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	21	Value of firm and equity
Grand Total	**152**	

2. Project Planning and Capital Budgeting

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>1</td><td>A manufacturing unit engaged in the production of automobile parts is considering a proposal of purchasing one of the two plants, details of which are given below:
<table>
<tr><td>Particulars</td><td>Plant A</td><td>Plant B</td></tr>
<tr><td>Cost</td><td>₹20,00,000</td><td>₹38,00,000</td></tr>
<tr><td>Installation charges</td><td>₹4,00,000</td><td>₹2,00,000</td></tr>
<tr><td>Life</td><td>20 years</td><td>15 years</td></tr>
<tr><td>Scrap value after full life</td><td>₹4,00,000</td><td>₹4,00,000</td></tr>
<tr><td>Output per minute (units)</td><td>200</td><td>400</td></tr>
</table>
The annual costs of the two plants are as follows:
<table>
<tr><td>Particulars</td><td>Plant A</td><td>Plant B</td></tr>
<tr><td>Running hours per annum</td><td>2,500</td><td></td></tr>
<tr><td>Costs:</td><td>(In ₹)</td><td>(In ₹)</td></tr>
<tr><td>Wages</td><td>1,00,000</td><td>1,40,000</td></tr>
<tr><td>Indirect materials</td><td>4,80,000</td><td>6,00,000</td></tr>
<tr><td>Repairs</td><td>80,000</td><td>1,00,000</td></tr>
<tr><td>Power</td><td>2,40,000</td><td>2,80,000</td></tr>
<tr><td>Fixed Costs</td><td>60,000</td><td>80,000</td></tr>
</table>
Will it be advantageous to buy Plant A or Plant B? Substantiate your answer with the help of comparative unit cost of the plants. Assume interest on capital at 10 percent. Make other relevant assumptions:
Note: 10 percent interest tables
<table>
<tr><td></td><td>20 Years</td><td>15 Years</td></tr>
<tr><td>Present value of ₹1</td><td>0.1486</td><td>0.2394</td></tr>
<tr><td>Annuity of ₹1 (capital recovery factor with 10% interest)</td><td>0.1175</td><td>0.1315</td></tr>
</table></td><td>PM_Q11_2.15</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>2</td><td>XYZ Ltd. requires ₹8,00,000 for a unit. The useful life of a project is 4 years. Salvage value –Nil. Depreciation charge ₹2,00,000 p.a. Expected revenues and costs (excluding depreciation) ignoring inflation are:
<table>
<tr><td>Year</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Revenues</td><td>₹6,00,000</td><td>₹7,00,000</td><td>₹8,00,000</td><td>₹8,00,000</td></tr>
<tr><td>Cost</td><td>₹3,00,000</td><td>₹4,00,000</td><td>₹4,00,000</td><td>₹4,00,000</td></tr>
</table>
Tax rate 60%, Cost of capital 10%.
Calculate NPV of the project if inflation rates for revenues & costs are:
<table>
<tr><td>Year</td><td>Revenues</td><td>Costs</td></tr>
<tr><td>1</td><td>10%</td><td>12%</td></tr>
<tr><td>2</td><td>9%</td><td>10%</td></tr>
<tr><td>3</td><td>8%</td><td>9%</td></tr>
<tr><td>4</td><td>7%</td><td>8%</td></tr>
</table></td><td>SM_2.48_Q14</td><td></td></tr>
<tr><td>3</td><td>Aeroflot airlines is planning to procure a light commercial aircraft for flying class clients at an investment of ₹50 lakhs. The expected cash flow after tax for next three years is as follows:
(₹In lakhs)
<table>
<tr><td colspan="2">Year 1</td><td colspan="2">Year 2</td><td colspan="2">Year 3</td></tr>
<tr><td>CFAT</td><td>Probability</td><td>CFAT</td><td>Probability</td><td>CFAT</td><td>Probability</td></tr>
<tr><td>15</td><td>.1</td><td>15</td><td>.1</td><td>18</td><td>.2</td></tr>
<tr><td>18</td><td>.2</td><td>20</td><td>.3</td><td>22</td><td>.5</td></tr>
<tr><td>22</td><td>.3</td><td>30</td><td>.4</td><td>35</td><td>.2</td></tr>
<tr><td>35</td><td>.4</td><td>45</td><td>.2</td><td>50</td><td>.1</td></tr>
</table>
The company wishes to consider all possible risk factors relating to an airline. The company wants to know-
(i) The expected NPV of this proposal assuming independent probability distribution with 6 per cent risk free rate of interest, and
(ii) The possible deviation on expected values.</td><td>PM_Q20_2.33</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>4</td><td>Red Ltd. is considering a project with the following Cash flows:
<table>
<tr><th>Years</th><th>Cost of Plant</th><th>Recurring Cost</th><th>Savings</th></tr>
<tr><td>0</td><td>10,000</td><td></td><td></td></tr>
<tr><td>1</td><td></td><td>4,000</td><td>12,000</td></tr>
<tr><td>2</td><td></td><td>5,000</td><td>14,000</td></tr>
</table>
The cost of capital is 9%. Measure the sensitivity of the project to changes in the levels of plant value, running cost and savings (considering each factor at a time) such that the NPV becomes zero. The P.V. factor at 9% are as under:
<table>
<tr><th>Year</th><th>Factor</th></tr>
<tr><td>0</td><td>1</td></tr>
<tr><td>1</td><td>0.917</td></tr>
<tr><td>2</td><td>0.842</td></tr>
</table>
Which factor is the most sensitive to affect the acceptability of the project?</td><td>PM_Q24_2.41</td><td></td></tr>
<tr><td>5</td><td>The Easygoing Company Limited is considering a new project with initial investment, for a product “Survival”. It is estimated that IRR of the project is 16% having an estimated life of 5 years.
Financial Manager has studied that project with sensitivity analysis and informed that annual fixed cost sensitivity is 7.8416%, whereas cost of capital (discount rate) sensitivity is 60%.
Other information available are:
Profit Volume Ratio (P/V) is 70%,
Variable cost ₹60/- per unit
Annual Cash Flow ₹57,500/-
Ignore Depreciation on initial investment and impact of taxation.
Calculate
(i) Initial Investment of the Project
(ii) Net Present Value of the Project
(iii) Annual Fixed Cost
(iv) Estimated annual unit of sales</td><td>PM_Q25_2.43</td><td></td></tr>
</table>

No.	Question	Reference	
	(v) Break Even Units Cumulative Discounting Factor for 5 years		

8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%
3.993	3.890	3.791	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127

6 Determine the risk adjusted net present value of the following projects: PM_Q29_2.50

	X	Y	Z
Net cash outlays (₹)	2,10,000	120,000	100,000
Project life	5 years	5 years	5 years
Annual Cash inflow (₹)	70,000	42,000	30,000
Coefficient of variation	1.2	0.8	0.4

The Company selects the risk-adjusted rate of discount on the basis of the coefficient of variation:

Coefficient of Variation	Risk-Adjusted Rate of Return	P.V. Factor 1 to 5 years At risk adjusted rate of discount
0.0	10%	3.791
0.4	12%	3.605
0.8	14%	3.433
1.2	16%	3.274
1.6	18%	3.127
2.0	22%	2.864
More than 2.0	25%	2.689

7 New Projects Ltd. is evaluating 3 projects, P-I, P-II, P-III. Following information is available in respect of these projects: PM_Q30_2.51

	P-I	P-II	P-III
Cost	₹15,00,000	₹11.00.000	₹19,00,000
Inflows-Year 1	6,00,000	6,00,000	4,00,000
Year 2	6,00,000	4,00,000	6,00,000
Year 3	6,00,000	5,00,000	8,00,000
Year 4	6,00,000	2,00,000	12,00,000
Risk Index	1.80	1.00	0.60

