**5355.0**	**4624.5**
	8920.5	**6832.5**
Applications of Funds:		
Fixed Assets	**5199.0**	**4350**
Cash and bank	**733.5**	**705**
Debtors	**2242.5**	**1752**
Stock	**4300.5**	**3610.5**
Other Current Assets	**2350.5**	**2106.0**
***Less*: Current Liabilities**	**(5905.5)**	**(5691.0)**
	8920.5	**6832.5**

The Income Statement of the PQR Ltd. for the year ended is as follows :

	Rs. in lacs	
	March 31, 2009	*March 31, 2008*
Sales	**33247.5**	**20823**
***Less*: Cost of Goods sold**	**31290.0**	**18816**
Gross Profit	**1957.5**	**2007**
Less: Selling, General and Administrative expenses	**1702.5**	**1128**
Earnings before Interest and Tax (EBIT)	**255.0**	**879.0**
Interest Expense	**169.5**	**157.5**
Profits before Tax	**85.5**	**721.5**
Tax	**34.5**	**288.0**
Profits after Tax (PAT)	**51.0**	**433.5**

Required :

(i) Calculate for the year 2008-09 :

(a) Inventory turnover ratio

(b) Financial Leverage

(c) Return on Investment (ROI)

(d) Return on Equity (ROE)

(e) Average Collection period.

(ii) Comment on the Financial Position of PQR Limited.

Answer 13.

Ratios for the year 2008-2009

(i) (a) Inventory turnover ratio

$$= \frac{\text{COGS}}{\text{Average Inventory}}$$

= 31290/[(4300.5+3610.5)/ 2] = 31290/(7911/ 2) = 31290/3955.5=

= 7.91

(b) Financial leverage

$$= \frac{\text{EBIT}}{\text{EBIT} - \text{I}}$$

	2008-09	*2007-08*
	=255/85.5	=879/721.5
	= 2.98	= 1.22

(c) ROI

$$= \frac{\text{NOPAT}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average Capital employed}}$$

= [85.5 × (1-.4)/ 33247.5] × 33247.5 /[(8920.5+6832.5)/ 2]

= (51.3/33247.5) × (33247.5/ 7876.5)

= 0.65%

(d) ROE

$$= \frac{\text{PAT}}{\text{Average shareholders' funds}}$$

= 51/[(3565.5 + 2208)]/ 2 = 51/ 2886.75

= 1.77%

(e) Average Collection Period*

Average Sales per day=33247.5/365=91.09 lacs.

Average collection period =Average Debtors/Average sales per day

= (2242.5+1752)/2 × (1/91.09) = 3994.5/2 × 1/91.09 = 1997.25/91.09 = 22 Days.

(ii) Comment on the financial position of PQR Ltd.

Due to increase in operating expenses, the profitability of operations of the company are showing a declining trend. The financial and operating leverages are becoming adverse.

The liquidity of the company is under great danger.

Q. 14. (a) The financial highlights of AMT Ltd. For the year 2008-09 are as follows :

EBIT	**Rs. 830 crore**
Depreciation	**Rs. 6 crore**
Effective tax rate	**30%**
EPS	**RS. 4.00**
Book Value	**Rs. 30 per share**
Number of outstanding shares	**33 crore**
D/E Ratio	**1.5: 1**

Required :

(i) Calculate Degree of Financial Leverage.

(ii) What is the Financial Break-even Point of AMT Ltd?

(iii) What should be impact of EPS if the EBIT is increased by 5%?

Answer 14. (a)

AMT Ltd.

Particulars	**Rs. in crore**
EBDIT	830.00
Less: Depreciation	6.00
EBIT	824.00
Less: Interest Charges	635.43
(EBIT-EBT) : (824 – 188.57)	
EBT	188.57
Less: Tax (30%)	56.57
EAT	132.00

Degree of Financial Leverage (DFL) : (824/188.57) = 4.37

Q. 14. (b) A company is presently working with an earning before interest and taxes (EBIT) of Rs. 90 lakhs. Its present borrowings are :

	(Rs. Lacs)
12.5% term loan	**300**
Working capital :	
Borrowing from Bank at 13%	**200**
Public deposit at 11.5%	**90**

The sales of the company is growing and to support this the company proposes to obtain additional borrowing of Rs. 100 lakhs expected to cost 15%. The increase in EBIT is expected to be 15%.

Calculate the change in interest coverage ratio after the additional borrowing and commitment.

Answer 14. (b)

Calculation of Present Interest Coverage Ratio

Present EBIT = Rs. 90 lakhs

Interest charges (Present)	Rs. in lacs
Term loan @ 12.5%	37.50
Bank Borrowings @ 13%	26.00
Public Deposit @ 11.5 %	10.35
	73.85

$$\text{Present Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest Charges}}$$

= Rs. 90/Rs. 73.85 = 1.22

Calculation of Revised Interest Coverage Ratio

Revised EBIT (115% of Rs. 90 lacs) = 103.50 lacs

Proposed interest charges	*Rs. in lacs*
Existing charges	73.85
Add: Additional charges (15% of additional Borrowings i.e. 100 lacs)	15.00
Total	88.85

Revised Interest Coverage Ratio = 103.50/88.85 = 1.16

Analysis : With the proposed increase in the sales the burden of interest on additional borrowings of Rs. 100 lacs will adversely affect the interest coverage ratio which has been reduced by 6% approximately (i.e. from 1.22 to 1.16).

Q. 14. (c) The net Sales of W Ltd. is Rs. 45 crores. Earnings before interest and tax of the company as a percentage of net sales is 12%. The capital employed comprises Rs. 15 crores of equity, Rs. 3 crores of 12% Cumulative Preference Share Capital and 13% Debentures of Rs. 9 crores. Income-tax rate is 30%.

(i) Calculate the Return-on-equity for the company

(ii) Calculate the Operating Leverage of the Company given that combined leverage is 4.5.

Answer 14. (c)

(i) Net Sales : Rs. 45 crores

EBIT Rs. 5.4 crores @ 12% on sales

ROI = EBIT/Capital Employed × 100 = 5.4/(15+3+9) × 100 = 20%

	Rs. in crores
EBIT	5.4
Interest on Debt	1.17
EBT	4.23
Less : Tax @ 30%	1.269
EAT	2.961
Less : Preference dividend	0.36
Earnings available for Equity Shareholders	2.601

Return on equity = 2.6 / 15 × 100 = 17.33%

(ii) Degree of Financial Leverage = $\frac{\text{EBIT}}{\text{EBIT} - \text{Interest} - \text{Preference dividend}}$

= 5.4 /(5.4 – 1.17–.36) = 5.4/ 3.87 = 1.395

Degree of Combined Leverage = DFL × DOL

4.5 = 1.395 × DOL

∴ Degree of operating leverage = 4.5/1.395 = 3.22

Q. 15. Explore the interrelationship between Investment, Finance and Dividend Decisions.

Answer 15.

