Paper-12: FINANCIAL MANAGEMENT & INTERNATIONAL FINANCE

Time Allowed: 3 Hours **Full Marks: 100**

The figures in the margin on the right side indicate full marks.
Answer Question No. 1 from Part A which is compulsory and any five questions from Part B.
Working notes should form a part of the answer
"Wherever necessary, suitable assumptions should be made and indicated in answers by the candidates"

PART A (25 Marks)

1. (a) In each, of the cases given below, one out of four answers is correct. Indicate the correct answer (= 1 mark) and give workings/reasons briefly in support of your answer (= 1 mark) [2x7=14]

(i) Dividend-Payers Ltd. has a stable income and stable dividend policy. The average annual dividend payout is ₹ 27 per share (Face Value = ₹100). You are required to find out Dividend payout in year 2, if the company were to have an expected market price of ₹160 per share at the existing cost of equity.
[The market price in year 1 is ₹ 150]
(A) ₹ 28.88
(B) ₹ 26.86
(C) ₹ 28.80
(D) ₹ 26.98

(ii) The ratio of current assets (₹ 3,00,000) to current liabilities (₹2,00,000) is 1.5 : 1. The accountant of this firm is interested in maintaining a current ratio of 2 : 1 by paying some part of current liabilities. Hence, the amount of current liabilities which must be paid for this purpose is
(A) ₹ 1,00,000
(B) ₹ 2,00,000
(C) ₹ 2,50,000
(D) ₹ 1,50,000

(iii) The interest rate in Germany is 11 per cent and the expected inflation rate is 5 per cent. The British interest rate is 9 per cent. How much is the expected inflation rate in Britain?
(A) 3.0%
(B) 3.1%
(C) 4.5%
(D) 2.9%

(iv) Annual usage of a firm is 3,60,000 units and 2 to 4 days are taken in receiving delivery of inventory after placing an order. Calculate Re-order level, if the reasonable expected stock out is 100 units per day. (Assume 1 year = 360 days)
(A) 3000 units
(B) 3300 units
(C) 2500 units
(D) 3500 units

(v) A project had an equity beta of 1.2 and was going to be financed by a combination of 30% debt and 70% equity (assume debt beta = 0). Hence, the required rate of return of the project is (assume R_f = 10% and R_m =18%)

(A) 16.27%
(B) 17.26%
(C) 16.72%
(D) 12.76%

(vi) M/s. Fine Dress Ltd. has sales of ₹800 lakhs and the variable costs amount to 62.5% of sales. The Company has fixed cost of ₹ 100 lakhs. If the sales of the Company increase by 5% from the existing level, what will be the per cent change in the EBIT?

(A) 7.5%
(B) 8.7%
(C) 7.9%
(D) 10.9%

(vii) Consider the following quotes.
Spot (Euro/Pound) = 1.6543/1.6557
Spot (Pound/NZ$) = 0.2786/0.2800
Calculate the % spread on the Euro/Pound Rate.

(A) 0.085%
(B) 0.0085%
(C) 0.85%
(D) 0.00085%

(b) Match the descriptions to the 'Four kinds of Float' with reference to management of cash: **[½×4=2 marks]**

Descriptions:

(i) The time when a cheque is being processed by post office, Messanger service or other means of delivery.

(ii) The time required to sort, record and deposit the cheque after it has been received by the company.

(iii) The time from the deposit of cheque to the crediting of funds in the seller's account.

(iv) The time between the sale and the mailing of the invoice.

Four kinds of Float—Management of cash:

(A) Billing Float

(B) Banking processing Float

(C) Cheque processing Float

(D) Mailing Float

Note: Your answer may be of the form:

Description No…..Capital letter of the alternative indicating kind of float.

(c) State if each of the following sentences is T (= true) or F (= false): [1 × 9=9]

(i) Basic lease period refers to the period during which the lease is irrevocable.

(ii) LIBOR for treasury bill rate is the example of basis swaps.

(iii) Provision for taxation is an external source of financing.

(iv) TRIPS are the international agreement on intellectual property rights.

(v) The ROE of an unlevered firm is higher than the ROE of a levered firm, when the ROI is lower than the cost of debt.

(vi) If IRR is less than the firm's cost of capital, the project should be rejected.

(vii) There is no need for calculating separate cost for retained earnings, when cost of equity capital is calculated on the basis of the market value of equity shares.

(viii) In CAPM, systematic risk is the risk that cannot be eliminated by diversification, it being common to all firms.

(ix) Interest rate swap is an exchange of interest payments between two parties.