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>Minimum required rate of return of the firm is 15% and applicable tax rate is 40%. The risk free interest rate is 10%.
Required:
(i) Find out the risk-adjusted discount rate (RADR) for these projects.
(ii) Which project is the best?</td><td></td><td></td></tr>
<tr><td>8</td><td>The Textile Manufacturing Company Ltd., is considering one of two mutually exclusive proposals, Projects M and N, which require cash outlays of Rs.8,50,000 and Rs.8,25,000 respectively. The certainty-equivalent (C.E) approach is used in incorporating risk in capital budgeting decisions. The current yield on government bonds is 6% and this is used as the risk free rate. The expected net cash flows and their certainty equivalents are as follows:
<table>
<tr><td>Year</td><td colspan="2">Project M</td><td></td><td colspan="2">Project N</td></tr>
<tr><td></td><td>Cash flow</td><td>C.E.</td><td></td><td>Cash flow</td><td>C.E.</td></tr>
<tr><td>1</td><td>4,50,000</td><td>0.8</td><td></td><td>4,50,000</td><td>0.9</td></tr>
<tr><td>2</td><td>5,00,000</td><td>0.7</td><td></td><td>4,50,000</td><td>0.8</td></tr>
<tr><td>3</td><td>5,00,000</td><td>0.5</td><td></td><td>5,00,000</td><td>0.7</td></tr>
</table>
Present value factor of Rs. 1 discounted at 6% at the end of year 1,2 and 3 are 0.943, 0.890 and 0.840
1. Which project should be accepted?
2. If risk adjusted discount rate method is used, which project would be analysed with higher rate?
----------[Nov 2003, 12 Marks]----------[Nov 1999, 6 Marks]----------</td><td>PM_Q28_2.48</td><td>  </td></tr>
<tr><td>9</td><td>A firm has an investment proposal, requiring an outlay of ₹80,000. The investment proposal is expected to have two years economic life with no salvage value. In year 1, there is a 0.4 probability that cash inflow after tax will be ₹50,000 and 0.6 probability that cash inflow after tax will be ₹60,000. The probability assigned to cash inflow after tax for the year 2 is as follows:
<table>
<tr><td>The cash inflow year 1</td><td colspan="2">₹50,000</td><td colspan="2">₹60,000</td></tr>
<tr><td>The cash inflow year 2</td><td colspan="2">Probability</td><td colspan="2">Probability</td></tr>
<tr><td></td><td>₹24,000</td><td>0.2</td><td>₹40,000</td><td>0.4</td></tr>
<tr><td></td><td>₹32,000</td><td>0.3</td><td>₹50,000</td><td>0.5</td></tr>
<tr><td></td><td>₹44,000</td><td>0.5</td><td>₹60,000</td><td>0.1</td></tr>
</table>
The firm uses a 10% discount rate for this type of investment.</td><td>PM_Q33_2.55</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>Required:
(i) Construct a decision tree for the proposed investment project and calculate the expected net present value (NPV).
(ii) What net present value will the project yield, if worst outcome is realized? What is the probability of occurrence of this NPV?
(iii) What will be the best outcome and the probability of that occurrence?
(iv) Will the project be accepted?
(Note: 10% discount factor 1 year 0.909; 2 year 0.826)</td><td></td><td></td></tr>
<tr><td>10</td><td>A & Co. is contemplating whether to replace an existing machine or to spend money on overhauling it. A & Co. currently pays no taxes. The replacement machine costs ₹90,000 now and requires maintenance of ₹10,000 at the end of every year for eight years. At the end of eight years it would have a salvage value of ₹20,000 and would be sold. The existing machine requires increasing amounts of maintenance each year and its salvage value falls each year as follows:
<table><tr><th>Year</th><th>Maintenance (₹)</th><th>Salvage (₹)</th></tr><tr><td>Present</td><td>0</td><td>40,000</td></tr><tr><td>1</td><td>10,000</td><td>25,000</td></tr><tr><td>2</td><td>20,000</td><td>15,000</td></tr><tr><td>3</td><td>30,000</td><td>10,000</td></tr><tr><td>4</td><td>40,000</td><td>0</td></tr></table>The opportunity cost of capital for A & Co. is 15%.
Required:
When should the company replace the machine?
(Notes: Present value of an annuity of Re. 1 per period for 8 years at interest rate of 15% : 4.4873; present value of Re. 1 to be received after 8 years at interest rate of 15% : 0.3269).</td><td>PM_Q37_2.62</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>11</td><td>A machine used on a production line must be replaced at least every four years. Costs incurred to run the machine according to its age are:
<table>
<tr><td colspan="6">Age of the Machine (years)</td></tr>
<tr><td></td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td>Purchase price (in ₹)</td><td>60,000</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Maintenance (in ₹)</td><td></td><td>16,000</td><td>18,000</td><td>20,000</td><td>20,000</td></tr>
<tr><td>Repair (in ₹)</td><td></td><td>0</td><td>4,000</td><td>8,000</td><td>16,000</td></tr>
<tr><td>Scrap Value (in ₹)</td><td></td><td>32,000</td><td>24,000</td><td>16,000</td><td>8,000</td></tr>
</table>
Future replacement will be with identical machine with same cost. Revenue is unaffected by the age of the machine. Ignoring inflation and tax, determine the optimum replacement cycle. PV factors of the cost of capital of 15% for the respective four years are 0.8696, 0.7561, 0.6575 and 0.5718.</td><td>PM_Q40_2.70</td><td>  </td></tr>
<tr><td>12</td><td>DEF Ltd has been regularly paying a dividend of ₹19,20,000 per annum for several years and it is expected that same dividend would continue at this level in near future. There are 12,00,000 equity shares of ₹10 each and the share is traded at par.
The company has an opportunity to invest ₹8,00,000 in one year's time as well as further ₹8,00,000 in two years' time in a project as it is estimated that the project will generate cash inflow of ₹3,60,000 per annum in three years' time which will continue for ever. This investment is possible if dividend is reduced for next two years.
Whether the company should accept the project? Also analyse the effect on the market price of the share, if the company decides to accept the project.</td><td>PM_Q42_2.73</td><td>  </td></tr>
<tr><td>13</td><td>ABC Ltd. is a pharmaceutical company possessing a patent of a drug called 'Aidrex', a medicine for aids patient.
Being an approach drug ABC Ltd. holds the right of production of drugs and its marketing. The period of patent is 15 year after which any other pharmaceutical company produce the drug with same formula. It is estimated that company shall require to incure $12.5 million for development and market of the drug.
As per survey conducted the expected cashflow from the sale of drug during 15 years shall be $ 16.7 million. Cash flow from the previous similar type of drug have exhibited are variance of 26.8% of the present value of cashflows. The current yield on Treasury Bonds of similar duration (15 years) is 7.8%. Determine the value of the patent.</td><td>SM_2.57_Q17</td><td>  </td></tr>
</table>

No.	Question	Reference	
	Z values 1.23 | 0.89065 1.24 | 0.89251 0.77 | 0.77935 0.78 | 0.78230		
14	Suppose MIS Ltd. is considering installation of solar electricity generating plant for light the staff quarters. The plant shall cost ₹25 crore and shall lead to saving in electricity expenses at the current tariff by ₹21 lakh per year forever. However, with change in Government in state, the rate of electricity are subject to change. Accordingly, the saving in electricity can be of ₹12 lakh or ₹35 lakh per year and forever. Assuming WACC of MIS Ltd. is 10% and risk free rate of rate of return is 8%. Determine the whether MIS Ltd. should accept the project or wait and see.	SM_2.60_Q19	

3. Leasing Decision

No.	Question	Reference	
1	Assuming lease amortised in 5 years, calculate alternate rental structure from the following: Investment Outlay 100 Lakhs Pre Tax Rate 20% Scrap Value Nil Schemes a. Equal Annual Plan b. Stepped up plan (15% increase each year) c. Balloon Plan (he pays Rs.400000 in the fourth year) d. Deferred payment plan (deferment of 2 years) Calculate lease rentals	SM_3.7_Q2	
2	Engineers Ltd. is in the business of manufacturing nut bolts. Some more product lines are being planned to be added to the existing system. The machinery required may be bought or may be taken on lease. The cost of machine is ₹20,00,000 having a useful life of 5 years with the salvage value of ₹4,00,000 (consider short term capital loss/gain for the Income tax). The full purchase value of machine can be financed by bank loan at the rate of 20% interest repayable in five equal instalments falling due at the end of each year. Alternatively, the machine can be procured on a 5 years lease, year-end lease rentals being ₹6,00,000 per annum. The Company follows the written down value method of depreciation at the rate of 25 per cent. Company's tax rate is 35 per cent and cost of capital is 14 per cent. (i) Advise the company which option it should choose – lease or borrow. (ii) Assess the proposal from the lessor's point of view examining whether leasing the machine is financially viable at 14 per cent cost of capital. Detailed working notes should be given.	PM_Q8_3.12	

No.	Question	Reference	
3	The following are the details of a lease by RST Ltd. a. Cost of machine is ₹1,00,000 financed 80% through debt and balance through equity. Cost of debt before tax amount to 20% and equity 16%. b. The lessor is in 35% tax bracket. The rate of depreciation for machinery is 20% WDV. c. The scrap value of machine is ₹10,000 at the end of 5th year. d. Estimated cost for maintenance is ₹1,000 per annum. e. The lessee agrees to pay the following: (i) Annual rent of ₹36,000 for 5 years payable at the end of each year. (ii) The security deposit of ₹3,000 which is refundable at the end of lease period. (iii)Training fees payable at the beginning of lease period is ₹2,500. Decide whether the lessor should lease the asset (based on IRR).	R_LD_Q5	
4	Classic Finance, a Leasing Company, has been approached by a prospective customer intending to acquire a machine whose cash down price is ₹6 crores. The customer, in order to leverage his tax position, has requested a quote for a three year lease with rentals payable at the end of each year but in a diminishing manner such that they are in the ratio of 3:2:1. Depreciation can be assumed to be on WDV basis at 25% and Classic Finance's marginal tax rate is 35%. The target rate of return for Classic Finance on the transaction is 10%. You are required to calculate the lease rents to be quoted for the lease for three years.	PM_Q19_3.32	
5	M/s ABC Ltd. is to acquire a personal computer with modem and a printer. Its price is ₹60,000. ABC Ltd. can borrow ₹60,000 from a commercial bank at 12% interest per annum to finance the purchase. The principal sum is to be repaid in 5 equal year-end instalments. ABC Ltd. can also have the computer on lease for 5 years. The firm seeks your advice to know the maximum lease rent payable at each year end. Consider the following additional information: i. Interest on bank loan is payable at each year end. ii. The full cost of the computer will be written off over the effective life	PM_Q20_3.33	

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>of computer on a straight-line basis. This is allowed for tax purposes.
iii. At the end of year 5, the computer may be sold for ₹1,500 through a second -hand dealer, who will charge 8% commission on the sale proceeds.
iv. The company's effective tax rate is 30%.
v. The cost of capital is 11%.
Suggest the maximum annual lease rental for ABC Ltd.:
PV Factor at 11%
<table>
<tr><th>Year</th><th>PVF</th></tr>
<tr><td>1</td><td>0.901</td></tr>
<tr><td>2</td><td>0.812</td></tr>
<tr><td>3</td><td>0.731</td></tr>
<tr><td>4</td><td>0.659</td></tr>
<tr><td>5</td><td>0.593</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>6</td><td>X Ltd. had only one water pollution control machine in this type of block of asset with no book value under the provisions of the Income Tax Act, 1961 as it was subject to rate of depreciation of 100% in the very first year of installation. Due to funds crunch, X Ltd. decided to sell the machine which can be sold in the market to anyone for ₹5,00,000 easily.
Understanding this from a reliable source, Y Ltd. came forward to buy the machine for ₹5,00,000 and lease it to X Ltd. for lease rental of ₹90,000 p.a. for 5 years. X Ltd. decided to invest the net sale proceed in a risk free deposit, fetching yearly interest of 8.75% to generate some cash flow. It also decided to relook the entire issue afresh after the said period of 5 years.
Another company, Z Ltd. also approached X Ltd. proposing to sell a similar machine for ₹4,00,000 to the latter and undertook to buy it back at the end of 5 years for ₹1,00,000 provided the maintenance were entrusted to Z Ltd. for yearly</td><td>PM_Q22_3.36</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>charge of ₹15,000. X Ltd. would utilize the net sale proceeds of the old machine to fund this machine also should it accept this offer.
The marginal rate of tax of X Ltd. is 34% and its weighted average cost of capital is 12%.
Which Alternative would you recommend?
Discounting Factors @ 12%
<table>
<tr><td>Year</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr>
<tr><td></td><td>0.893</td><td>0.797</td><td>0.712</td><td>0.636</td><td>0.567</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>7</td><td>Alfa Ltd. desires to acquire a diesel generating set costing ₹20 lakh which will be used for a period of 5 years. It is considering two alternatives
(i) Taking the generating set on lease or
(ii) Purchasing the asset outright by raising a loan.
The company has been offered a lease contract with a lease payment of ₹5.2 lakh per annum for five years payable in advance. Company's banker requires the loan to be repaid @ 12% p.a. in 5 equal annual instalments, each installment being due at the beginning of the each year. Tax relevant depreciation of the generator is 20% as per WDV method. At the end of 5th year the generator can be sold at ₹2,00,000. Marginal Tax rate of Alfa Ltd. is 30% and its post-tax cost of capital is 10%.
Determine:
a) The Net Advantage of Leasing to Alfa Ltd. and recommend whether leasing is financially viable.
b) Break Even Lease Rental.</td><td>PM_Q23_3.37</td><td>  </td></tr>
</table>

No.	Question	Reference	
8	R Ltd., requires a machine for 5 years. There are two alternatives either to take it on lease or buy. The company is reluctant to invest initial amount for the project and approaches their bankers. Bankers are ready to finance 100% of its initial required amount at 15% rate of interest for any of the alternatives. Under lease option, upfront Security deposit of ₹5,00,000/- is payable to lessor which is equal to cost of machine. Out of which, 40% shall be adjusted equally against annual lease rent. At the end of life of the machine, expected scrap value will be at book value after providing, depreciation @ 20% on written down value basis. Under buying option, loan repayment is in equal annual installments of principal amount, which is equal to annual lease rent charges. However in case of bank finance for lease option, repayment of principal amount equal to lease rent is adjusted every year, and the balance at the end of 5thyear. Assume Income tax rate is 30%, interest is payable at the end of every year and discount rate is @ 15% p.a. The following discounting factors are given: Which option would you suggest on the basis of net present values?	PM_Q24_3.42	