The finance functions are divided into three major decisions, viz., investment, financing and dividend decisions. It is correct to say that these decisions are inter-related because the underlying objective of these three decisions is the same, i.e. maximisation of shareholders' wealth. Since investment, financing and dividend decisions are all interrelated, one has to consider the joint impact of these decisions on the market price of the company's shares and these decisions should also be solved jointly. The decision to invest in a new project needs the finance for the investment. The financing decision, in turn, is influenced by and influences dividend decision because retained earnings used in internal financing deprive shareholders of their dividends. An efficient financial management can ensure optimal joint decisions. This is possible by evaluating each decision in relation to its effect on the shareholders' wealth.

The above three decisions are briefly examined below in the light of their inter-relationship and to see how they can help in maximising the shareholders' wealth i.e. market price of the company's shares.

Investment decision*:* The investment of long term funds is made after a careful assessment of the various projects through capital budgeting and uncertainty analysis. However, only that investment proposal is to be accepted which is expected to yield at least so much return as is adequate to meet its cost of financing. This have an influence on the profitability of the company and ultimately on its wealth.

Financing decision*:* Funds can be raised from various sources. Each source of funds involves different issues. The finance manager has to maintain a proper balance between long-term and short-term funds. With the total volume of long-term funds, he has to ensure a proper mix of loan funds and owner's funds. The optimum financing mix will increase return to equity shareholders and thus maximise their wealth.

Dividend decision: The finance manager is also concerned with the decision to pay or declare dividend. He assists the top management in deciding as to what portion of the profit should be paid to the shareholders by way of dividends and what portion should be retained in the business. An optimal dividend pay-out ratio maximises shareholders' wealth.

We can infer from the above discussion that investment, financing and dividend decisions are interrelated and are to be taken jointly keeping in view their joint effect on the shareholders' wealth.

Q. 16. Write short notes on :

(a) Venture capital financing

(b) 'Financial Engineering'

(c) Shareholder Value Analysis

Answer 16. (a)

Venture capital financing refers to financing of new high-risk ventures promoted by qualified entrepreneurs who lack experience and funds to give shape to their ideas. A venture capitalist invests in equity or debt securities floated by such entrepreneurs who undertake highly risky ventures with a potential of success.

Common methods of venture capital financing include :

(i) **Equity financing :** The undertaking's requirements of long-term funds are met by contribution by the venture capitalist but not exceeding 49% of the total equity capital;

(ii) **Conditional Loan** : Which is repayable in the form of royalty after the venture is able to generate sales;

(iii) **Income Note :** A hybrid security combining features of both a conventional and conditional loan, where the entrepreneur pays both interest and royalty but at substantially lower rates;

(iv) **Participating debenture** : The security carries charges in three phases – start phase, no interest upto a particular level of operations; next stage, low interest; thereafter a high rate.

Answer 16. (b)

'Financial Engineering' involves the design, development and implementation of innovative financial instruments and processes and the formulation of creative solutions to problems in finance. Financial Engineering lies in innovation and creativity to promote market efficiency. It involves construction of innovative asset-liability structures using a combination of basic instruments so as to obtain hybrid instruments which may either provide a risk-return configuration otherwise unviable or result in gain by heading efficiently, possibly by creating an arbitrage opportunity. It is of great help in corporate finance, investment management, money management, trading activities and risk management.

In recent years, the rapidity with which corporate finance and investment finance have changed in practice has given birth to a new area of study known as financial engineering. It involves use of complex mathematical modeling and high speed computer solutions.

It has been practiced by commercial banks in offering new and tailor-made products to different types of customers. Financial Engineering has been used in schemes of mergers and acquisitions.

The term financial engineering is often used to refer to risk management also because it involves a strategic approach to risk management.

Answer 16. (c)

Shareholder Value Analysis is an approach to Financial Management developed in 1980s, which focuses on the creation of economic value for shareholders, as measured by share price performance and flow of funds. SVA is used as a way of linking management strategy and decisions to the creation of value for shareholders. The factors, called 'value drivers' are identified which will influence the shareholders' value. They may be – growth in sales, improvement in profit margin, capital investment decisions, capital structure decisions etc. The management is required to pay attention to such value drivers while taking investment and finance decisions. SVA helps the management to concentrate on activities which create value to the shareholders rather than on short-term profitability.

Q. 17. (a) A company is faced with the problem of choosing between two mutually exclusive projects Project A requires a cash outlay of Rs 1,00,000 and cash running expenses of Re. 35,000 per year. On the, other hand, Project B will cost Rs. 1,50,000 and require cash running expenses of Rs. 20,000 per year. Both the machines have a eight-year life. Profect A has a salvage value of Rs. 4,000 and Prolect B has a salvage value of Rs. 14,000. The company's tax rate is 30% and it has a 10% required rate of return.

Assuming depreciation on straight line basis, ascertain which project should be accepted. Present value of an annuity of Re. 1 for 8 years = 5.335 and present value of Re. 1 at the end of 8 years = 0.467, both at the discount rate of 10%.

(b) The present capital structure of a company is as follows :

	Rs. (million)
Equity Shares (Face value = Re. 10)	240
Reserves	360
11 % Preference Shares (Face value = Rs. 10)	120
12 % Debentures	120
14 %Terrn Loans	360
	1,200

Additionally the following information are available:

Company's equity beta	1.06
Yield on long-trm treasury bonds	10%
Stock market risk premium	6%
Current ex-dividend equity share price	Rs. 15
Current ex-dividend preference share price	Re. 12
Current ex-interest debenture market value	Rs. 102.50 per Rs. 100
Corporate tax rate	30%

The debentures are redeem a after 3 years and interest is paid annually.

Ignoring flotation costs, calculate the company's weighted average cost of capital (WACC).

Answer 17. (a)

Financial Evaluation of Project A & Project B

	Project A Rs.	Project B Rs.	Incremental cash flows Rs.
Cash outflows	1,00,000	1,50,000	(50,000)
Cash running expenses (for 8 years)	35,000	20,000	15,000
Depreciation (for 8 years)	12,000	17,000	(5,000)
Total Saving			10,000
Less : Tax @ 30%			(3,000)
Saving after tax			7,000
Add : Depreciation (not being cash outflow)			5,000
Net Saving (P.A.)			2,000
Salvage value at the end of 8th year	4,000	14,000	10,000
Present value of annual saving for 8 years [P. V. of annuity for 8 years = 12,000×5.335]			64,020
Present value of incremental salvage value at the end of 8th year (0.467×10000)			4,670
Total			68,690
Less : Cash outflow (incremental)			(50,000)
Net present value (incremental)			18,690

Recommendation :

Since incremental NPV is positive, it is recommended to accept Project B.