Answer: 1 (a)

(i) ₹28.80 (C)

Ke = 27/150 x 100 = 18%

$Ke = \frac{DPS}{160} = 18\% \quad \therefore DPS = 160 \times 18\% = ₹28.80$

(ii) ₹100000 (A)

$$\text{Current Ratio} = \frac{\text{Current Asset}}{\text{Current Liabilities}} = \frac{300000 - X}{200000 - X} = 2$$

Or, (300000 – X) =2 (200000 – X)

Or, 2X –X = 400000 – 3, 00,000

Or, X = 1, 00,000

(iii) 3.1% (B)

If purchasing power parity holds, then the British inflations rate will be:

$$\frac{1.11}{1.09} = \frac{1.05}{1+iB} \text{ Or } iB = \frac{1.09 \times 1.05}{1.11} - 1 = 0.031 \text{ or } 3.1\%$$

(iv) 3300 units (B)

Safety Stock = 100 x 3 = 300 units

Re- order level = (Normal Daily Usage x Normal Lead Time) + Safety Stock

= (1000 x 3) + 300=3300 units

(v) 16.72% (C)

$$\beta = \left(\beta_{\text{Equity}} \times \frac{E}{D+E}\right) + \left(\beta_{\text{Debt}} \times \frac{D}{D+E}\right)$$

= (1.2 x 0.70) + (0 x 0.30) = 0.84

Required Rate of Return = $R_f + \beta(R_m - R_f)$ = 10% + 0.84 (18% - 10%)

= 10% + 6.72% = 16.72%

(vi) 7.5% (A)

$$\text{DOL} = \frac{\text{Contribution}}{\text{EBIT}} = \frac{\text{Sales} - \text{Variable Cost}}{\text{Sales} - \text{VC} - \text{Fixed Cost}}$$

$$= \frac{800 - 0.625(800)}{800 - 0.625(800) - 100} = 1.5$$

Which is given by 1% increase in sales. Therefore, by 5% increase in sales, change in EBIT will be by 1.5 x 5% = 7.5%

(vii) 0.085% (A)

The % spread on Euro/Pound = $\frac{1.6557 - 1.6543}{1.6543} \text{x} 100$

= 0.085%

Answer: 1. (b)

(i) D = Mailing Float

(ii) C = Cheque Processing Float

(iii) B = Banking Processing Float

(iv) A = Billing Float

Answer: 1. (c)

(i) True

(ii) True

(iii) False

(iv) True

(v) True

(vi) True

(vii) True

(viii) True

(ix) True

PART B (75 MARKS)

2. (a) The capital structure of Hindustan Traders Ltd. as on 31.3.2015 is as follows:

Equity Capital: 100 lakh equity shares of ₹10 each	**₹10 crores**
Reserves	**2.00 crores**
14% Debentures of ₹100 each	**3.00 crores**

For the year ended 31.3.2015 the company is to pay equity dividend at 20%. As the company is a market leader with good future, dividend is likely to grow by 5% every year. The equity shares are now traded at T80 per share on the stock exchange. Income-tax rate applicable to the company is 50%.

Required:

I. The current weighted cost of capital.

II. The company has plans to raise a further ₹ 5 crores by way of long-term loan at 16% interest. When this takes place the market value of the equity shares is expected to fall to ₹ 50 per share. Calculate the new weighted average cost of capital of the company. [3+4]

Answer to 2(a):

I. Current Weighted Average Cost of Capital

Cost of debt (K_d) = $\frac{I(1-t)}{P} = \frac{14(1-0.5)}{100}$ = 7%

$K_e = \frac{D_1}{P_0} + g = \frac{(20\% \text{ of } ₹10)}{₹80} + 0.05 = 7.5\%$

Weighted Average Cost of Capital

Capital Structure	Amount (₹)	Weights	Cost of capital	WACC
Equity & Reserves	12 crores	0.8	7.5%	6.0%
14% Debentures	3 crores	0.2	7.0%	1.4%
	15 crores	1.0		7.4%

II. Weighted Average Cost of Capital with Additional Loan:

Cost of New Debt (Kd_2) = $\frac{I(1-t)}{P} = \frac{16(1-0.5)}{100}$ = 8%

Cost of Equity Capital (K_e) = $\frac{DPS}{MPS} = \frac{(20\% \text{ of } ₹10)}{₹50}$ +0.05 = 9%

Weighted Average Cost of Capital with Additional Loan

Capital Structure	Amount (₹)	Weights	Cost of capital	WACC
Equity	12 crores	0.60	9%	5.4%
16% Loan	5 crores	0.25	8%	2.0%
14% Debentures	3 crores	0.15	7%	1.05%
	20 crores	1.00		8.45%

2. (b) List the problems in determination of cost of capital. [3]

Answer to 2(b):

Problems in determination of cost of capital:

(i) Conceptual controversy regarding the relationship between cost of capital and capital structure is a big problem.