Year	1	2	3	4	5
Factor	0.8696	0.7562	0.6576	0.5718	0.4972

4. Dividend Decisions

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>1</td><td>Calculate the implied Growth Rate and Return on Equity
Current stock price = ₹65
Next year's dividend =₹4
Capitalization rate =12%
Earnings retention ratio =50%</td><td>SM_4.29_Q14</td><td></td></tr>
<tr><td>2</td><td>Goldi locks Ltd. was started a year back with equity capital of ₹40 lakhs. The other details are as under:
<table><tr><td>Earnings of the company</td><td>₹4,00,000</td></tr><tr><td>Price Earnings ratio</td><td>12.5</td></tr><tr><td>Dividend paid</td><td>₹3,20,000</td></tr><tr><td>Number of Shares</td><td>40,000</td></tr></table>Find the current market price of the share. Use Walter's Model.
Find whether the company's D/ P ratio is optimal, use Walter's formula.</td><td>PM_Q10_4.10</td><td></td></tr>
<tr><td>3</td><td>The following information is supplied to you:
<table><tr><td></td><td>₹</td></tr><tr><td>Total Earnings</td><td>2,00,000</td></tr><tr><td>No. of equity shares (of ₹100 each)</td><td>20,000</td></tr><tr><td>Dividend paid</td><td>1,50,000</td></tr><tr><td>Price/Earning ratio</td><td>12.5</td></tr></table>i. Ascertain whether the company is the following an optimal dividend policy.
ii. Find out what should be the P/E ratio at which the dividend policy will have no effect on the value of the share.
iii. Will your decision change, if the P/E ratio is 8 instead of 12.5?</td><td>PM_Q12_4.12</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>4</td><td>The following information is collected from the annual reports of J Ltd:
<table><tr><td>Profit before tax</td><td>₹2.50 crore</td></tr><tr><td>Tax rate</td><td>40 percent</td></tr><tr><td>Retention ratio</td><td>40 percent</td></tr><tr><td>Number of outstanding shares</td><td>50,00,000</td></tr><tr><td>Equity capitalization rate</td><td>12 percent</td></tr><tr><td>Rate of return on investment</td><td>15 percent</td></tr></table>What should be the market price per share according to Gordon's model of dividend policy?</td><td>PM_Q17_4.18</td><td>  </td></tr>
<tr><td>5</td><td>Buenos Aires Limited has 10 lakh equity shares outstanding at the beginning of the year 2013. The current market price per share is ₹150. The current market price per share is ₹150. The company is contemplating a dividend of ₹9 per share. The rate of capitalization, appropriate to its risk class, is 10%.
(i) Based on MM approach, calculate the market price of the share of the company when:
(1) Dividend is declared
(2) Dividend is not declared
(ii) How many new shares are to be issued by the company, under both the above options, if the Company is planning to invest ₹500 lakhs assuming net income of ₹200 lakhs by the end of the year?
(iii) Also show how does the value of the company does not change according to the M M Hypothesis on payment of the dividend</td><td>PM_Q21_4.23</td><td>  </td></tr>
<tr><td>6</td><td>In December, 2011 AB Co.'s share was sold for ₹146 per share. A long term earnings growth rate of 7.5% is anticipated. AB Co. is expected to pay dividend of ₹3.36 per share.
i. What rate of return an investor can expect to earn assuming that dividends are expected to grow along with earnings at 7.5% per year in perpetuity?
ii. It is expected that AB Co. will earn about 10% on book Equity and shall retain 60% of earnings. In this case, whether, there would be any change in growth rate and cost of Equity?</td><td>SUPP_Q2_A.11</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>7</td><td>
X Ltd. is a Shoes manufacturing company. It is all equity financed and has a paid-up Capital of ₹10, 00,000 (₹10 per share).

X Ltd. has hired Swastika consultants to analyse the future earnings. The report of Swastika consultants states as follows:

i. The earnings and dividend will grow at 25% for the next two years.
ii. Earnings are likely to grow at the rate of 10% from 3rd year and onwards.
iii. Further, if there is reduction in earnings growth, dividend pay-out ratio will increase to 50%.

The other data related to the company are as follows:
<table>
<tr><th>Year</th><th>EPS (₹)</th><th>Net Dividend per share (₹)</th><th>Share Price (₹)</th></tr>
<tr><td>2010</td><td>6.30</td><td>2.52</td><td>63.00</td></tr>
<tr><td>2011</td><td>7.00</td><td>2.80</td><td>46.00</td></tr>
<tr><td>2012</td><td>7.70</td><td>3.08</td><td>63.75</td></tr>
<tr><td>2013</td><td>8.40</td><td>3.36</td><td>68.75</td></tr>
<tr><td>2014</td><td>9.60</td><td>3.84</td><td>93.00</td></tr>
</table>
You may assume that the tax rate is 30% (not expected to change in future) and post-tax cost of capital is 15%.
By using the Dividend Valuation Model, calculate
i. Expected Market Price per share
ii. P/E Ratio.
</td><td>PM_Q26_4.29</td><td>  </td></tr>
</table>

5. Indian Capital Market (Derivatives)

No.	Question	Reference	
1	Mr. X, is a Senior Portfolio Manager at ABC Asset Management Company. He expects to purchase a portfolio of shares in 90 days. However he is worried about the expected price increase in shares in coming day and to hedge against this potential price increase he decides to take a position on a 90-day forward contract on the Index. The index is currently trading at 2290. Assuming that the continuously compounded dividend yield is 1.75% and risk free rate of interest is 4.16%, you are required to determine: (a) Calculate the justified forward price on this contract. (b) Suppose after 28 days of the purchase of the contract the index value stands at 2450 then determine gain/ loss on the above long position. (c) If at expiration of 90 days the Index Value is 2470 then what will be gain on long position. Note: Take 365 days in a year and value of $e^{0.005942}$ = 1.005960, $e^{0.001849}$ = 1.001851.	RTP_May15_ Q2	
2	A trader is having in its portfolio shares worth ₹85 lakhs at current price and cash ₹15 lakhs. The beta of share portfolio is 1.6. After 3 months the price of shares dropped by 3.2%. Determine: a. Current portfolio beta b. Portfolio beta after 3 months if the trader on current date goes for long position on ₹100 lakhs Nifty futures.	PM_Q38_5.37	
3	BSE 5000 Value of portfolio ₹10,10,000 Risk free interest rate 9% p.a. Dividend yield on Index 6% p.a. Beta of portfolio 1.5 We assume that a future contract on the BSE index with four months maturity is used to hedge the value of portfolio over next three months. One future contract is for delivery of 50 times the index. Based on the above information calculate: a. Price of future contract b. The gain on short futures position if index turns out to be 4,500 in three months.	PM_Q40_5.39	

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>4</td><td>The following data relate to Anand Ltd.'s share price:
<table><tr><td>Current price per share</td><td>₹1,800</td></tr><tr><td>6 months future's price/share</td><td>₹1,950</td></tr></table>Assuming it is possible to borrow money in the market for transactions in securities at 12% per annum, you are required:
a. To calculate the theoretical minimum price of a 6-months forward purchase; and
b. To explain arbitrate opportunity.</td><td>PM_Q41_5.39</td><td></td></tr>
<tr><td>5</td><td>TMC Holding Ltd. has a portfolio of shares of diversified companies valued at ₹400 crore enters into a swap arrangement with None Bank on the terms that it will get 1.15% quarterly on notional principal of ₹400 crore in exchange of return on portfolio which is exactly tracking the Sensex which is presently 21,600.

You are required to determine the net payment to be received/ paid if Sensex turns out to be 21,860, 21,780, 22,080 and 21,960 at the end of each quarter.</td><td>MTP_MAR17_Q1</td><td></td></tr>
<tr><td>6</td><td>On April 1, 2015, an investor has a portfolio consisting of eight securities as shown below:
<table><tr><th>Security</th><th>Market Price</th><th>No. of Shares</th><th>Beta</th></tr><tr><td>A</td><td>29.40</td><td>400</td><td>0.59</td></tr><tr><td>B</td><td>318.70</td><td>800</td><td>1.32</td></tr><tr><td>C</td><td>660.20</td><td>150</td><td>0.87</td></tr><tr><td>D</td><td>5.20</td><td>300</td><td>0.35</td></tr><tr><td>E</td><td>281.90</td><td>400</td><td>1.16</td></tr><tr><td>F</td><td>275.40</td><td>750</td><td>1.24</td></tr><tr><td>G</td><td>514.60</td><td>300</td><td>1.05</td></tr><tr><td>H</td><td>170.50</td><td>900</td><td>0.76</td></tr></table>The cost of capital for the investor is 20% p.a. continuously compounded. The investor fears a fall in the prices of the shares in the near future. Accordingly, he approaches you for the advice to protect the interest of his portfolio.
You can make use of the following information:
(i) The current NIFTY value is 8500.
(ii) NIFTY futures can be traded in units of 25 only.
(iii) Futures for May are currently quoted at 8700 and Futures for June are being quoted at 8850.</td><td>PM_Q68_5.67</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>You are required to calculate:
1. the beta of his portfolio.
2. the theoretical value of the futures contract for contracts expiring in May and June. Given (e0.03 =1.03045, e0.04 = 1.04081, e0.05 =1.05127)
3. the number of NIFTY contracts that he would have to sell if he desires to hedge until June in each of the following cases:
(A) His total portfolio
(B) 50% of his portfolio
(C) 120% of his portfolio</td><td></td><td></td></tr>
<tr><td>7</td><td>Details about portfolio of shares of an investor is as below:
<table><tr><th>Shares</th><th>No. of shares</th><th>Price Per Share</th><th>Beta</th></tr><tr><td>A Ltd</td><td>3.0</td><td>500</td><td>1.40</td></tr><tr><td>B Ltd</td><td>4.0</td><td>750</td><td>1.20</td></tr><tr><td>C Ltd</td><td>2.0</td><td>250</td><td>1.60</td></tr></table>The investor thinks that the risk of portfolio is very high and wants to reduce the portfolio beta to 0.91. He is considering two below mentioned alternative strategies:
(i) Dispose off a part of his existing portfolio to acquire risk free securities,
(ii) Take appropriate position on Nifty Futures which are currently traded at ₹8125 and each Nifty points is worth ₹200.