Note :

Annual depreciation of project A = (1,00,000 – 4,000) ÷ 8 = 12,000

Annual depreciation of project B = (1,50,000 – 14,000) ÷ 8 = 17,000

Answer 17. (b)

Market values of component sources of capital

	in Rs. million
Equity shares = 240 / Rs. 10 × Rs. 15	360
Preference shars = 120 / Rs. 10 × Rs. 12	144
Debentures = 120 / Rs. 100 ×102.50	123
Term Loans	360
Total	987

(i) Cost of equity capital : $K_e = R_f + b\,(K_m - R_f)$

Rf = Risk free Rate (treasury bonds) = 10%

Km = Required rate of return on Market Portfolio of assets

Market risk Premium = (Km – Rf) = 6%

b = Equity Beta = 1.06

$\therefore K_e = 0.10 + 1.06\,(0.O6) = 0.1636$ i.e., 16.36%

(ii) Cost of preference shares $= k_p = \frac{D}{P_o} = \frac{\text{Rs. } 1.10}{\text{Rs. } 12} = \text{Rs. } 0.09166 = 9.17\%$

D = Annual Dividend

P_0 = Expected sales price of preference shares.

(iii) Let the pre-tax cost of debenture = kd.

Then —

$$102.50 = \frac{12}{(1+k_d)} + \frac{12}{(1+k_d)^2} + \frac{112}{(1+k_d)^3}$$

$\Rightarrow = k_d = 11\%$

(iv) Pre-tax cost of Term Loan, $K_t = 14\%$

Computation of weighed average cost (WACC) at Market value weights

Sources	Weight	Cost (%) (Pre -tax)	Cost (%) (1–0.40)K	Total Cost %
Equity shares	360/978 = 0.365	16.36	16.36	5.97
Preference shares	144/987 = 0.146	9.17	4.17	1.34
Debentures	123/987 = 0.124	11.00	7.70	0.95
Term Loans	360/987 = 0.365	14.00	9.80	3.58
Total	= 1.00	–	–	11.84

Hence, Weighted Average Cost (WACC) is 11.84%.

Q. 18. An investment corporation wants to study the investment projects based on three factors: market demand in units, price per unit minus cost per unit and the investment required. These factors are felt to be independent of each other. In analyzing a new customer product , the corporation estimates the following probability distributions :

Annual Demand

Units	Probability
20000	0.05
25000	0.10
30000	0.20
35000	0.30
40000	0.20
45000	0.10
50000	0.05

Price minus cost

Rs.	Probability
3.00	0.10
5.00	0.20
7.00	0.40
9.00	0.20
10.00	0.10

Investment Required

Rs.	Probability
17,50,000	0.25
20,00,000	0.50
25,00,000	0.25

Using the Monte Carlo Simulation, determine the return on investment on the basis of 10 trials and using the following ten random numbers: 82, 84, 28, 82, 36, 92, 73, 91, 63, 29.

Answer 18.

Random nos. interval

Annual Demand

Units	Probability	Cumulative Probability	Random Number
20000	0.05	0.05	00-04
25000	0.10	0.15	05-14
30000	0.20	0.35	15-34
35000	0.30	0.65	35-64
40000	0.20	0.85	65-84
45000	0.10	0.95	85-94
50000	0.05	1.00	95-99

Price minus Cost

Rs.	Probability	Cumulative Probability	Random Number
3.00	0.10	0.10	00-09
5.00	0.20	0.30	10-29
7.00	0.40	0.70	30-69
9.00	0.20	0.90	70-89
10.00	0.10	1.00	90-99

Investment Requirement

Rs.	Probability	Cumulative Probability	Random Number
17,50,000	0.25	0.25	00-24
20,00,000	0.50	0.75	25-74
25,00,000	0.25	1.00	75-99

Simulation

Random No.	Annual Demand	Price Minus Cost (Rs.)	Investment (Rs.)	ROI
82	40000*	9.00*	25,00,000	0.144
84	40000	9.00	25,00,000	0.144
28	30000	5.00	20,00,000	0.075
82	40000	9.00	25,00,000	0.144
36	35000	7.00	20,00,000	0.122
92	45000	10.00	25,00,000	0.180
73	40000	9.00	20,00,000	0.180
91	45000	10.00	25,00,000	0.180
63	35000	7.00	20,00,000	0.122
29	30000	5.00	20,00,000	0.075

* ROI = 40,000 × (9/2500000)

Q. 19. Write short notes on :

(a) Capital Rationing

(b) LD Clause

(c) Bridge Finance

(d) Brown Field Project.

Answer 19. (a)

Capital Rationing – Capital Rationing refers to a situation where the firm is constrained for external or self-imposed reasons to obtain necessary funds to invest in all profitable investment projects.

Capital Rationing exists when funds available for investment are to undertake all projects which are otherwise acceptable. Capital Rationing may arise due to :

(i) External constraints, or

(ii) Internal constraints imposed by management.

External Capital Rationing arises out of the inability of firm to raise sufficient funds from the market at given cost of capital.

Internal Capital Rationing is caused by self imposed restriction by management to its capital expenditure outlays.

The selection process under capital Rationing will involve two steps :

(i) Ranking of projects according to some measure of profitability : P.I, BCR, NPV, IRR etc.

(ii) Selecting projects in descending order of profitability until the budget figures are exhausted keeping in view the objective of maximizing the value of the firm.

Answer 19. (b)

LD Clause — Liquidated Damage clause inserted in the contract of contractor or supplier thereby giving a financial protection to owner in event of failure on the part of contractor to fulfill the obligation of the contractor in time. L/D is generally imposed @ 0.5% per week or part thereof subject to maximum 50% of the order value for late execution of order. L/D clause may be made more specific of imposition , may be even day to day basis delay basis.

Answer 19. (c)

Bridge Finance — This is a type of finance where the amount is provided by direct financing institutions either against long term loans or against underwriting of share issue. This is to meet the financial requirements when there is reasonable delay in the public issue. The bridging finance is granted mainly for meeting the urgent and emergent requirements.

Answer 19. (d)

Brown Field Project — A project implemented in the precincts of a working plant/working facility is known as Brown Field Project. Revamping/Replacement/Rehabilitation/ Renovation/Modernisation projects come under this category of BFP. The most common BFP is the modernization or partial renovation of a running plant.

Management of a BFP within framework of an operating plant calls for much more imagination, detailed planning meticulous scheduling and control and an integrated teamwork from all concerned departments like maintenance, engineering, civil construction, and administration.