(ii) Controversy regarding the relevance or otherwise of historic costs or future costs in decision making process.

(iii) Computation of cost of equity capital depends upon the excepted rate of return by its investors. But the quantification of expectations of equity shareholders is a very difficult task.

(iv) Retained earnings have the opportunity cost of dividends forgone by the shareholders. Since different shareholders may have different opportunities for reinvesting dividends, it is very difficult to compute cost of retained earnings.

(v) Whether to use book value or market value weights in determining weighted average cost of capital poses another problem.

2. (c) Following is the date on a capital project being evaluated by management of X Ltd.

Particulars	Project M
Annual Cost Saving	₹ 40,000
Useful Life	4 years
I.R.R.	15%
Profitability index (PI)	1.064
NPV	?
Cost of capital	?
Cost of project	?
Pay back	?
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	0.855	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
	2.855	2.913	2.974	3.038

[1+1½+1½+1]

Answer to 2 (c):

I. At IRR, Present Value of Cash Outflows = Present Value of Cash Inflows Hence, cost of Project = ₹ 40,000 × 2.855 = ₹1,14,200.

II. Profitability Index at cost of capital = 1.064

$$1.064 = \frac{\text{Present Value of Cash Inflows at cost of capital}}{1,14,200}$$

Present Value of Cash Inflows at cost of capital = ₹1,21,509.
Net Present Value at cost of capital = ₹1,21,509 – ₹1,14,200 = ₹7,309

III. Cumulative P.V.A.F at cost of capital (1 - 4) = $\frac{\text{Present Value of Cash Inflows}}{\text{Annual Cash Inflows}}$

$$= \frac{1,21,509}{40,000} = 3.038$$

Reference to Cumulative P.V.A.F table gives us the cost of capital 12%.

IV. Payback Period = $\frac{1,14,200}{40,000}$ = 2.855 years.

3 (a). Forward Planning Ltd. is considering whether to invest in a project which would entail immediate expenditure on capital equipment of ₹ 40,000. Expected sales from the project are as follows:

Probability	Sales Volume (Units)
0.10	2,000
0.25	6,000
0.40	8,000
0.15	10,000
0.10	14,000

Once sales are established at a certain volume in the first year, they will continue at that same volume in subsequent year. The unit selling prices will be ₹ 10, the unit variable cost ₹ 6 and the additional fixed costs will be ₹ 20,000 (all cash items). The project would have a life of 6 years after which the equipment would be sold for scrap which would fetch ₹ 3,000. You are required to find out:

I. The expected value of the NPV of the project

II. The expected volume of sales per annum required to justify the project.

The cost of capital of the company is 10%. Discount factor of ₹1 per annum for 6 years @ 10% is 4.355 and the discount factor of ₹ 1 at the end of the sixth year at 10% is 0.5645. Ignore taxation. [5+5]

Answer to 3 (a):

I. Statement showing Expected Value of Sales Volume p.a.

Sales Volume (Units)	Probability	Expected Sales Volume (Units)
2,000	0.10	200
6,000	0.25	1,500
8,000	0.40	3,200
10,000	0.15	1,500
14,000	0.10	1,400
Total	**1.00**	**7,800**

Estimated value of contribution will be ₹ 31,200 [i.e. 7,800 × (10 – 6)] All additional fixed costs are cash items (As given in question). Estimated value of additional cash profits each year will therefore be ₹ 11,200.

Year	Cash Flows ₹	Discount Factor 10%	Expected Sales Value (Units)
0	(40,000)	1.000	(40,000)
1.6	11,200	4.355	48,776
6	3,000	0.5645	1,694
Expected Value of NPV			**10,470**

II. In order to break-even, the NPV must be Zero. Assuming that the cost of the equipment and its residual value are known with certainty, we can calculate the minimum required PV of annual cash profits as given below:

	Present Value (₹)
PV of capital outlay	40,000
Less: PV of residual value	(1,694)
PV of annual cash profit required for NPV of 0	**38,306**
Discount Factor of ₹ 1 p.a. for 6 years @ 10%	4,355
Annual cash profit required (38,306/4.355)	8,796
Add: Annual (Cash) Fixed costs	20,000
Annual contribution required for NPV = 0	**28,796**
Contribution per unit	4

Hence, Annual Sales required to Break-even = 28.796/4 = 7,199 units or 7,200 units (rounded off).