You are required to determine:
(1) portfolio beta,
(2) the value of risk free securities to be acquired,
(3) the number of shares of each company to be disposed off,
(4) the number of Nifty contracts to be bought/sold; and
(5) the value of portfolio beta for 2% rise in Nifty.</td><td>SUGG_NOV16_Q3A</td><td>  </td></tr>
<tr><td>8</td><td>Mr.Dayal is interested in purchasing equity shares of ABC Ltd. Which are currently Selling at ₹600 each. He expects that price of share may go upto ₹780 or may go down to ₹480 in three months. The chances of occurring such variations are 60% and 40% respectively. A call option on the shares of ABC Ltd. can be exercised at the end of three months with a strike price of ₹630
a. What combination of share and option should Mr. Dayal select if he wants a perfect hedge?
b. What should be the value of option today (the risk free rate is 10% p.a.)?
c. What is the expected rate of return on the option?</td><td>PM_Q47_5.44</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>9</td><td>Consider a two year American call option with a strike price of ₹50 on a stock the current price of which is also ₹50. Assume that there are two time periods of one year and in each year the stock price can move up or down by equal percentage of 20%. The risk free interest rate is 6%. Using binominal option model, calculate the probability of price moving up and down. Also draw a two step binomial tree showing prices and payoffs at each node.</td><td>PM_Q49_5.46</td><td></td></tr>
<tr><td>10</td><td>Mr. X established the following spread on the Delta Corporation's stock :
a. Purchased one 3-month call option with a premium of ₹30 and an exercise price of ₹550.
b. Purchased one 3-month put option with a premium of ₹5 and an exercise price of ₹450
Delta Corporation's stock is currently selling at ₹500. Determine
profit or loss, if the price of Delta Corporation's:
i. Remains at ₹500 after 3 months.
ii. Falls at ₹350 after 3 months.
iii. rises to ₹600
Assume the size option is 100 shares of Delta Corporation.</td><td>PM_Q51_5.47</td><td></td></tr>
<tr><td>11</td><td>You as an investor had purchased a 4 month call option on the equity shares of X Ltd. of ₹10, of which the current market price is ₹132 and the exercise price ₹150. You expect the price to range between ₹12 to ₹190. The expected share price of X Ltd. and related probability is given below:
<table>
<tr><td>Expected Price (₹)</td><td>120</td><td>140</td><td>160</td><td>180</td><td>190</td></tr>
<tr><td>Probability</td><td>.05</td><td>.20</td><td>.50</td><td>.10</td><td>.15</td></tr>
</table>
Compute the following:
I. Expected Share price at the end of 4 months.
II. Value of Call Option at the end of 4 months, if the exercise price Prevails.
III. In case the option is held to its maturity, what will be the expected value of the call option?</td><td>PM_Q53_5.49</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>12</td><td>The shares of TIC Ltd. are currently priced at ₹415 and call option exercisable in three months time has an exercise rate of₹400. Risk free rate of interest is 5% p.a. and standard deviation (volatility) of share price is 22%.
i) Based on the assumption that TIC Ltd. is not going to declare any dividend over the next three months, is the option worth buying for ₹25?
ii) Calculate value of the call option based on Black Scholes valuation model if the current price is considered as ₹380.
iii) What would be the worth of put option if the current price is considered ₹380?
iv) If TIC share price is taken as ₹408 and a dividend of ₹10 is expected to be paid in the two months time, then calculate value of the call option.</td><td>SM_5.43_Q5</td><td></td></tr>
<tr><td>13</td><td>From the following data for certain stock, find the value of a call option:
<table>
<tr><td>Price of stock now</td><td>₹80</td></tr>
<tr><td>Exercise price</td><td>₹75</td></tr>
<tr><td>Standard deviation of continuously compounded annual return</td><td>0.40</td></tr>
<tr><td>Maturity period</td><td>6months</td></tr>
<tr><td>Annual interest rate</td><td>12%</td></tr>
</table>
Given
<table>
<tr><th>Number of S.D. from Mean, (z)</th><th>Area of the left or right (one tail)</th></tr>
<tr><td>0.25</td><td>0.4013</td></tr>
<tr><td>0.30</td><td>0.3821</td></tr>
<tr><td>0.55</td><td>0.2912</td></tr>
<tr><td>0.60</td><td>0.2743</td></tr>
</table>
e 0.12x0.5 = 1.062
In 1.0667 = 0.0646</td><td>PM_Q56_5.52</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>14</td><td>A Inc. and B Inc. intend to borrow $200,000 and $200,000 in ¥ respectively for a time horizon of one year. The prevalent interest rates are as follows:
<table>
<tr><td>Company</td><td>¥ Loan</td><td>$ Loan</td></tr>
<tr><td>A Inc</td><td>5%</td><td>9%</td></tr>
<tr><td>B Inc</td><td>8%</td><td>10%</td></tr>
</table>
The prevalent exchange rate is $1 = ¥120
They entered in a currency swap under which it is agreed that B Inc will pay A Inc @ 1% over the ¥ Loan interest rate which the later will have to pay as a result of the agreed currency swap whereas A Inc will reimburse interest to B Inc only to the extent of 9%. Keeping the exchange rate invariant, quantify the opportunity gain or loss component of the ultimate outcome, resulting from the designed currency swap.</td><td>PM_Q59_5.56</td><td></td></tr>
<tr><td>15</td><td>M/s. Parker & Co. is contemplating to borrow an amount of ₹60crores for a period of 3months in the coming 6month's time from now. The current rate of interest is 9% p.a., but it may go up in 6month’s time. The company wants to hedge itself against the likely increase in interest rate. The Company's Bankers quoted an FRA (Forward Rate Agreement) at 9.30% p.a. What will be the effect of FRA and actual rate of interest cost to the company, if the actual rate of interest after 6 months happens to be (i) 9.60% p.a. and (ii) 8.80% p.a.?</td><td>PM_Q61_5.59</td><td></td></tr>
<tr><td>16</td><td>The following market data is available:
Spot USD/JPY 116.00
<table>
<tr><td>Deposit rates p.a.</td><td>USD</td><td>JPY</td></tr>
<tr><td>3 months</td><td>4.50%</td><td>0.25%</td></tr>
<tr><td>6 months</td><td>5.00%</td><td>0.25%</td></tr>
</table>
Forward Rate Agreement (FRA) for Yen is Nil.
i. What should be 3 months FRA rate at 3 months forward?
ii. The 6 & 12 months LIBORS are 5% & 6.5% respectively. A bank is quoting 6/12 USD FRA at 6.50 – 6.75%. Is any arbitrage opportunity available?</td><td>PM_Q62_5.60</td><td></td></tr>
</table>

No.	Question	Reference	
17	Ram buys 10,000 shares of X Ltd. at a price of ₹22 per share whose beta value is 1.5 and sells 5,000 shares of A Ltd. at a price of ₹40 per share having a beta value of 2. He obtains a complete hedge by Nifty futures at ₹1,000 each. He closes out his position at the closing price of the next day when the share of X Ltd. dropped by 2%, share of A Ltd. appreciated by 3% and Nifty futures dropped by 1.5%. What is the overall profit/loss to Ram?	PM_Q66_5.65	
18	A company is long on 10 MT of copper @ ₹474 per kg (spot) and intends to remain so for the ensuing quarter. The standard deviation of changes of its spot and future prices are 4% and 6% respectively, having correlation coefficient of 0.75.What is its hedge ratio? What is the amount of the copper future it should short to achieve a perfect hedge?	PM_Q69_5.69	
19	Indira has a fund of ₹3 lacs which she wants to invest in share market with rebalancing target after every 10 days to start with for a period of one month from now. The present NIFTY is 5326. The minimum NIFTY within a month can at most be 4793.4. She wants to know as to how she should rebalance her portfolio under the following situations, according to the theory of Constant Proportion Portfolio Insurance Policy, using "2" as the multiplier: a. Immediately to start with. b. 10 days later-being the 1st day of rebalancing if NIFTY falls to 5122.96. c. 10 days further from the above date if the NIFTY touches 5539.04. For the sake of simplicity, assume that the value of her equity component will change in tandem with that of the NIFTY and the risk free securities in which she is going to invest will have no Beta.	PM_Q70_5.70	
20	XYZ Limited borrows £ 15 Million of six months LIBOR + 10.00% for a period of 24months. The company anticipates a rise in LIBOR, hence it proposes to buy a Cap Option from its Bankers at the strike rate of 8.00%. The lump sum premium is 1.00% for the entire reset periods and the fixed rate of interest is 7.00% per annum. The actual position of LIBOR during the forthcoming reset period is as under: Reset Period | LIBOR 1 | 9.00% 2 | 9.50% 3 | 10.00%	PM_Q71_5.71	

No.	Question	Reference	
	You are required to show how far interest rate risk is hedged through Cap Option. For calculation, work out figures at each stage up to four decimal points and amount nearest to £. It should be part of working notes.		
21	Electraspace is consumer electronics wholesaler. The business of the firm is highly seasonal in nature. In 6 months of a year, firm has a huge cash deposits and especially near Christmas time and other 6 months firm cash crunch, leading to borrowing of money to cover up its exposures for running the business. It is expected that firm shall borrow a sum of €50 million for the entire period of slack season in about 3 months. A Bank has given the following quotations: Spot 5.50% - 5.75% 3 x 6 FRA 5.59% - 5.82% 3 x 9 FRA 5.64% - 5.94% 3 month €50,000 future contract maturing in a period of 3 months is quoted at 94.15 (5.85%). You are required to determine: (a) How a FRA, shall be useful if the actual interest rate after 3 months turnout to be: (i) 4.5% (ii) 6.5% (b) How 3 months Future contract shall be useful for company if interest rate turns out as mentioned in part (a) above.	PM_Q74_5.75	

6. Security Analysis

No.	Question	Reference	
1	The stock of the Soni plc is selling for £50 per common stock. The company then issues rights to subscribe to one new share at £40 for each five rights held. (a) What is the theoretical value of a right when the stock is selling rights-on? (b) What is the theoretical value of one share of stock when it goes ex-rights? (c) What is the theoretical value of a right when the stock sells ex-rights at £50? (d) John Speculator has £1,000 at the time Soni plc goes ex-rights at £50 per common stock. He feels that the price of the stock will rise to £60 by the time the rights expire. Compute his return on his £1,000 if he (1) buys Soni plc stock at £50, or (2) buys the rights as the price computed in part c, assuming his price expectations are valid.	PM_Q11_6.22	
2	On the basis of the following information: Current dividend (Do) = ₹2.50 Discount rate (k) = 10.5% Growth rate (g) = 2% i. Calculate the present value of stock of ABC Ltd. ii. Is its stock overvalued if stock price is ₹35, ROE = 9% and EPS = ₹2.25? Show your calculation under the PE Multiple Approach and Earnings Growth Model	PM_Q13_6.23	