Q. 20. (a) Following are the data on a capital project being evaluated by the management of Z Ltd.

	Project X Rs.
Annual cost saving	60,000
Useful life	6 years
I.R.R.	15%
Profitability Index (PI)	1.596
NPV	?
Cost of capital	?
Cost of project	?
Payback	?
Salvage value	0

Find the missing values considering the following table of discount factor only:

Discount factor	15%	14%	13%	12%
1 year	0.869	0.877	0.885	0.893
2 years	0.756	0.769	0.783	0.797
3 years	0.658	0.675	0.693	0.712
4 years	0.572	0.592	0.613	0.636
5 years	0.497	0.519	0.543	0.567
6 years	0.432	0.456	0.480	0.507
	3.784	3.888	3.997	4.112

Answer 20. (a)

Cost of Project X

At 15% I.R.R., the sum total of cash inflows = Cost of the project i.e. Initial cash outlay

Given :

Annual cost saving	Rs. 60,000
Useful life	6 years
I.R.R.	15%

Now, considering the discount factor table @ 15% cumulative present value of cash inflows for 6 years is 3.784

Therefore,

Total of cash inflows for 6 years for Project X is (Rs. 60,000 × 3.784) = Rs. 2,27,040

Hence cost of project is = Rs. 2,27,040

Payback period of the Project X

$$\text{Pay back period} = \frac{\text{Cost of the project}}{\text{Annual cost saving}} = \frac{227040}{60,000} = 3.784$$

= Cost of Project/Annual Cost Saving

= 3.784 or 3 years 11 months approximately

Cost of Capital

If the profitability index (PI) is 1, cash inflows and outflows would be equal. In this case, (PI) is 1.596. Therefore, cash inflows would be more by 0.596 than outflow.

$$\text{Profitability index (PI)} = \frac{\text{Discounted cash inflows}}{\text{Cost of the project}}$$

Or, 1.596 = Discounted Cash Inflows/227040

or 1.596 × Rs. 227040 = Rs. 362355.84

Hence, Discounted cash inflows = Rs. 362355.84

Since, Annual cost saving is Rs. 60,000. Hence, cumulative discount factor for 6 years

= Rs. 362355.84 / 60000

= 6.039

Considering the discount factor table at discount rate of 12%, the cumulative discount factor for 6 years is 4.112

Hence, the cost of capital is 12%.

Net present value of the project.

N.P.V. = Total present value of cash inflows – Cost of the project

= Rs. 362355.84-227040

= Rs. 135315.84

Q. 20. (b) Y Ltd. has Rs. 15,00,000 allocated for capital budgeting purposes. The following proposals and associated profitability indexes have been determined :

Project	Amount Rs.	Profitability Index
1	4,50,000	1.22
2	2,25,000	0.95
3	5,25,000	1.20
4	6,75,000	1.18
5	3,00,000	1.20
6	6,00,000	1.05

Which of the above investments should be undertaken? Assume that projects are indivisible and there is no alternative use of the money allocated for capital budgeting.

Answer 20. (b)

Statement showing ranking of projects on the basis of Profitability Index

Project	Amount	P.I.	Rank
1	450,000	1.22	1
2	225,000	0.95	5
3	525,000	1.20	2
4	675,000	1.18	3
5	300,000	1.20	2
6	600,000	1.05	4

Assuming that projects are indivisible and there is no alternative use of the money allocated for capital budgeting on the basis of P.I., the Y Ltd., is advised to undertake investment in projects 1, 3, and 5.

However, among the alternative projects the allocation should be made to the projects which adds the most to the shareholders wealth. The NPV method, by its definition, will always select such projects.

Statement showing NPV of the projects

Project (i)	Amount (Rs.) (ii)	P.I. (iii)	Cash inflows of project (Rs.) (iv) = [(ii) × (iii)]	N.P.V. of Project (Rs.) (v) = [(iv) – (ii)]
1	450,000	1.22	549,000	99,000
2	225,000	0.95	213750	(-)11250
3	525,000	1.20	630000	105000
4	675,000	1.18	796500	121500
5	300,000	1.20	360000	60,000
6	600,000	1.05	630000	30,000

The allocation of funds to the projects 1, 3 and 5 (as selected above on the basis of P.I.) will give N.P.V. of Rs. 264,000 and Rs. 225,000 will remain unspent.

However, the N.P.V. of the projects 3, 4 and 5 is Rs. 286500 which is more than the N.P.V. of projects 1, 3 and 5. Further, by undertaking projects 3, 4 and 5 , the total money gets exhausted. Therefore, Y Ltd. is advised to undertake investments in projects 3, 4 and 5.

Q. 21. (a) (i) Beauty Ltd. has an excess cash of Rs. 16,00,000 which it wants to invest in short-term marketable securities. Expenses relating to investment will be Rs.40000.

The securities invested will have an annual yield of 8%. The company seeks your advice as to period of investment so as to earn a pre-tax income of 4%.

(ii) Also, find the minimum period for the company to break-even its investment expenditure. Ignore time value of money.

Answer 21. (a)

(i) Investment must earn pre-tax income of Rs. 16,00,000 × 0.04 = Rs. 64,000

Let P be the required period (in months)of investment so as to earn Rs. 64,000.

Therefore 1600000*P/12*0.08-4000 = 64000

Or, 32000P = 312000

Or, P = 9.75

So period of investment is =9.75 months.

(ii) The required minimum period to break even the investment expenditure will be :1600000*P/12*0.08-40000=0

or, 32000P=120000

or, P = 3.75

Therefore minimum period of the company to break even its Investment Expenditure=3.75 months.

Q. 21. (b) Mr. A can earn a return of 16% by investing in equity shares on his own. Now he is considering a recently announced equity based Mutual Fund scheme in which initial expenses are 5.5% and annual recurring expenses are 1.5%. How much should the Mutual Fund earn to provide Mr. A a return of 16%?

Answer 21. (b)

Personal earnings of Mr. A =R1

Mutual fund earnings=R2

R2 = 1/[(1-Initial Expenses) %]*R1 Recurring expenses (%)

= 1/(1-0.055)*16%+1.5%

= 1/0.945*16%+1.5%

= 16.93% + 1.5%

= 18.43%

Mutual Fund earnings = 18.43%

Q. 22. AB Ltd. Is considering to buy an equipment and it has two options. The cost of the equipment is Rs. 1,00,000.

Option I – to buy with borrowed funds at a cost of 18% p.a repayable in five equal installments of Rs. 32,000.

Option II – to take the equipment on lease on an annual rental of Rs. 32,000.

The salvage value of the equipment at the end of five year period will be zero. The company uses straight –line depreciation. Assume tax@30%.

Which of the two options would you recommend?