3. (b) ABC Ltd. furnished you the following information:

Cost of Plant	**₹10,00,000**
Working Capital	**₹5,00,000**
Annual Sales Value	**₹15,00,000**
Annual Cash operating expenses	**₹7,00,000**
Project life	**4 years**
Tax rate	**40%**
Depreciation	**SLM**
Cost of Capital	**10% p.a.**
Terminal value	**Plant 20% of Cost & Working Capital 100%**

Compute Modified Internal Rate of Return or Terminal Rate of Return. **[5]**

Answer to 3(b):

Computation of Annual CFAT:

	(₹) (1-4)
Annual Sales value	15,00,000
(-) Annual Cash operating expenses	(7,00,000)
Annual CFBT (1)	8,00,000
(-) Annual Depreciation (10,00,000 - 2,00,000/4)	(2,00,000)
Annual PBT	6,00,000
Tax Liability (40%) (2)	(2,40,000)
Annual CFAT (1) - (2)	5,60,000

Computation of Terminal value of cash flows at end of each year

Time	Terminal Value (₹)
1	$5,60,000 \times (1.10)^3 = 7,45,360$
2	$5,60,000 \times (1.10)^2 = 6,77,600$
3	$5,60,000 \times (1.10)^1 = 6,16,000$
4	5,60,000 + 2,00,000 + 5,00,000 = 11,60,000

Total Terminal Value at end of year 4 = ₹ 32,98,960

₹ 32,98,960 × PVF4 of MIRR = ₹ 15,00,000

PVF4 of MIRR = $\frac{15,00,000}{32,98,960}$ = 0.4547

MIRR = 21.78%

4. (a) The sales turnover and profit during 2014 and 2015 are as follows.

	Sales (₹)	Profit (₹)
Year 2014	**20,00,000**	**2,00,000**
Year 2015	**30,00,000**	**4,00,000**

Calculate:

(i) Profit Volume Ratio

(ii) Sales required to earn a profit of ₹5,00,000

(iii) Profit when sales is ₹10,00,000 **[1+2+2]**

Answer to 4(a):

(i) Profit Volume Ratio

	2014 (₹)	2015 (₹)	Net Increase
Sales	20,00,000	30,00,000	10,00,000
Profit	2,00,000	4,00,000	2,00,000
Increase in costs			8,00,000

Since the fixed costs are constant, the increase in cost is the increase in variable cost in tune with increase in sales volume. So, variable cost is 80% of sales

∴ Profit – volume ratio is 100 – 80 = 20%

(ii) Sales required to earn a profit of ₹5,00,000

Fixed Cost = Contribution – Profit

= 20% of 30,00,000 – 4,00,000 = ₹2,00,000

Required Sales = $\frac{\text{FixedCost+DesiredProfit}}{\text{P / VRatio}}$

= $\frac{2,00,000+5,00,000}{20}\times 100$

= ₹35,00,000

(iii) Profit when sales is ₹10,00,000

Profit at sales of ₹10,00,000 ⇒ Sales × P/V Ratio – Fixed Cost

⇒ ₹10,00,000 × 20% - ₹2,00,000

⇒ ₹2,00,000 - ₹2,00,000 = Nil

4. (b) The financial position of Swarup Ltd. On Jan. 1 and Dec. 31, 2014 is as follows:

Liabilities	1st Jan(₹)	31st Dec(₹)	Assets	1st Jan(₹)	31st Dec(₹)
Current Liabilities for goods	36,000	40,600	Cash	4,000	3,600
			Debtors	35,000	38,000
Loan from ABC Co		20,000	Stock	25,000	22,000
Loan from Bank	30,000	25,000	Land	20,000	30,000
Hire-purchase Vendor		20,000	Building	50,000	55,000
			Machinery	80,000	86,000
Capital	1,48,000	1,54,000	Delivery Van		25,000
	2,14,000	2,59,600		2,14,000	2,59,600

The delivery van was purchased in December, 2014 on hire-purchase basis; a payment of ₹5,000 was made immediately and the balance of amount is to be paid in 10 monthly installments of ₹2000 each together with an interest @ 15% p.a. During the year the partners withdrew ₹20,000 for personal expenditure. The provision for depreciation against machinery on 31-12-2013 was ₹27,000 and 31-12-2014 was ₹36,000. You are requested to prepare the Cash Flow Statement. [10]

Answer to 4 (b):

CASH FLOW STATEMENT AS PER AS – 3 (REVISED)
(Indirect Method)