No.	Question	Reference	
3	The risk free rate of return R_f is 9 percent. The expected rate of return on the market portfolio R_m is 13 percent. The expected rate of growth for the dividend of Platinum Ltd. is 7 percent. The last dividend paid on the equity stock of firm A was ₹2.00. The beta of Platinum Ltd. equity stock is 1.2 (i) What is the equilibrium price of the equity stock of Platinum Ltd.? (ii) How would the equilibrium price change when • The inflation premium increases by 2 percent? • The expected growth rate increases by 3 percent? The beta of Platinum Ltd. equity rises to 1.3?	PM_Q27_6.41	
4	Seawell Corporation, a manufacturer of do-it-yourself hardware and house wares, reported earnings per share of €2.10 in 2003, on which it paid dividends per share of €0.69. Earnings are expected to grow 15% a year from 2004 to 2008, during this period the dividend payout ratio is expected to remain unchanged. After 2008, the earnings growth rate is expected to drop to a stable rate of 6%, and the payout ratio is expected to increase to 65% of earnings. The firm has a beta of 1.40 currently, and is expected to have a beta of 1.10 after 2008. The market risk premium is 5.5%. The Treasury bond rate is 6.25%. (a) What is the expected price of the stock at the end of 2008? (b) What is the value of the stock, using the two-stage dividend discount model?	PM_Q28_6.42	
5	SAM Ltd. has just paid a dividend of ₹2 per share and it is expected to grow @ 6% p.a. After paying dividend, the Board declared to take up a project by retaining the next three annual dividends. It is expected that this project is of same risk as the existing projects. The results of this project will start coming from the 4th year onward from now. The dividends will then be ₹2.50 per share and will grow @ 7% p.a.	PM_Q29_6.43	

No.	Question	Reference	
	An investor has 1,000 shares in SAM Ltd. and wants a receipt of atleast ₹2,000 p.a. from this investment. Show that the market value of the share is affected by the decision of the Board. Also show as to how the investor can maintain his target receipt from the investment for first 3 years and improved income thereafter, given that the cost of capital of the firm is 8%.		
6	Pet feed plc. has outstanding, a high yield Bond with following features: Face Value £ 10,000 Coupon 10% Maturity Period 6 Years Special Feature Company can extend the life of Bond to 12 years. Presently the interest rate on equivalent Bond is 8% a) If an investor expects that interest will be 8%, six years from now then how much he should pay for this bond now. b) Now suppose, on the basis of that expectation, he invests in the Bond, but interest rate turns out to be 12%, six years from now, then what will be his potential loss/ gain.	PM_Q32_6.46	
7	Find the current market price of a bond having face value ₹1, 00,000 redeemable after 6 year maturity with YTM at 16% payable annually and duration 4.3202 years. Given $1.16^6 = 2.4364$.	PM_Q42_6.53	
8	ABC Ltd. issued 9%, 5 year bonds of ₹1,000/- each having a maturity of 3 years. The present rate of interest is 12% for one year tenure. It is expected that Forward rate of interest for one year tenure is going to fall by 75 basis points and further by 50 basis points for every next year in further for the same tenure. This bond has a beta value of 1.02 and is more popular in the market due to less credit risk. Calculate: I. Intrinsic value of bond II. Expected price of bond in the market.	PM_Q44_6.55	

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>9</td><td>MP Ltd. issued a new series of bonds on January 1, 2010. The bonds were sold at par (₹1,000), having a coupon rate 10% p.a. and mature on 31st December, 2025. Coupon payments are made semi -annually on June 30th and December 31st each year. Assume that you purchased an outstanding MP Ltd. bond on 1st March, 2018 when the going interest rate was 12%.
Required:
I. What was the YTM of MP Ltd. bond as on January 1, 2010?
II. What amount you should pay to complete the transaction? Of that amount how much should be accrued interest and how much would represent bonds basic value.</td><td>PM_Q45_6.56</td><td></td></tr>
<tr><td>10</td><td>On 31st March, 2013, the following information about Bonds is available:

Calculate:
<table>
<tr><th>Name of Security</th><th>Face Value ₹</th><th>Maturity Date</th><th>Coupon Rate</th><th>Coupon Date(s)</th></tr>
<tr><td>Zero coupon</td><td>10,000</td><td>31stMarch, 2023</td><td>N.A</td><td>N.A</td></tr>
<tr><td>T-Bill</td><td>1,00,000</td><td>20th June, 2013</td><td>N.A</td><td>N.A</td></tr>
<tr><td>10.71% GOI 2023</td><td>100</td><td>31st March, 2023</td><td>10.71</td><td>31st March</td></tr>
<tr><td>10 % GOI 2018</td><td>100</td><td>31st March, 2018</td><td>10.00</td><td>31st March &30th September</td></tr>
</table>
i. If 10 years yield is 7.5% p.a. what price the Zero Coupon Bond would fetch on 31stMarch, 2013?
ii. What will be the annualized yield if the T-Bill is traded @ 98500?
iii. If 10.71% GOI 2023 Bond having yield to maturity is 8%, what price would it fetch on April 1, 2013 (after coupon payment on 31st March)?
iv. If 10% GOI 2018 Bond having yield to maturity is 8%, what price would it fetch on April 1, 2013 (after coupon payment on 31st March)?</td><td>PM_Q48_6.59</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>11</td><td>M/s Trans India Ltd. is contemplating calling ₹3crores of 30 years, ₹1,000 bond issued 5years ago with a coupon interest rate of 14 per cent. The bonds have a call price of ₹1,140 and had initially collected proceeds of ₹2.91crores due to a discount of ₹30 per bond. The initial floating cost was ₹3,60,000. The Company intends to sell ₹3crores of 12 per cent coupon rate, 25 years bonds to raise funds for retiring the old bonds. It proposes to sell the new bonds at their par value of ₹ 1,000. The estimated floatation cost is 4, 00,000. The company is paying 40% tax and it's after tax cost of debt is 8 per cent. As the new bonds must first be sold and their proceeds, then used to retire old bonds, the company expects a two months period of overlapping interest during which interest must be paid on both the old and new bonds. What is the feasibility of refunding bonds?</td><td>PM_Q50_6.61</td><td>  </td></tr>
<tr><td>12</td><td>The following data 55 for a bond:
<table><tr><td>Face Value</td><td>₹1,000</td></tr><tr><td>Coupon Rate</td><td>11%</td></tr><tr><td>Years to Maturity</td><td>6</td></tr><tr><td>Redemption Value</td><td>₹1,000</td></tr><tr><td>Yield to Maturity</td><td>15%</td></tr></table>(Round-off your answers to 3 decimals):
Calculate the following in respect of the bond:
i. Current Market Price.
ii. Duration of the Bond.
iii. Volatility of the Bond.
iv. Expected market price if increase in required yield is by 100 basis points.
v. Expected market price if decrease in required yield is by 75 basis points.</td><td>PM_Q55_6.70</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>13</td><td>The following data is related to 8.5% fully convertible (into Equity shares) Debentures issued by JAC Ltd. at ₹ 1000.
<table>
<tr><td>Market Price of Debenture</td><td>₹900</td></tr>
<tr><td>Conversion Ratio</td><td>30</td></tr>
<tr><td>Straight Value of Debenture</td><td>₹700</td></tr>
<tr><td>Market Price of Equity share on the date of Conversion</td><td>₹ 25</td></tr>
<tr><td>Expected Dividend Per Share</td><td>₹1</td></tr>
</table>
You are required to calculate:
a) Conversion Value of Debenture
b) Market Conversion Price
c) Conversion Premium per share
d) Ratio of Conversion Premium
e) Premium over Straight Value of Debenture
f) Favourable income differential per share
g) Premium pay back period</td><td>PM_Q57_6.73</td><td></td></tr>
<tr><td>14</td><td>Closing values of BSE Sensex from 6th to 17th day of the month of January of the year 200Xwere as follows:
<table>
<tr><th>Days</th><th>Date</th><th>Day</th><th>Sensex</th></tr>
<tr><td>1</td><td>6</td><td>THU</td><td>14522</td></tr>
<tr><td>2</td><td>7</td><td>FRI</td><td>14925</td></tr>
<tr><td>3</td><td>8</td><td>SAT</td><td>No Trading</td></tr>
<tr><td>4</td><td>9</td><td>SUN</td><td>No Trading</td></tr>
<tr><td>5</td><td>10</td><td>MON</td><td>15222</td></tr>
<tr><td>6</td><td>11</td><td>TUE</td><td>16000</td></tr>
<tr><td>7</td><td>12</td><td>WED</td><td>16400</td></tr>
<tr><td>8</td><td>13</td><td>THU</td><td>17000</td></tr>
<tr><td>9</td><td>14</td><td>FRI</td><td>No Trading</td></tr>
<tr><td>10</td><td>15</td><td>SAT</td><td>No Trading</td></tr>
<tr><td>11</td><td>16</td><td>SUN</td><td>No Trading</td></tr>
<tr><td>12</td><td>17</td><td>MON</td><td>18000</td></tr>
</table></td><td>PM_Q59_6.77</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>Calculate Exponential Moving Average (EMA) of Sensex during the above period. The 30 days simple moving average of Sensex can be assumed as 15,000. The value of exponent for 30days EMA is 0.062.Give detailed analysis on the basis of your calculations.</td><td></td><td></td></tr>
<tr><td>15</td><td>Tiger Ltd. is presently working with an Earnings before Interest and Taxes (EBIT) of ₹90 lakhs. Its present borrowings are as follows:

<table><tr><td></td><td>₹ In lakhs</td></tr><tr><td>12% term loan</td><td>300</td></tr><tr><td>Working capital borrowings:</td><td></td></tr><tr><td>From Bank at 15%</td><td>200</td></tr><tr><td>Public Deposit at 11%</td><td>100</td></tr></table>The sales of the company are growing and to support this, the company proposes to obtain additional borrowing of ₹100 lakhs expected to cost 16%.The increase in EBIT is expected to be 15%.
Calculate the change in interest coverage ratio after the additional borrowing is effected and comment on the arrangement made.</td><td>PM_Q61_6.80</td><td>  </td></tr>
</table>