Discounting factors are :

	Year 1	Year 2	Year 3	Year 4	Year 5
@ 11%	**0.901**	**0.812**	**0.731**	**0.659**	**0.593**
@ 13 %	**0.885**	**0.783**	**0.693**	**0.613**	**0.543**
@ 18 %	**0.847**	**0.718**	**0.609**	**0.516**	**0.437**

Answer 22.

AB Ltd.

Cost of borrowed funds = 18%

After Tax Cost of borrowed funds : 0.18 (1.030) = 0.126 = 12.6% (Discount rate applied = 13%)

Cost of Owning :

Year	Annual Payment	Interest (Rs.)	Amortization (Rs.)	Depreciation (Rs.)	Tax Saving (Rs)	Cost of owning (Rs.)
1	32000	18000	14000	20000	11400	20600
2	32000	15480	16520	20000	10644	21356
3	32000	12506	19494	20000	9751.8	22248.2
4	32000	8997	23003	20000	8699.1	23300.9
5	31840	4857	26983	20000	7457.1	24382.9
	159840	59840	100000	100000	47592	111888

*30 %of (18000 + 20000 = 38000)

Computation of Present Value Advantage (Rs.)

Year	Cost of owning (Rs.)	Net Lease Cost	Advantage of owning (Rs.)	D. F. @ 13%	Present Value Advantage (Rs.)
1	20600	22400	1800	0.885	1593.000
2	21356	22400	1044	0.783	817.452
3	22248.2	22400	151.8	0.693	105.1974
4	23300.9	22400	-900.9	0.613	-552.2517
5	24382.9	22400	-1982.9	0.543	-1076.715
	111888	112000	112		886.683

Recommendation : It is advantageous to purchase the asset using borrowed funds.

Q. 23. Write short note on :

(a) Green shoe option

(b) Forward as hedge instrument.

(c) Caps and Collars.

Answer 23. (a)

Green shoe option- It is option that allows the underwriting of an IPO to sell additional shares if the demand is high. It can be understood as an option that allows the underwriter for a new issue to buy and resell additional shares up to a certain pre -determined quantity.

Looking to exceptional interest of investors in terms of over subscription of the issue certain provisions are made to issue additional shares or bonds. In common parlance , it is retention of oversubscription to certain extent, it is a special feature of EURO issues.

In Indian context, green shoe option has limited connotation. SEBI guidelines governing public issues certain appropriate provisions for accepting oversubscriptions subject to a ceiling , say 15% of the offer made to public.

Answer 23. (b)

Forward as hedge instrument : International transactions both trade and financial give rise to currency exposures. A currency exposure if left unmanaged leaves a corporate open to profits or losses arising on account of fluctuations in currency ratio. One way in which corporate can protect it self from effects of fluctuations in currency rates is through buying or selling in forward markets.

A forward transaction is a transaction requiring delivery at future date of a specified amount of one currency for a specific amount of another currency.

The exchange rate is determined at the time of entering into contract but payment and delivery takes place on maturity. Corporates use forwards to hedge themselves against fluctuations in currency price that would have a significant impact on their financial position. Banks use forward to offset the forward contracts entered into with non-bank customers.

Answer 23. (c)

Caps and Collars : These are derivatives which a finance manager can use to manage his cash-flows effectively and also to reduce the risk involved in case of a major devaluation of currency.

Caps-If a company decides on a particular rate of a currency vis-à-vis the rupee over which it is not ready to take a risk, it can buy a cap at that rate. The cost of caps is very prohibitive and can be offset by selling a 'floor' which is just the opposite of cap. Collar – A combination of caps and floors is called collar.

Q. 24. (a) SUNSHINE Ltd. , an Indian based Company has subsidiaries in US and UK . Whole forecast surplus funds for the next 30 days (June 2009) are given below :

U.S subsidiary : $ 12.00 million

U.K subsidiary : £ 6.00 million

The following information pertaining to exchange rates are obtained :

	$/Rs.	£/Rs.
Spot	0.0243	0.0148
30 days forward	0.0245	0.0150

The borrowing /deposit rates per annum (simple) are available :

Rs.	8.4%/7.5%
$	1.6 %/1.5%
£	4.0%/3.8%

The Indian operation is forecasting a cash deficit of Rs. 400 million. It is assumed that interest rates are based on a year of 360 days.

Required :

(i) Calculate the cash balance in Rupees at the end of 30 days period(at the end of June 2009) for each company under each of the following scenarios ignoring transaction costs and taxes :

(A) Each company invests /finances its own cash balances /deficits in local currency independently.

(B) Cash balances are pooled immediately in India and the net balances are invested /borrowed for 30 days period.

(ii) Which method do you think preferable from the parent company's (Sunshine Ltd.) point of view.

Answer 24. (a)

SUNSHINE Ltd

Computation of Cash Balances at the end of 30 days : (At the end of June'09)

(A) Acting Independently :

	India	U.S subsidiary	U.K subsidiary
Surplus/(Deficit)	(Rs. 400)	$ 12.00	£ 6.00
Interest on investment	7.50%	1.50%	3.80%
Interest on Borrowing	8.40%	1.60%	4.00%
Interest	400 × (0.084/12) = (2.80) (Rs. 402.80)	12 × (0.015 / 12) = 0.015 $12.015	6 × (0.038/12) = 0.019 £ 6.019
Value in Rupee term (Using Forward rate)	(402.80)	490.408 [12.015/0.0245]	401.267 [6.019/0.0150]

Net value in Rupees (balance) :

= (402.80) + 490.408 + 401.267

= Rs. 488.875 million.

(B) Immediate Cash Pooling :

		Rs. in million
INDIA	(400)	(400.00)
U.S subsidiary	12.00 : 12/ 0.0243 (spot rate)	493.827
U.K subsidiary	6.00 : 6/0.0148 (spot rate)	405.405
Immediate Cash Balance :		499.232
Interest for 30 days [499.322 × (0.075/12)		3.120
Cash Balance at the end of 30 days		502.352

Decision : Immediate Cash Pooling is preferable as it maximizes interest earnings and CASH BALANCE(Rs.) will be higher than the acting independently.

Q. 24. (b) Mumbai Ltd. is an Indian company, they are in process of raising a US dollar loan and are negotiating rates with City Bank. The Company has been offered a fixed rate of 7% p.a with a proviso that should they opt for a floating rate, the interest rate is likely to be linked to the bench mark rate of 60 basis points over the 10 year US T Bill Rate, with interest refixation on a three monthly basis. The expectations of Mumbai Ltd. are that the dollar interest rates will fall, and are inclined to have a flexible mechanisms built into their interest rates. On enquiry they

find that they could go for swap arrangement with Chennai India Ltd. who have been offered a floating rate of 120 basis points over 10 year US T Bill Rate, as against a fixed rate of 8.20%. Describe the swap on the assumption that the swap differential is shared between Mumbai Ltd. and Chennai India Ltd. in the proportion of 2 : 1.