	₹	₹
I. Cash flows from operating activities:		
Net profit before tax and extraordinary items	26,000	
Adjustment for depreciation	9,000	
Operating profit before working capital changes (WN)	35,000	
Increase in creditors	4,600	
Decrease in stock	3,000	
Increase in debtors	(3,000)	
Net cash flow from operating activities		39,600
II. Cash flow from investing activities:		
Payment for delivery van	(5,000)	
Purchase of Machinery	(15,000)	
Purchase of Building	(5,000)	
Purchase of land	(10,000)	
Net cash flow from investing activities		(35,000)
III. Cash flow from financing activities:		
Loan from ABC Co	20,000	
Payment of Bank Loan	(5,000)	
Drawings by partners	(20,000)	
Net Cash flow from financing activities		(5,000)
IV. Net increase / decrease in cash & cash equivalents		(400)
V. Cash & cash equivalents at the beginning of the period		4,000
VI. Cash & cash equivalents at the end of the period		3600

Working Notes:

1. FUND FROM OPERATIONS

	₹
Capital as on 31.12.2014	1,54,000
Add: Drawings during the year	20,000
	1,74,000
Less: Capital as on 01.01.2014	1,48,000
Profit for the year	26,000
Add: Depreciation for the year (₹36,000 - ₹27,000)	9,000
	35,000

2. MACHINERY ACCOUNT

	₹		₹
To, Balance b/d	80,000	By, Depreciation for the year	9,000
To, Bank (acquired during the year)	15,000	By, Balance c/d	86,000
	95,000		95,000

5. (a) Write a note on GATT. **[3]**

Answer to 5(a):

THE GENERAL AGREEMENT ON TARIFFS AND TRADE (GATT):

(i) GATT was a treaty, not an organization.

(ii) Main objective of GATT was the reduction of barriers to international trade through the reduction of tariff barriers, quantitative restrictions and subsidies on trade through a series of agreements.

(iii) It is the outcome of the failure of negotiating governments to create the International Trade Organization (ITO).

(iv) The Bretton Woods Conference had introduced the idea of an organization to regulate trade as part of a larger plan for economic recovery after World War II. As governments negotiated the ITO, 15 negotiating states began parallel negotiations for the GATT as a way to attain early tariff reductions. Once the ITO failed in 1950, only the GATT agreement was left.

(v) The functions of the GATT were taken over by the World Trade Organization which was established during the final round of negotiations in early 1990s.

5. (b) Aditya Birla Ltd, wants to assess its working capital requirement for the year 2015. For this purpose the company has gathered the following data.

ESTIMATED COST PER UNIT OF FININSHED PRODUCT

	₹
Raw Materials	**90**
Direct Labour	**50**
Manufacturing & administrative overhead (excluding depreciation)	**40**
Depreciation	**20**
Selling Cost	**30**
Total Cost	**230**

The product is subject to excise duty of 10% (levied on cost of production) and is sold at ₹300 per unit.

Additional Information:

(i) Budgeted level of activity is 1,80,000 units of output for 2015

(ii) Raw materials costs consists of the following:
Pig iron ₹65 per unit, Ferro alloys ₹15 per unit, and cast iron borings ₹10 per unit.

(iii) Raw materials are purchased from different suppliers having different credit periods:
Pig iron – 2 months, Ferro alloys – ½ month, and cast iron borings – 1 month

(iv) Product is in process for a period of ½ month. Production process requires full unit (100%) of pig iron and ferro alloys in the beginning of production; cast iron boring is required only to the extent of 50% in the beginning and the remaining is needed at a uniform rate during the process. Direct labour and other overheads accrue similarly at a uniform rate throughout production process.

(v) Past trends indicate that the pig iron is required to be stored for 2 months and other material for 1 month.

(vi) Finished Goods are in stock for a period of 1 month.

(vii) It is estimated that ¼ of the total sales are on cash basis and the remaining sales are on credit. Credit sales are collected over a period of 2 months.

(viii) Average time-lag in payment of all overheads is 1 month and labour is ½ month.

(ix) Desired cash balance to be maintained is ₹20,00,000.

You are required to ascertain the net working capital requirement of the company. [12]

Answer to 5 (b):

DETERMINATION OF NET WORKING CAPITAL OF ADITYA BIRLA LTD.