7. Portfolio Theory

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>1</td><td>Following information is available in respect of expected dividend, market price and market condition after one year.
<table>
<tr><th>Market condition</th><th>Probability</th><th>Market Price</th><th>Dividend per share</th></tr>
<tr><td></td><td></td><td>₹</td><td>₹</td></tr>
<tr><td>Good</td><td>0.25</td><td>115</td><td>9</td></tr>
<tr><td>Normal</td><td>0.50</td><td>107</td><td>5</td></tr>
<tr><td>Bad</td><td>0.25</td><td>97</td><td>3</td></tr>
</table>
The existing market price of an equity share is ₹106 (F.V. ₹1), which is cum 10% bonus debenture of ₹6 each, per share. M/s. X Finance Company Ltd. had offered the buy-back of debentures at face value.
Find out the expected return and variability of returns of the equity shares.
And also advise-Whether to accept buy back after?</td><td>PM_Q12_7.18</td><td>  </td></tr>
<tr><td>2</td><td>An investor has decided to invest to invest ₹1,00,000 in the shares of two companies, namely, ABC and XYZ. The projections of returns from the shares of the two companies along with their probabilities are as follows:
<table>
<tr><th>Probability</th><th>ABC (%)</th><th>XYZ (%)</th></tr>
<tr><td>.20</td><td>12</td><td>16</td></tr>
<tr><td>.25</td><td>14</td><td>10</td></tr>
<tr><td>.25</td><td>-7</td><td>28</td></tr>
<tr><td>.30</td><td>28</td><td>-2</td></tr>
</table>
You are required to
I. Comment on return and risk of investment in individual shares.
II. Compare the risk and return of these two shares with a Portfolio of these shares in equal proportions.
III. Find out the proportion of each of the above shares to formulate a minimum risk portfolio</td><td>PM_Q18_7.26</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>3</td><td>The distribution of return of security ‘F’ and the market portfolio ‘P’ is given below:
<table>
<tr><th>Probability</th><th></th><th>Return %</th></tr>
<tr><td></td><td>F</td><td>P</td></tr>
<tr><td>0.30</td><td>30</td><td>-10</td></tr>
<tr><td>0.40</td><td>20</td><td>20</td></tr>
<tr><td>0.30</td><td>0</td><td>30</td></tr>
</table>
You are required to calculate the expected return of security ‘F’ and the market portfolio ‘P’, the covariance between the market portfolio and security and beta for the security.</td><td>PM_Q19_7.29</td><td>  </td></tr>
<tr><td>4</td><td>The returns on stock A and market portfolio for a period of 6 years are as follows:
<table>
<tr><th>Year</th><th>Return on A (%)</th><th>Return on market portfolio (%)</th></tr>
<tr><td>1</td><td>12</td><td>8</td></tr>
<tr><td>2</td><td>15</td><td>12</td></tr>
<tr><td>3</td><td>11</td><td>11</td></tr>
<tr><td>4</td><td>2</td><td>-4</td></tr>
<tr><td>5</td><td>10</td><td>9.5</td></tr>
<tr><td>6</td><td>-12</td><td>-2</td></tr>
</table>
You are required to determine:
(i) Characteristic line for stock A
(ii) The systematic and unsystematic risk of stock A.</td><td>PM_Q21_7.31</td><td>  </td></tr>
<tr><td>5</td><td>A has portfolio having following features:
<table>
<tr><th>Security</th><th>β</th><th>Weight</th><th>Random Error σ_{ei}</th></tr>
<tr><td>L</td><td>1.60</td><td>7</td><td>0.25</td></tr>
<tr><td>M</td><td>1.50</td><td>11</td><td>0.30</td></tr>
<tr><td>N</td><td>1.40</td><td>3</td><td>0.25</td></tr>
<tr><td>K</td><td>1.00</td><td>9</td><td>0.20</td></tr>
</table>
You are required to find out the risk of the portfolio if the standard deviation of the market index σ_m is 18%.
----------**[May 2012, 8 Marks]** ----------</td><td>PM_Q47_7.65</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>6</td><td>A study by a Mutual fund has revealed the following data in respect of three securities:
<table>
<tr><th>Security</th><th>σ (%)</th><th>Correlation with Index, P_M</th></tr>
<tr><td>A</td><td>20</td><td>0.60</td></tr>
<tr><td>B</td><td>18</td><td>0.95</td></tr>
<tr><td>C</td><td>12</td><td>0.75</td></tr>
</table>
The standard deviation of market portfolio (BSE Sensex) is observed to be 15%.
I. What is the sensitivity of returns of each stock with respect to the market?
II. What are the covariance's among the various stocks?
III. What would be the risk of portfolio consisting of all the three stocks equally?
IV. What is the beta of the portfolio consisting of equal investment in each stock?
V. What is the total, systematic and unsystematic risk of the portfolio in (iv)?</td><td>PM_Q25_7.37</td><td>  </td></tr>
<tr><td>7</td><td>Mr. X owns a portfolio with the following characteristics:
<table>
<tr><td></td><td>Security A</td><td>Security B</td><td>Risk Free security</td></tr>
<tr><td>Factor 1 sensitivity</td><td>0.80</td><td>1.50</td><td>0</td></tr>
<tr><td>Factor 2 sensitivity</td><td>0.60</td><td>1.20</td><td>0</td></tr>
<tr><td>Expected Return</td><td>15%</td><td>20%</td><td>10%</td></tr>
</table>
It is assumed that security returns are generated by a two factor model.
(i) If Mr. X has ₹1,00,000 to invest and sells short ₹50,000 of security B and purchases ₹1,50,000 of security A what is the sensitivity of Mr. X's portfolio to the two factors?
(ii) If Mr. X borrows ₹1,00,000 at the risk free rate and invests the amount he borrows along with the original amount of ₹1,00,000 in security A and B in the same proportion as described in part (i), what is the sensitivity of the portfolio to the two factors?
(iii) What is the expected return premium of factor 2?</td><td>PM_Q26_7.38</td><td>  </td></tr>
<tr><td>8</td><td>The following information is available in respect of Security X
<table>
<tr><td>Equilibrium Return</td><td>15%</td></tr>
<tr><td>Market Return</td><td>15%</td></tr>
<tr><td>7% Treasury Bond Trading at</td><td>$140</td></tr>
<tr><td>Covariance of Market Return and Security Return</td><td>225%</td></tr>
<tr><td>Coefficient of Correlation</td><td>0.75</td></tr>
</table>
You are required to determine the Standard Deviation of Market Return and Security Return.</td><td>PM_Q29_7.42</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>9</td><td>Assuming that shares of ABC Ltd. and XYZ Ltd. are correctly priced according to Capital Asset Pricing Model. The expected return from and Beta of these shares are as follows:
<table>
<tr><th>Share</th><th>Beta</th><th>Expected return</th></tr>
<tr><td>ABC</td><td>1.2</td><td>19.8%</td></tr>
<tr><td>XYZ</td><td>0.9</td><td>17.1%</td></tr>
</table>
You are required to derive Security Market Line.</td><td>PM_Q30_7.43</td><td></td></tr>
<tr><td>10</td><td>Suppose that economy A is growing rapidly and you are managing a global equity fund and so far you have invested only in developed-country stocks only. Now you have decided to add stocks of economy A to your portfolio. The table below shows the expected rates of return, standard deviations, and correlation coefficients (all estimates are for aggregate stock market of developed countries and stock market of Economy A).
<table>
<tr><th></th><th>Developed Country Stocks</th><th>Stocks of Economy A</th></tr>
<tr><td>Expected rate of return (annualized percentage)</td><td>10</td><td>15</td></tr>
<tr><td>Risk [Annualized Standard Deviation (%)]</td><td>16</td><td>30</td></tr>
<tr><td>Correlation Coefficient (ρ)</td><td colspan="2">0.30</td></tr>
</table>
Assuming the risk-free interest rate to be 3%, you are required to determine:
(a) What percentage of your portfolio should you allocate to stocks of Economy A if you want to increase the expected rate of return on your portfolio by 0.5%?
(b) What will be the standard deviation of your portfolio assuming that stocks of Economy A are included in the portfolio as calculated above?
(c) Also show how well the Fund will be compensated for the risk undertaken due to inclusion of stocks of Economy A in the portfolio?</td><td>PM_Q34_7.48</td><td></td></tr>
<tr><td>11</td><td>Your client is holding the following securities:
<table>
<tr><th>Particulars of Securities</th><th>Cost</th><th>Dividends/Interest</th><th>Market price</th><th>Beta</th></tr>
<tr><td></td><td>₹</td><td>₹</td><td>₹</td><td></td></tr>
<tr><td>Equity Shares:</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Gold Ltd.</td><td>10,000</td><td>1,725</td><td>9,800</td><td>0.6</td></tr>
<tr><td>Silver Ltd.</td><td>15,000</td><td>1,000</td><td>16,200</td><td>0.8</td></tr>
<tr><td>Bronze Ltd.</td><td>14,000</td><td>700</td><td>20,000</td><td>0.6</td></tr>
<tr><td>GOI Bonds</td><td>36,000</td><td>3,600</td><td>34,500</td><td>0.01</td></tr>
</table>
Average return of the portfolio is 15.7%, calculate:</td><td>PM_Q36_7.50</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>i. Expected rate of return in each, using the Capital Asset Pricing Model (CAPM).
ii. Risk free rate of return.</td><td></td><td></td></tr>
<tr><td>12</td><td>Mr. Abhishek is interested in investing ₹2,00,000 for which he is considering following three alternatives:
A. Invest ₹2,00,000 in Mutual Fund X (MFX)
B. Invest ₹2,00,000 in Mutual Fund Y (MFY)
C. Invest ₹1,20,000 in Mutual Fund X (MFX) and ₹80,000 in Mutual Fund Y (MFY)

Average annual return earned by MFX and MFY is 15% and 14% respectively. Risk free rate of return is 10% and market rate of return is 12%.
Covariance of returns of MFX, MFY and market portfolio Mix are as follow:
<table>
<tr><th>Shares</th><th>MFX</th><th>MFY</th><th>Mix</th></tr>
<tr><td>MFX</td><td>4.800</td><td>4.300</td><td>3.370</td></tr>
<tr><td>MFY</td><td>4.300</td><td>4.250</td><td>2.800</td></tr>
<tr><td>Mix</td><td>3.370</td><td>2.800</td><td>3.100</td></tr>
</table>
You are required to calculate:
(i) variance of return from MFX, MFY and market return,
(ii) portfolio return, beta, portfolio variance and portfolio standard deviation,
(iii) expected return, systematic risk and unsystematic risk; and
(iv) Sharpe ratio, Treynor ratio and Alpha of MFX, MFY and Portfolio Mix</td><td>SUGG_NOV16_Q4A</td><td>  </td></tr>
<tr><td>13</td><td>Following are the details of a portfolio consisting of three shares:
<table>
<tr><th>Share</th><th>Portfolio weight</th><th>Beta</th><th>Expected return in %</th><th>Total variance</th></tr>
<tr><td>A</td><td>0.20</td><td>0.40</td><td>14</td><td>0.015</td></tr>
<tr><td>B</td><td>0.50</td><td>0.50</td><td>15</td><td>0.025</td></tr>
<tr><td>C</td><td>0.30</td><td>1.10</td><td>21</td><td>0.100</td></tr>
</table>
Standard Deviation of Market Portfolio Returns = 10%

You are given the following additional data:

Covariance (A, B) = 0.030

Covariance (A, C) = 0.020

Covariance (B, C) = 0.040</td><td>PM_Q44_7.60</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>Calculate the following:
i. The Portfolio Beta
ii. Residual variance of each of the three shares
iii. Portfolio variance using Sharpe Index Model
iv. Portfolio variance (on the basis of modern portfolio theory given by Markowitz)</td><td></td><td></td></tr>
<tr><td>14</td><td>Ramesh wants to invest in stock market. He has got the following information about individual securities:
<table>
<tr><th>Security</th><th>Expected Return</th><th>Beta</th><th>$\sigma 2\ c_i$</th></tr>
<tr><td>A</td><td>15</td><td>1.5</td><td>40</td></tr>
<tr><td>B</td><td>12</td><td>2</td><td>20</td></tr>
<tr><td>C</td><td>10</td><td>2.5</td><td>30</td></tr>
<tr><td>D</td><td>09</td><td>1</td><td>10</td></tr>
<tr><td>E</td><td>08</td><td>1.2</td><td>20</td></tr>
<tr><td>F</td><td>14</td><td>1.5</td><td>30</td></tr>
</table>
Market index variance is 10 percent and the risk free rate of return is 7%. What should be the optimum portfolio assuming no short sales?</td><td>PM_Q45_7.61</td><td>  </td></tr>
<tr><td>15</td><td>Mr. Nirmal Kumar has categorized all the available stock in the market into the following types:
i. Small cap growth stocks
ii. Small cap value stocks
iii. Large cap growth stocks
iv. Large cap value stocks
Mr. Nirmal Kumar also estimated the weights of the above categories of stocks in the market index. Further, more the sensitivity of returns on these categories of stocks to the three important factors is estimated to be:
<table>
<tr><td>Category of Stocks</td><td>Weight in the Market Index</td><td>Factor I (Beta)</td><td>Factor II (Book Price)</td><td>Factor III (Inflation)</td></tr>
<tr><td>Small cap growth</td><td>25%</td><td>0.80</td><td>1.39</td><td>1.35</td></tr>
<tr><td>Small cap value</td><td>10%</td><td>0.90</td><td>0.75</td><td>1.25</td></tr>
</table></td><td>PM_Q50_7.68</td><td>  </td></tr>
</table>

No.	Question	Reference	

Large cap growth	50%	1.165	2.75	8.65
Large cap value	15%	0.85	2.05	6.75
Risk Premium		6.85%	-3.5%	0.65%

The rate of return on treasury bonds is 4.5%

Required:

(a) Using Arbitrage Pricing Theory, determine the expected return on the market index.