Answer 2. (a)

Mumbai Ltd. expects that interest rate will fall so they should opt for floating interest. Swap arrangement can be as under :

The rates are identified :

Company	Fixed	Floating
Mumbai Ltd	7.00%	Bench Mark+ 60 basis points
Chennai India Ltd	8.20%	Bench Mark+120 points

The net differential of the two types of interest rates between the two companies are :

Fixed Interest differential : 8.20-7.00 = 1.20

Floating interest differential : 1.20-0.60 = 0.60

Net differential : 0.60*

* This gain as per agreement, will be split between Mumbai Ltd. — strong company, 40 basis points and Chennai India Ltd., the weak company, 20 basis points.

Sequence	Mumbai Ltd-borrow fixed, move to floating	Sequence	Chennai India Ltd- borrow floating, move to fixed.
A	Pay bank fixed rate (7%)	E	Pay floating to Bank (BM+1.20)
B	Receive 40 basis points over fixed 7.40%	F	Pay fixed rate to Mumbai Ltd. plus its share of gain (7.40)
C	Pay floating to Chennai India Ltd-(BM+0.60)	G	Receive floating from Mumbai Ltd. :
D	Effective rate : BM + 20 basis points.	H	BM+ 0.60 Effective rate : 8.00%

Workings :

Mumbai Ltd:

A+B+C = BM + 0.20

Other wise payable = BM + 0.60

Net gain 0.40

Chennai India Ltd:

E+F+G = 8.00

Other wise payable = 8.20

Net gain 0.20

Q. 25. (a) ZEN1TH LTD (ZL) places an order to buy machinery with an American company. As per the agreement Zenith Ltd will be paying $ 200000 after 180 days. The company (ZL) considers to use (I) a Forward hedge (2) a Money market hedge, (3) an option hedge or (4) no hedge. The Consultant of Zenith Ltd. collects and develops the following data/information as desired by the company which can be used to assess the alternative approaches for hedging :

(i) Spot rate of dollar as of to-day is Rs. 47/$

(ii) 180 day forward rate of dollar as of to-day is Rs. 47.50/$.

(iii) Interest rates are as follows :

	India	US
180 day deposit (per annum)	7 5%	3%
180 day borrowing rate (per annum)	8.0%	4%
(Assume 360 days in a year)		

(iv) Future Sport rate in 180 daysas estimated by the Consultant is Rs. 47.75/$.

(v) A call option on the dollar which expires in 180 days has an exercise price of Rs. 47/$ and premium Re. 0.52/$.

(vi) A put option on the dollar, which expires in 180 days has an exei'cise price of Rs. 47.50 and premium Re. 0.40/$.

***Required* :**

Carry out a comparative analysis of various outcomes (rupee cost of import)/alternatives and decide which of the alternatives is the most attractive to Zenith Ltd.

Answer 25. (a)

ZENITH LTD

(1) *Forward Hedge* :

Purchase dollars 180 days forward

Rupees needed in 180 days

= Payable in $ × Forward Rate of dollar

= 200000 × Rs. 47.50 = Rs. 95,00 000

(2) *Money Market Hedge* :

Borrow Rupee, Convert to US dollar, Invest US dollar, Repay rupee loan in 180 days.

Amount in US dollar to be invested :

= $200000/ [1+ (0.03 × 180)/360] = $200000/(1.015) = $ 197044

Amount in Rupees needed to convert into $ for deposit

= $ 197044 × Rs. 47/$ = Rs. 9261068.

Interest and principal owed on Rupees loan to be returned after 180 days.

= Rs. 9261068 × [1+ (0.08 × 180)/ 360]

= Rs. 9261068 × (1.04) = Rs. 9631511.

(3) *Option Hedge* :

Purchase Call option (assuming that the option to be exercised on the day the US dollar are needed) exercise price is Rs. 47/$; and Premium is Rs. 0.52/$.

At the expected future spot rate of Rs. 47.75/$ which is higher than the exercise price of Rs. 47/$, the company will exercise its call option and buy $ 200000 for Rs. 9504000 which is the sum of Exercise Value and Premium [200000 × (Rs. 47 + Rs. 0.52)]

So, total Price to be paid for $ 200000 is Rs. 9504000.

(4) *Remain Unhedged* :

Zenith Ltd. will need to purchase US $ 200000 to fulfill its import obligation. It will do so by making a purchase in the spot market after 180 days. Zenith Ltd. rupee outgo in this case will be :

Expected spot rate in 180 days × Purchase of US dollars

= Rs.47.75/$ × $200000

= Rs. 95,50,000.

Decision : On making Comparative Analysis of the alternatives- 1, 2, 3 and 4 (outcomes), we observe that Hedging through Forward market is the cheapest. Hence, this is the most attractive to Zenith Ltd.

Q. 25. (b) Company A has outstanding debt on which it currently pays fixed rate of interest at 9.5%. The company intends to refinance the debt with a floating rate of interest. The best floating rate it can obtain is LIBOR + 2%. However, it does not want to pay more than LIBOR. Another company B is looking for a loan at a fixed rate of interest to finance its exports. The best rate it can obtain is 13.5%, but it cannot afford to pay more than 12%. However, one bank has agreed to offer finance at a floating rate of LIBOR + 2%.

Citi Bank is in the process of arranging an interest rate swap between these two companies.

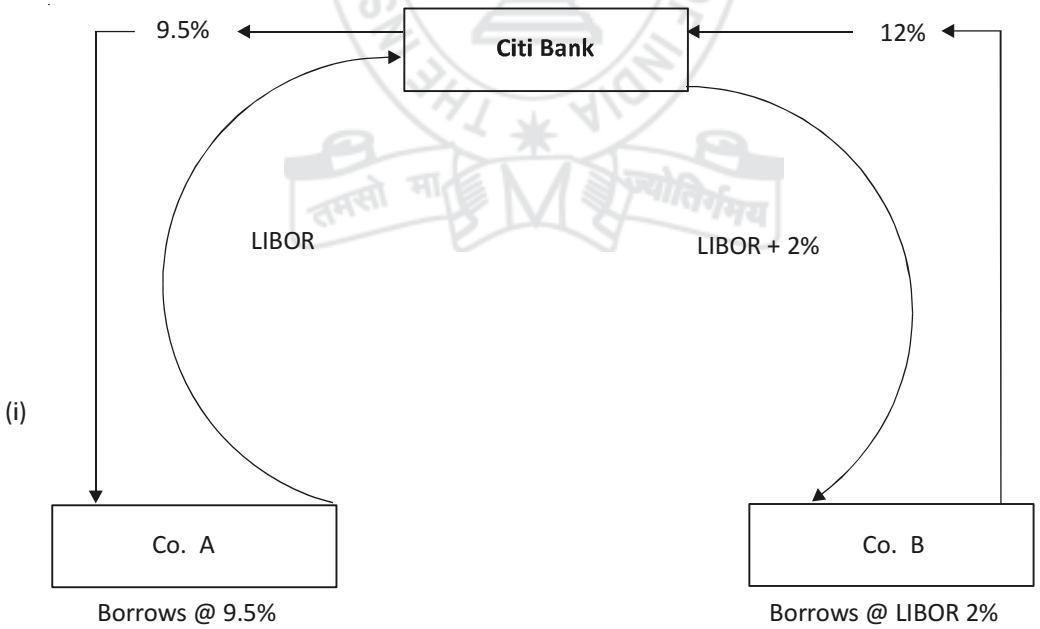
(i) With a schematic diagram, show how the swap deal can be structured.