Particulars	₹
1. Current Assets:	
Minimum desired cash balance	20,00,000
Raw Materials:	
Pig Iron (1,80,000 × ₹65 × $\frac{2}{12}$)	19,50,000
Ferro Alloys (1,80,000 × ₹15 × $\frac{1}{12}$)	2,25,000
Cast iron Borings (1,80,000 × ₹10 × $\frac{1}{12}$)	1,50,000
Work – in –process (1,80,000 × ₹132.5 × $\frac{1}{24}$)	9,93,750
Finished Goods (1,80,000 × ₹180 × $\frac{1}{12}$)	27,00,000
Debtors (1,80,000 × $\frac{3}{4}$ × ₹ 230 × $\frac{2}{12}$)	51,75,000
Total (A)	1,31,93,750
2. Current Liabilities:	
Creditors:	
Pig Iron (1,80,000 × ₹65 × $\frac{2}{12}$)	19,50,000
Ferro Alloys (1,80,000 × ₹15 × $\frac{1}{24}$)	1,12,500
Cast iron Borings (1,80,000 × ₹10 × $\frac{1}{12}$)	1,50,000
Wages (1,80,000 × ₹50 × $\frac{1}{24}$)	3,75,000
Total overheads [1,80,000 × ₹(40+30) × $\frac{1}{12}$]	10,50,000
Total (B)	36,37,500
WORKING CAPITAL REQUIREMENT (A – B)	**95,56,250**

Working Notes:

(i) Determination of Work-in-process:

	₹	₹
Pig Iron		65
Ferro alloys		15
Cast iron Borings (0.5 × ₹10)		5
Other costs:		
Cast iron Borings (0.50 × ₹5)	2.5	
Direct labour (0.5 × ₹50)	25	
Manufacturing & administrative overheads (0.50 × ₹40)	20	47.50
Total		**132.50**

(ii) Debtors:

	₹
Raw Materials	90
Direct labour	50
Manufacturing & administrative overheads	40
Selling overheads	30
Excise duty (0.10 × ₹200)	20
Total	**230**

(iii) Cost of Production:

	₹
Raw Materials	90
Direct labour	50
Manufacturing & administrative overheads	40
Depreciation	20
Cost of Production	**200**

6. (a) An Indian exporter has sold handicrafts items to an American business house. The exporter will be receiving US $100000 in 90 days. Premium for a dollar put option with a strike price of ₹ 48 and a 90 days settlement is ₹ 1. The exporter anticipates the spot rate after 90 days to be ₹ 46.50.

I. Should the exporter hedge its account receivable in the option market?

II. If the exporter is anticipating the spot rate to be ₹ 47.50 or ₹ 48.50 after 90 days, how would it effect the exporter's decision? [3+2]

Answer to 6(a):

I. Amount in rupees that will be received by the exporter (if option is not bought) = $ 1000000 × ₹ 46.50 = ₹ 46.50 lakhs. if the option is bought at a strike price of ₹ 48 and the spot at expiry is ₹ 46.50, the option would be exercised. Amount in rupees that will be received by the exporter = $100000 × ₹ 48 – ₹ 100000 = ₹ 47.00 lakhs. Since, the amount received when the option is bought, is more, the exporter should purchase the put option.

II. If the exporter is anticipating the spot rate to be ₹ 47.50 or ₹ 48.50 after 90 days, then purchasing the put option is not worthwhile, as by remaining un-hedged would give him higher receipts.

6.(b) Interest rates for 3 months in US and Canada are as follows:

Can $ / US SOPT 1.235 – 1.240

3m Forward 1.255 – 1.260

Currency	Borrow	Invest
US $	4%	2.5%
Can $	4.5%	3.5%

Advise the currency in which borrowing and lending for 3 months needs to be done for a US company. Taken 3 month = 90/360 fraction of a year. [6]

Answer to 6(b):

We first verify the interest rate parity to decide first, whether any arbitrage exists.

We have spot = 1$ = C$ 1.235/1.240

LHS = $(1+r_h)$ = 1 + 0.035/4 = 1.00875 (C$ return)

RHS = F/S $(1+r_f)$ = 1.0162 × (1+0.025/4) = 1.02255 ($ return)

Since LHS ≠ RHS, parity does not exist, and there exists an opportunity to arbitrage.

Since LHS is lower, the borrowing would be done in Canadian dollar. The borrowed money would be converted to $ and invested. The profit can be calculated as follows:

Assume borrowing C$ 1000000. The repayment would be at the rate of 4.5% in 3 months. i.e., C$ = 1000000 × 1.01125 = C$1011250. C$ 1000000 converted to $ at spot would yield $806452. This on deposit for 3 months would yield $ 811492. This converted back to C$ would give us C$1018423.

Thus, our net arbitrage profit would be = C$1018423. –C$1011250 = C$7173.