(b) Using Capital Asset Pricing Model (CAPM), determine the expected return on the market index.

(c) Mr. Nirmal Kumar wants to construct a portfolio constituting only the 'small cap value' and 'large cap growth' stocks. If the target beta for the desired portfolio is 1, determine the composition of his portfolio.

8. Financial Services in India

No.	Question	Reference	
1	MSN Ltd. has total sales of ₹4.50 crores and its average collection period is 120 days. The past experience indicates that bad debt losses are 2 percent on sales. The expenditure incurred by the company in administering its receivable collection efforts are ₹6,00,000. A Factor is prepared to buy the company's receivables by charging 2 percent commission. The factor will pay advance on receivables to the company at an interest rate of 18 percent per annum after withholding 10 percent as reserve. You are required to calculate effective cost of factoring to the company	PM_Q9_8.10	
2	The credit sales and receivables of M/s M Ltd. at the end of the year are estimated at ₹3,74,00,000 and ₹46, 00,000 respectively. The average variable overdraft interest rate is 5%. M Ltd. is considering a proposal for factoring its debts on a non-recourse basis at an annual fee of 3% on credit sales. As a result, M Ltd. will save ₹1,00,000 per year in administrative cost and ₹3,50,000 as bad debts. The factor will maintain a receivables collection period of 30 days and advance 80% of the face value thereof at an annual interest rate of 7%. Evaluate the viability of the proposal. Note: 365 days are to be taken in a year for the purpose of calculation of receivables.	PM_Q10_8.11	
3	Beans talk Ltd. manages its accounts receivable internally by its sales and credit department. The cost of sales ledger administration stands at ₹10 crores annually. The company has a credit policy of 2/10, net 30. Past experience of the company has been that on an average 40 percent of the customers avail of the discount by paying within10 days while the balance of the receivables are collected on average 90 days after the invoice date. Bad debts of the company are currently 1.5 percent of total sales. The projected sales for the next year are ₹1,000 crores.	PM_Q13_8.14	

No.	Question	Reference	
	Beans talk Ltd. finances its investment in debtors through a mix of bank credit and own long term funds in the ratio of 70:30. The current cost of bank credit and long term funds are 13 percent and 15 percent respectively. With escalating cost associated with the in house management of debtors coupled with the need to unburden the management with the task so as to focus on sales promotion, the Company is examining the possibility of outsourcing its factoring service for managing its receivable and has two proposals on hand with a guaranteed payment within 30 days. The main elements of the Proposal from Fine bank Factors Ltd. are: • Advance, 88 percent and 84 percent for the re course and non re course arrangements. • Discount charge in advance, 21 percent for with re course and 22 percent without recourse. • Commission, 4.5 percent without recourse and 2.5 percent with recourse. The main elements of the Proposal from Rough bank Factors Ltd. are: • Advance, 84 percent with recourse and 80 percent without recourse respectively. • Discount charge upfront without recourse 21 percent and with recourse 20 percent. • Commission upfront, without recourse 3.6 percent and with recourse 1.8 percent. The opinion of the Chief Marketing Manager is that in the context of the fact or in arrangement, his staff would be able exclusively focus on sales promotion which would result in additional sales of 10% of projected sales. Kindly advice		

No.	Question	Reference	
4	Extracts from the forecasted financial statements of ABC Ltd. are given below.	PM_Q15_8.17	

	₹000	₹000
Turnover		21,300
Cost of sales		16,400
Gross Profit		**4,900**
Non-current assets		3,000
Current assets		
Inventory	4,500	
Trade receivables	3,500	8,000
Total Assets		11,000
Trade payables	3,000	
Overdraft	3,000	6,000
Equity Shares	1,000	
Reserves	1,000	2,000
Debentures		3,000
Total Liabilities		11,000

XYZ Fincorp, a factor has offered to manage the trade receivables of ABC Ltd. under a servicing and factor-financing agreement. XYZ expects to reduce the average trade receivables period of ABC from its current level to 35 days; to reduce bad debts from 0.9% of turnover to 0.6% of turnover; and to save of ABC ₹40,000 per year on account of administration costs.

The XYZ would also make an advance to ABC of 80% of the revised book value of trade receivables. The interest rate on the advance would be 2% higher than the ABC currently pays on its overdraft i.e. 7%. The XYZ would charge a fee of 0.75% of turnover on a with-recourse basis, or a fee of 1.25% of turnover on a non-recourse basis.

Assuming 365 days in a year and all sales and purchases are on credit, you are required to evaluate the proposal of XYZ Fincorp.

No.	Question	Reference	
5	Mr. Stanley Joseph has secured from a housing bank, a six year housing loan of ₹12,00,000. The loan was structured as follows: Loan Amount --- ₹12,00,000 Repayment --- Six equated annual installments, payable in arrears Reference Base --- Prime Lending Rate Reference Rate --- 9% on the date of loan Interest on Loan --- 1 percentage point over reference rate of 9% Annual Installment --- ₹2,75,530 Two years after the loan was granted, the prime rate moves down to 8% and the effective rate on the loan automatically stood revised to 9%. Determine the revised amount of instalment.	SM_Q6_8.28	
6	You have a housing loan with one of India's top housing finance companies. The amount outstanding is ₹1,89,540. You have now paid an installment. Your next installment falls due a year later. There are five more installments to go, each being ₹50,000. Another housing finance company has offered to take over this loan on a seven year repayment basis. You will be required to pay ₹36,408 p.a. with the first installment falling a year later. The processing fee is 3% of amount taken over. For swapping you will have to pay ₹12,000 to the first company. Should you swap the loan? [Given (PVAF 10%, 5) = 3.791 and (PVAF 8%, 7) = 5.206]	SM_Q7_8.29	

9. Mutual Funds

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>1</td><td>Mr. X earns 10% on his investments in equity shares. He is considering a recently floated scheme of a Mutual Fund where the initial expenses are 6% and annual recurring expenses are expected to be 2%. How much the Mutual Fund scheme should earn to provide a return of 10% to Mr. X?</td><td>PM_Q13_9.15</td><td>  </td></tr>
<tr><td>2</td><td>An investor purchased 300 units of a Mutual Fund at ₹12.25 per unit on 31st December, 2009. As on 31st December, 2010 he has received ₹1.25 as dividend and ₹1.00 as capital gains distribution per unit.

Required:
i. The return on the investment if the NAV as on 31st December, 2010 is ₹13.00.
ii. The return on the investment as on 31st December, 2010 if all dividends and capital gains distributions are reinvested into additional units of the fund at ₹12.50 per unit.</td><td>PM_Q16_9.17</td><td>  </td></tr>
<tr><td>3</td><td>The unit price of equity linked savings scheme (ELSS) of a mutual fund is Rs.10 The public offer price (POP) of the unit is Rs.10.204 and the redemption price is Rs.9.80
Calculate
1. Front End Load
2. Back End Load</td><td>SUGG_May18_Q1D</td><td>  </td></tr>
<tr><td>4</td><td>Mr. Y has invested in the three mutual funds as per the following details:
<table>
<tr><th>Particulars</th><th>MF X</th><th>MF Y</th><th>MF Z</th></tr>
<tr><td>Amount of Investment (Rs.)</td><td>2,00,000</td><td>4,00,000</td><td>2,00,000</td></tr>
<tr><td>Net Asset Value at the time of purchase</td><td>10.30</td><td>10.10</td><td>10</td></tr>
<tr><td>Dividend Received upto 31.03.2018</td><td>6,000</td><td>0</td><td>5,000</td></tr>
<tr><td>NAV as on 31.03.2018</td><td>10.25</td><td>10</td><td>10.20</td></tr>
<tr><td>Effective Yield p.a. as on 31.03.2018</td><td>9.66</td><td>-11.66</td><td>24.15</td></tr>
</table></td><td>SUGG_May18_Q2B</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>Assume 1 year = 365 days
Mr. Y has misplaced the documents of his investment. Help him in finding the date of his original investment after ascertaining the following
i. Number of units in each sceme
ii. Total NAV
iii. Total Yield
iv. Number of days of investment held</td><td></td><td></td></tr>
<tr><td>5</td><td>On 1st April 2009 Fair Return Mutual Fund has the following assets and prices at 4.00 p.m.
<table>
<tr><td>Shares</td><td>No. of Shares</td><td>Market Price Per Share (₹)</td></tr>
<tr><td>A Ltd.</td><td>10000</td><td>19.70</td></tr>
<tr><td>B Ltd.</td><td>50000</td><td>482.60</td></tr>
<tr><td>C Ltd.</td><td>10000</td><td>264.40</td></tr>
<tr><td>D Ltd.</td><td>100000</td><td>674.90</td></tr>
<tr><td>E Ltd.</td><td>30000</td><td>25.90</td></tr>
<tr><td>No. of units of funds</td><td></td><td>8,00,000</td></tr>
</table>
Please Calculate -
1. NAV of the Fund on 1st April 2009.
2. Assuming that on 1st April 2009, Mr.X a HNI, send a cheque of ₹50,00,000 to the Fund and Fund Manager immediately purchases 18000 shares of C Ltd. and balance is held in bank. Then what will be position of fund.
3. Now suppose on 2 April 2009 at 4.00 p.m. the market price of shares is as follows:
<table>
<tr><th>Shares</th><th>₹</th></tr>
<tr><td>A Ltd.</td><td>20.30</td></tr>
<tr><td>B Ltd.</td><td>513.70</td></tr>
<tr><td>C Ltd.</td><td>290.80</td></tr>
<tr><td>D Ltd.</td><td>671.90</td></tr>
<tr><td>E Ltd.</td><td>44.20</td></tr>
</table>
Then what will be new NAV.</td><td>PM_Q21_9.21</td><td>  </td></tr>
</table>