(ii) What are the interest savings by each company?

(iii) How much would Citi Bank receive?

Answer 25. (b)

(i)



(ii) Savings :

Company A : 2% (LIBOR + 2 – LIBOR)

Company B : 1.5% (13.5 – 12)

(iii) Gain to Citi Bank = LIBOR – (LIBOR + 2) + 12 – 9.5 = 0.5%.

Q. 26. For imports from UK, Philadelphia Ltd. of USA owes £ 6,50,000 to London Ltd., payable on May, 2009. It is now 12 February, 2009.

The following future contracts (contract size £ 62,500) are available on the Philadelphia exchange :

Expiry	*Current futures rate*
March	**1.4900 $ /£ 1**
June	**1.4960 $ /£ 1**

(a) Illustrate how Philadelphia Ltd. can use future contracts to reduce the transaction risk if, on 20 May the spot rate is 1.5030 $/£ 1 and June futures are trading at 1.5120 $/£. The spot rate on 12 February is 1.4850 $/£ 1.

(b) Calculate the "hedge efficiency" and comment on it.

Answer 26.

(a) For Philadelphia Ltd. The appropriate futures contract will be the one that will expire soonest after the end of the exposure period i.e., the June contract.

The number of contracts needed = £ 650.000 ÷ £ 62.500 = 10.4 (Say, 10 contracts)

P. Ltd. will buy 10 June contracts now (12 Feb) at 1.4960 $/£1 and sell 10 contracts on 20 May for 1.5120 $/£1, thus making a profit from the futures trading that will largely, but not totally, negate the 'loss' from the spot market (since sterling has strengthened between 12 February and 20 May).

We now calculate the profit/loss from the futures contracts trade :

(i) The 'tick' movement is (1.5120 – 1.4960) = 0.0160 i.e., 160 ticks

(for one tick = 0.0001)

(ii) 'Tick' value per contract = £ 62.500 × 0.0001 = $ 6.25

(iii) Profit = 10 contracts × 160 × $ 6.25 = $ 10.000

(iv) Overall cost on 20 May when P. Ltd. will exchanges $ for £ on spot market :

£ 650.000 × 1.5030 = $ 976.950 [Conversion at the prevailing spot rate]

(v) The net 'cost' to P. Ltd.

= $ 976.950 – $ 10.000 = $ 966.950.

(b) Hedge Efficiency

The spot on February 12 was 1.4850 $/£1. So, £ 650.000 would have cost $ 965.250 and the loss on the 'spot market' is $ (976.950 – 965.250) = $ 11.700.

The hedge efficiency is therefore the futures contract profit divided by the spot market loss = $ 10,000 ÷ $ 11,700 × 100 = 85.5%.

The inefficiency is due to :

(i) rounding the contracts to 10 from 10.4; and

(ii) basis risk – the fact that the movement on the futures price has not exactly equalled the movement on the spot rate.

Q. 27. (a) Discuss the major sources available to an Indian Corporate for raising foreign currency finances.

Answer 27. (a)

The major sources of foreign currency finances are discussed below :

1. **Foreign currency term loan from Financial Institutions :** Financial Institutions provide foreign currency term loan for meeting the foreign currency expenditures towards import of plant, machinery, and equipment and also towards payment of foreign technical know how fees.
2. **Export Credit Schemes** : Export credit agencies have been established by the government of major industrialized countries for financing exports of capital goods and related technical services. These agencies follow certain consensus guidelines for supporting exports under a convention known as the Berne Union. As per these guidelines, the interest rate applicable for export credits to Indian companies for various maturities are regulated. Two kinds of export credit are provided i.e., buyer's and supplier's credit.

   Buyer's Credit : Under this arrangement, credit is provided directly to the Indian buyer for purchase of capital goods and/or technical service from the overseas exporter.

   Supplier's Credit : This is a credit provided to the overseas exporters so that they can make available medium-term finance to Indian importers.
3. **External commercial borrowings :** Subject to certain terms and conditions, the Government of India permits Indian firms to resort to external commercial borrowings for the import of plant and machinery. Corporates are allowed to raise up to a stipulated amount from the global markets through the automatic route. Companies wanting to raise more than the stipulated amount have to get an approval of the MOF. ECBs include bank loans, supplier's and buyer's credit, fixed and floating rate bonds and borrowing from private sector windows of Multilateral Financial Institution such as International Finance Corporation.
4. **Euro Issues** : The two principal mechanisms used by Indian companies are Depository Receipts mechanism and Euro convertible Issues. The former represents indirectly equity investment while the latter is debt with an option to convert it into equity.
5. **Issues in foreign domestic markets :** Indian firms can also issue bonds and Equities in the domestic capital market of a foreign country. In recent year, Indian companies like Infosys Technologies and ICICI have successfully tapped the US equity market by issuing American Depository Receipts (ADRs). Like GDRs, ADRs represent claim on a specific number of shares. The principal difference between the two is that the GDRs are issued in the euro market whereas ADRs are issued in the U.S. domestic capital market.

Q. 27. (b) Distinguish between GDR and ADR.

Answer 27. (b)

Global Depository Receipt (GDR)

GDRs are negotiable certificates (receipts) issued to non-resident investors against the shares of the issuing companies held with nominated domestic custodian bank. The issuing company appoints an overseas depository banks which, in turn, issues GDRs. Each GDR represents a fixed number of shares of the issuing company and is denominated in US dollars. GDRs may trade like any other security in an exchange or over the counter. GDRs are fungible in the sense that the investors can convert them into underlying shares. Similarly, the issuing company can reissue the converted shares as GDRs. GDRs may be treated as direct investment in the issuing company.