6.(c) On 31-08-2011, the value of stock index was ₹ 2,200. The risk free rate of return has been 8% per annum. The dividend yield on this Stock Index is as under:

Month	Dividend Paid	Month	Dividend Paid
January	3%	July	3%
February	4%	August	4%
March	3%	September	3%
April	3%	October	3%
May	4%	November	4%
June	3%	December	3%

Assuming the interest is continuously compounded daily, find out the future price of contract deliverable on 31-12-2011.

Given $e^{0.01583} = 1.01593$ [4]

Answer to 6(c):

The price of futures, when dividend yield is given, is written as:

$F = Se^{(r-d)\times t}$

Here F = ?, S = 2200, r = 8% or 0.08

d = Average dividend yield of four months viz. September to December

= (3 + 3 + 4 + 3)/4 = 3.25% or 0.0325

t = Time to expiry = 4 months or 4/12 or 0.333

Thus, $F = 2200 \times e^{(0.08 - 0.0325)\times 0.333} = 2200 \times e^{0.01583}$

F = 2200 x 1.01593 = 2235.046

7.(a) Which position on the Index future gives a speculator a complete hedge against the following transactions.

I. The share of Right Ltd. is going to rise. He has a long position on the cash market of ₹ 50 lacs on the Right Ltd. The beta of the Right Ltd. is 1.25.

II. The share of Wrong Ltd. is going to depreciate. He has a short position on the cash market of ₹ 25 lacs on the Wrong Ltd. The beta of the Wring Ltd. is 0.9.

III. The share of Fair Ltd. is going to stagnate. He has a short position on the cash market of ₹ 20 lacs of Fair Ltd. The beta of the Fair Ltd. is 0.75. [5]

Answer to 7(a):

Hedging is taking an equal and opposite position in another market so that loss that may arise in one market would be compensated by a gain in another market. The extent of hedging (hedge ratio) is determined by the beta of a security. If the beta is greater than one (i.e. hedge ratio is greater than one) then the position hedged would be higher than the underlying position and would be proportionate to the beta of the security.

I. In this case the speculator will hedge by selling in the futures market equivalent to 1.25 × ₹ 50 lacs. = ₹ 62.5 lacs.

II. In this case the speculator will hedge by buying in the futures market equivalent to 0.9 × ₹ 25 lacs. = ₹ 22.5 lacs.

III. In this case the speculator may remain un-hedged. However, hedging by buying in the futures market equivalent to 0.75 × ₹ 20 lacs. = ₹ 15 lacs. Would protect him from unanticipated losses.

7.(b) Shoe Company sells to a wholesaler in Germany. The purchase price of the shipment is 50,000 deutsche marks with term of 90 days. Upon payment Shoe company will convert DM to $. The present spot rate for DM/$ is 1.71, whereas the 90 days forward rate is 1.70.

You are required to calculate and explain:

I. If Shoe Company were to hedge its foreign exchange risk, what would it do? What transactions are necessary?

II. Is the DM at a forward premium or at a discount?

III. Calculate the implied differential in interest rates between the two countries.

[Use Interest Rate Parity assumption] [1+1+4]

Answer to 7(b):

I. To hedge its risk, Shoe company would take forward cover by selling DM 90 days forward at DM 1.70/$ i.e., it will get $29412.

II. We see from quotes that, dollar quotes lower in the forward market than in the spot market, i.e., dollar quotes at discount. Obviously DM is at premium.

III. The interest rate parity assumption is that high interest rates on a currency are offset by forward discount and low interest are on a currency is offset by forward premium. The forward discount or premium is approximately equal to interest differential between the currencies i.e., $\frac{F(DM/\$)-S(DM/\$)}{S(DM/\$)} \times \frac{365}{90} = r_{DM} - r_{\$}$

Substituting we get, $r_{DM} - r_{\$} = -0.0237$

The minus sign indicates that $ is at discount to DM and if interest rate parity holds, interest are in US should be 2.37% higher than in Germany.

7 (c). Explain the need for setting-up a Depository in India. [4]

Answer to 7(c):

The need was realized in the 1990s due to various reasons as under:

- A lot of time was consumed in the process of allotment and transfer of shares
- Increase in volume of transactions
- Large scale irregularities in the securities scam of 1992 exposed the limitations of the prevailing settlement system
- Problems associated with dealing in physical shares, such as
  - ✓ problems of theft, fake and/or forged transfers,
  - ✓ share transfer delays particularly due to signature mismatches; and
  - ✓ paper work involved in buying, selling, and transfer leading to costs of handling, storage, transportation, and other back office costs.

To overcome these problems, the Government of India, in 1996, enacted the Depositories Act, 1996 to start depository services in India.