American Depository Receipt (ADR)

ADRs are similar to GDRs except for the fact that they are listed in the US stock exchanges. There are three types of ADRs Level 1 ADRs are traded over-the-counter market. The issuing company is not allowed to

offer them to the public. Disclosure to SEC is minimal and the issuing company is not required to comply with US GAAP. Level 2 ADRs are allowed to trade in the stock exchange, and the issuing company is required to comply with US GAAP and make significant disclosure to SEC. Level 3 ADRs represent public offerings. These ADRs are registered with SEC and the issuing company must comply with listing requirements and US GAAP. ADR is designed as of investment vehicle to trade foreign equity issues in United States.

Q. 28. (a) You as a dealer in foreign exchange have the following position in Swiss Francs on 30th September, 2009 :

	Swiss Francs
Balance in the Nostro A/c Credit	**1,50,000**
Opening Position Overbought	**75,000**
Purchased a bill on Zurich	**1,20,000**
Sold forward TT	**90,000**
Forward purchase contract cancelled	**45,000**
Remitted by TT	**1,12,500**
Draft on Zurich cancelled	**45,000**

What steps would you take, if you are required to maintain a credit Balance of Swiss Francs 45,000 in the Nostro A/c and keep as overbought position on Swiss Francs 15,000?

Answer 28. (a)

Exchange Position/Currency Position :

Particulars	Purchase Sw. Fcs.	Sale Sw. Fcs.
Opening Balance Overbought	75,000	
Bill on Zurich	1,20,000	
Forward Sales – TT		90,000
Cancellation of Forward Contract		45,000
TT Sales		1,1 2,500
Draft on Zurich cancelled	45,000	
	2,40,000	2,47,500
Closing Balance Oversold	7,500	
	2,47,500	2,47,500
Cash Position (Nostro A/c)		
	Credit	**Debit**
Opening balance credit	1,50,000	
TT sales		1,12,500
	1,50,000	1,12,500
Closing balance (credit)		37,500
	1,50,000	1,50,000

The Bank has to buy spot TT Sw. Fcs. 7500 to increase the balance in Nostro account to Sw. Fcs. 45,000.

This would bring down the oversold position on Sw. Fcs. as Nil.

Since the bank requires an overbought position of Sw. Fcs. 15,000, it has to buy forward Sw. Fcs. 15,000.

Q. 28. (b) Consider the following :

Spot rate	**–**	**Canadian dollar 0.665 per DM**
Forward Rate (3 months)	**–**	**Canadian dollar 0.670 per DM**
Interest rates (DM)	**–**	**7% p.a.**
Interest Rate (Canadian Dollar)	**–**	**9% p.a.**

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

Answer 28. (b)

In this case, DM is at a premium against the Can$.

Premium = [(0.67 – 0.665) / 0.665] × (12/3) × 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 × 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 = **Can$ 2.6**

Q. 29. What do you understand by :

(a) ECBs

(b) Bill of Entry

(c) Eurocurrency Markets.

Answer 29. (a)

ECBs- External Commercial Borrowings include commercial bank loans, buyer's credit and supplier's credit, securitised instruments such as floating rate notes and fixed rate bonds, credit from official export credit agencies and commercial borrowings from multi-lateral financial institutions like IFCI, ADB etc. External Commercial borrowings have been a popular source of financing for most of capital goods imports. They are gaining importance due to liberalization of restrictions. ECB's are subject to overall ceilings with sub-ceilings fixed by the government from time to time.

Answer 29. (b)

Bill of Entry- This is a very vital and important document which every importer has to submit under Section 46. The Bill of Entry should be in prescribed form. Bill of Entry should be submitted in quadruplicate- original and duplicate for customs, triplicate for the importer, and forth copy is meant for the bank for making remittances. A BIN (Business Identification Number) is allocated to each importer and Exporter with effect from 1.4.2010. It is 15 digit code based on PAN of Income Tax(PAN is 10 digit code).

Answer 29. (c)

Eurocurrency Market consists of banks that accept deposits and make loans in foreign currencies outside the country of issue. These deposits are commonly known as Eurocurrencies. Thus, US dollars deposited in London are called Eurodollars; British pounds deposited in New York are called Euro sterling, etc.

Eurocurrency markets are very large, well organized and efficient. They serve a number of valuable purposes for multinational business operations. Eurocurrencies are a convenient money market device for MNCs to hold their excess liquidity. They are a major source of short term loans to finance corporate working capital needs and foreign trade.

Q. 30. (a) State whether following statements are *True*/*False*.

(i) GDR issuing Company has no foreign exchange liabilities.

(ii) Free Cash Flow means cash available for financing incremental working capital.

(iii) Zero beta stock is equivalent to risk free asset.

(iv) Sensitivity Analysis is about estimating the impact of market fluctuations on project profitability.

(v) The slope of security market line (SML) denotes market volatility.

(vi) Pay-off in a forward contract refers to the estimated spot price on the date of settlement.

(vii) As far as inventories are concerned, drawing power under cash credit system considers only paid and moving items of stock.

(viii) In a two bid quotation, the price bid is opened first.

(ix) Exchange rate system where Central Bank intervenes to smoothen out exchange rate fluctuations is known as managed float.

(x) Buying and selling Call or Put option with different strike prices and different expiration dates are called Butterfly spread.

Answer 30. (a)

(i) True.

(ii) False — It is cash available for meeting financial flows like debt servicing, dividend payment etc)

(iii) True.

(iv) True.

(v) False — The slope of SML denotes the risk premium required.

(vi) False — It refers to the difference between the delivery price and spot price on the date of settlement.

(vii) True.

(viii) False — In a two bid quotation, technical bid is opened first.

(ix) True.

(x) False — It is called Diagonal spread.

Q. 30. (b) Fill in the blanks with appropriate word/words given in the bracket :

(i) Higher the beta of a stock as compared with market beta _____ is the risk. (*greater/ smaller*)

(ii) Variable rate investors are typical user of _____ . (*Interest rate caps/ Interest rate floors*)

(iii) _____ is composed of several large banks that accept deposits and provide loans in various currencies. (*Foreign Exchange Market / Euro Currency Market*)

(iv) _____ exposure requires various marketing, production and financial management strategies to cope with the risks. (*Economic/Accounting*)

(v) The Bombay Stock Exchange is basically a _____ market. (*Primary/Secondary*)

(vi) Arbitrage is the simultaneously buying and selling of _____ commodity in different markets. (*same/different*)

(vii) Hedging through forwards, futures, swaps etc. is an example of _____ . (*risk avoidance/ risk transfer*)

(viii) Futures contract is _____ (*an obligation/a right*)

(ix) CAPM assumes that dividend payout ratio is _____ (*0% / 100%*)

(x) Core current assets represents _____ working capital. (*total/permanent*)

Answer 30. (b)

(i) greater
(ii) Interest rate floors
(iii) Euro Currency Market)
(iv) Economic
(v) Secondary
(vi) same
(vii) risk transfer
(viii) an obligation
(ix) 100%
(x) permanent