8. Write a short note on any three of the following: [5×3=15]

(i) Interest Rate Guarantees (IRG) w. r. t. International Finance;

(ii) Factors affecting value of an option relating to stock option value and capital budgeting

(iii) Zero working capital concept;

(iv) Greenfield Privatisation;

(v) Measures of Financial Performance.

Answer to 8:

(i) Interest Rate Guarantees (IRG) w. r. t. International Finance:

Interest Rate guarantees are true options in that they hedge the company against adverse interest rate movements, but allow it to take advantage of favorable movements. In taking a decision on whether to use IRG or otherwise, cost in respect of other alternatives, such as

Futures Contracts, is also taken into account, and the most favorable alternative, which leads to the lowest cost, is chosen.

Our firm will have $1,000,000 in 3 months' time, for a 6-month period. Nobody is sure what interest rates will prevail in the future. Some analysts think rates will increase, others feel they will fall. To protect the firm against the risk of reduced return on funds. We can use the Forward-Rate Agreements to protect the firm, but we know that if we use Forward-Rate Agreements now we will give up the possibility of benefiting from higher interest rates. In these circumstances, interest-rate guarantee products can be very useful. An Interest-Rate Guarantee is a product, which can be very useful in these circumstances. Basically, it is an option on a Forward-Rate Agreement. It allows us a period of time during which the firm have the right to buy a Forward-Rate Agreement at a set price. The guarantee protects us against a fall in interest rates while giving us the freedom to enjoy a better return if rates increase. If firm want this guarantee the firm will need to pay a higher premium. The price of Interest-Rate Guarantee will depend on

- The guaranteed rate;
- How long firm want the Option for; and
- How often interest rates are changing.

Interest rate Guarantee hedges the interest rate for a single period of up to one year. Guarantee commission paid to the guarantor is comparable to option premium.

(ii) Value of an Option:

The factors which affect the value of an option are given below:

Symbol	Factor as it relates to stock option value	Factor as it relates to capital budgeting
P_o	Price of the underlying asset (i.e., stock price)	Present Value of expected operation Cash Flows discounted at the project's cost of capital
X	Exercise price	For call options-the initial investment. For put options-the value of the project's assets if sold or shifted to a more valuable use
T	Time until the option expires	Time until the option expires or is no longer available
K_{rf}	Risk-free rate of interest	Risk-free rate of interest (use the yield on U.S. T-bills)
E	Standard deviation of the underlying asset (volatility of stock price)	Project risk - standard deviation of the operating cash flow as a percent of total investment

(iii) Zero working capital concept:

Working capital is the comparison of current assets to current liabilities. For most organizations, current assets exceed current liabilities and working capital therefore represents the liquid reserves for meeting current obligations. Creditors prefer high levels of working capital since they are concerned about receiving payment. However, management prefers low levels of working capital since working capital earns an extremely low rate of return. Some companies are now driving working capital to record low levels, so-called Zero Working Capital. By keeping working capital at zero, funds are released for many other opportunities.

Zero Working Capital requires major changes in how an organization functions. One way to implement Zero Working Capital is to have a demand-based organization. Demand-based organizations do everything only as they are demanded: Fill customer orders, receive supplies, manufacture products, and other functions are done only as needed. The production facilities run 24 hours a day non-stop according to the demands within the marketplace. There are no inventories; everything is supplied immediately as needed. The end result of this demand driven organization is that little, if any, working capital is necessary to run the business.

Companies like GE (General Electric) and Campbell Soup have made Zero Working Capital a major strategic objective for the organization. As more and more businesses find faster ways of servicing customers, the concept of Zero Working Capital will become more main stream.

(iv) Greenfield Privatisation:

- Under new economic policy 1991, concept of privatization of PSEs to improve its efficiency and to reduce the budgetary support and involvement of stage in PSEs
- Releasing large amount of public resources locked up in non-strategic PSEs.
- Stopping further outflow of resources for sustaining unviable PSEs.
- Reducing burgeoning public debt.
- Transferring commercial risk to private sector.
- Disinvested companies would be exposed no market discipline and they would become more efficient and survive or will cease on their own.
- Disinvestment would have a beneficial effect on the capital market.
- New private investor will put in more money in privatized PSEs and economic activity will increase.
- Consumers will be benefited as they would have more choices and cheaper and better quality products and services.

(v) Measures of Financial Performance:

There are many different ways to measure financial performance, but all measures should be taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales. Furthermore, the analyst or investor may wish to look deeper into financial statements and seek out margin growth rates or any declining debt.

Some important measures of financial performance is –

- Profitability
- Liquidity
- Capital structure
- Market rating etc.