No.	Question	Reference	
6	On 01-07-2010, Mr.X Invested ₹50,000/- at initial offer in Mutual Funds at a face value of ₹10 each per unit. On 31-03-2011, a dividend was paid @10% and annualized yield was 120%. On 31-03-2012, 20% dividend and capital gain of ₹0.60 per unit was given. Mr.X redeemed all his 6271.98 units when his annualized yield was 71.50% over the period of holding. Calculate NAV as on 31-03-2011, 31-03-2012 and 31-03-2013. For calculations consider a year of 12 months.	Supp_Ch9_B9	
7	On 1-4-2012 ABC Mutual Fund issued 20 lakh units at ₹10 per unit. Relevant initial expenses involved were ₹12 lakhs. It invested the fund so raised in capital market instruments to build a portfolio of ₹185 lakhs. During the month of April 2012 it disposed of some of the instruments costing ₹60 lakhs for ₹63 lakhs and used the proceeds in purchasing securities for ₹56 lakhs. Fund management expenses for the month of April 2012 was ₹8 lakhs of which 10% was in arrears. In April 2012 the fund earned dividends amounting to ₹2 lakhs and it distributed 80% of the realized earnings. On 30-4-2012 the market value of the portfolio was ₹198 lakhs. Mr. Akash, an investor, subscribed to 100 units on 1-4-2012 and disposed off the same at closing NAV on 30-4-2012. What was his annual rate of earning?	PM_Q28_9.28	
8	Sun Moon Mutual Fund (Approved Mutual Fund) sponsored open-ended equity oriented scheme "Chanakya Opportunity Fund". There were three plans viz. 'A' – Dividend Re-investment Plan, 'B' – Bonus Plan & 'C' – Growth Plan. At the time of Initial Public Offer on 1.4.1999, Mr. Anand, Mr. Bacchan & Mrs. Charu, three investors invested ₹1,00,000 each & chosen 'B', 'C' & 'A' Plan respectively.	PM_Q29_9.29	

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>
The History of the Fund is as follows:
<table>
<tr><th rowspan="2">Date</th><th rowspan="2">Dividend %</th><th rowspan="2">Bonus Ratio</th><th colspan="3">Net Asset Value per Unit (F.V. ₹10)</th></tr>
<tr><th>Plan A</th><th>Plan B</th><th>Plan C</th></tr>
<tr><td>28.07.2003</td><td>20</td><td></td><td>30.70</td><td>31.40</td><td>33.42</td></tr>
<tr><td>31.03.2004</td><td>70</td><td>5:4</td><td>58.42</td><td>31.05</td><td>70.05</td></tr>
<tr><td>31.10.2007</td><td>40</td><td></td><td>42.18</td><td>25.02</td><td>56.15</td></tr>
<tr><td>15.03.2008</td><td>25</td><td></td><td>46.45</td><td>29.10</td><td>64.28</td></tr>
<tr><td>31.03.2008</td><td></td><td>1:3</td><td>42.18</td><td>20.05</td><td>60.12</td></tr>
<tr><td>24.03.2009</td><td>40</td><td>1:4</td><td>48.10</td><td>19.95</td><td>72.40</td></tr>
<tr><td>31.07.2009</td><td></td><td></td><td>53.75</td><td>22.98</td><td>82.07</td></tr>
</table>
On 31st July 2009, all three investors redeemed all the balance units.
Calculate annual rate of return to each of the investors.
Consider:
1) Long-term Capital Gain is exempt from Income tax.
2) Short-term Capital Gain is subject to 10% Income tax.
3) Security Transaction Tax 0.2 per cent only on sale/redemption of units.
4) Ignore Education Cess
</td><td></td><td></td></tr>
<tr><td>9</td><td>
Based on the following data, estimate the Net Asset Value (NAV) on per unit basis of a Regular Income Scheme of a Mutual Fund:
<table>
<tr><th></th><th>₹(in lakhs)</th></tr>
<tr><td>Listed Equity shares at cost (ex-dividend)</td><td>40.00</td></tr>
<tr><td>Cash in hand</td><td>2.76</td></tr>
<tr><td>Bonds & Debentures at cost</td><td>8.96</td></tr>
<tr><td>Of these, Bonds not listed & not quoted</td><td>2.50</td></tr>
<tr><td>Other fixed interest securities at cost</td><td>9.75</td></tr>
<tr><td>Dividend accrued</td><td>1.95</td></tr>
<tr><td>Amount payable on shares</td><td>13.54</td></tr>
<tr><td>Expenditure accrued</td><td>1.76</td></tr>
</table>
Current realizable value of fixed income securities of face value of ₹100 is ₹96.50.
Number of Units (₹10 face value each): 275000
</td><td>PM_Q33_9.36</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>All the listed equity shares were purchased at a time when market portfolio index was ₹12,500.On NAV date, the market portfolio index is at ₹19,975.
There has been a diminution of 15% in unlisted bonds and debentures valuation. Listed bonds and debentures carry a market value of ₹7.5 lakhs, on NAV date.
Operating expenses paid during the year amounted to ₹2.24 lakhs.</td><td></td><td></td></tr>
<tr><td>10</td><td>On 1st April, an open ended scheme of mutual fund had 300 lakh units outstanding with Net Assets Value (NAV) of ₹18.75. At the end of April, it issued 6 lakh units at opening NAV plus 2% load, adjusted for dividend equalization. At the end of May, 3 Lakh units were repurchased at opening NAV less 2% exit load adjusted for dividend equalization. At the end of June, 70% of its available income was distributed.
In respect of April-June quarter, the following additional information are available:
<table>
<tr><td></td><td>₹(in lakhs)</td></tr>
<tr><td>Portfolio value appreciation</td><td>425.47</td></tr>
<tr><td>Income of April</td><td>22.950</td></tr>
<tr><td>Income for May</td><td>34.425</td></tr>
<tr><td>Income for June</td><td>45.450</td></tr>
</table>
You are required to calculate
i. Income available for distribution;
ii. Issue price at the end of April;
iii. Repurchase price at the end of May; and
iv. Net asset value (NAV) as on 30th June.</td><td>PM_Q34_9.37</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>11</td><td>Five portfolios experienced the following results during a 7- year period:
<table>
<tr><td>Portfolio</td><td>Average Annual Return ($R_{p)}$(%)</td><td>Standard Deviation (S_p)</td><td>Correlation with the market returns (r)</td></tr>
<tr><td>A</td><td>19.0</td><td>2.5</td><td>0.840</td></tr>
<tr><td>B</td><td>15.0</td><td>2.0</td><td>0.540</td></tr>
<tr><td>C</td><td>15.0</td><td>0.8</td><td>0.975</td></tr>
<tr><td>D</td><td>17.5</td><td>2.0</td><td>0.750</td></tr>
<tr><td>E</td><td>17.1</td><td>1.8</td><td>0.600</td></tr>
<tr><td>Market Risk (σm)</td><td></td><td>1.2</td><td></td></tr>
<tr><td>Market rate of Return (Rm)</td><td>14.0</td><td></td><td></td></tr>
<tr><td>Risk-free Rate (Rf)</td><td>9.0</td><td></td><td></td></tr>
</table>
Rank the portfolios using -
a) Sharpe’s method
b) Treynor’s method
c) Jensen’s Alpha</td><td>PM_Q35_9.39</td><td>  </td></tr>
<tr><td>12</td><td>ANP Plan, a hedge fund currently has assets of ₹20 crore. CA. X, the manager of fund charges fee of 0.10% of portfolio asset. In addition to it he charges incentive fee of 2%. The incentive will be linked to gross return each year in excess of the portfolio maximum value since the inception of fund. The maximum value the fund achieved so far since inception of fund about one and half year ago was ₹21 crores.
You are required to compute the fee payable to CA. X, if return on the fund this year turns out to be
(a) 29%, (b) 4.5%, (c) -1.8%</td><td>PM_Q37_9.42</td><td>  </td></tr>
<tr><td>13</td><td>Ms. Sunidhi is working with an MNC at Mumbai. She is well versant with the portfolio management techniques and wants to test one of the techniques on an equity fund she has constructed and compare the gains and losses from the technique with those from a passive buy and hold strategy. The fund consists of equities only and the ending NAVs of the fund he constructed for the last 10 months are given below:</td><td>PM_Q38_9.43</td><td>  </td></tr>
</table>

No.	Question	Reference	

Month	Ending NAV (₹/unit)	Month	Ending NAV (₹/unit)
December 2008	40.00	May 2009	37.00
January 2009	25.00	June 2009	42.00
February 2009	36.00	July 2009	43.00
March 2009	32.00	August 2009	50.00
April 2009	38.00	September 2009	52.00

Assume Sunidhi had invested a notional amount of ₹2 lakhs equally in the equity fund and a conservative portfolio (of bonds) in the beginning of December 2008 and the total portfolio was being rebalanced each time the NAV of the fund increased or decreased by 15%.

You are required to determine the value of the portfolio for each level of NAV following the Constant Ratio Plan.

10. Money Market Operations

No.	Question	Reference	
1	Wonderland Limited has excess cash of ₹20 lakhs, which it wants to invest in short term marketable securities. Expenses relating to investment will be ₹50,000. The securities invested will have an annual yield of 9%. The company seeks your advice i. As to the period of investment so as to earn a pre-tax income of 5%. ii. The minimum period for the company to breakeven its investment Expenditure overtime value of money.	PM_Q12_10.12	
2	From the following particulars, calculate the effective rate of interest p.a. as well as the total cost of funds to Bhaskar Ltd., which is planning a CP issue: Issue Price of CP: ₹97,550 Face Value: ₹1,00,000 Maturity Period: 3 Months Issue Expenses: Brokerage: Brokerage 0.15% for 3 months Rating Charges: 0.50% p.a. Stamp Duty: 0.175% for 3 months	PM_Q14_10.13	
3	M Ltd. has to make a payment on 30th January, 2010 of ₹80 lakhs. It has surplus cash today, i.e. 31st October, 2009; and has decided to invest sufficient cash in a bank's Certificate of Deposit scheme offering a yield of 8% p.a. on simple interest basis. What is the amount to be invested now?	PM_Q16_10.15	
4	AXY Ltd. is able to issue commercial paper of ₹50, 00,000 every 4 months at a rate of 12.5% p.a. The cost of placement of commercial paper issue is ₹2,500 per issue. AXY Ltd. is required to maintain line of credit ₹1, 50,000 in bank balance. The applicable income tax rate for AXY Ltd. is 30%. What is the cost of funds (after taxes) to AXY Ltd. for commercial paper issue? The maturity of commercial paper is four months.	PM_Q18_10.16	

11. FDI, FII, IFM

No.	Question	Reference	
1	ABC Ltd. is considering a project in US, which will involve an initial investment of US $1,10,00,000. The project will have 5 years of life. Current spot exchange rate is₹48 per US $. The risk free rate in US is 8% and the same in India is 12%. Cash inflow from the project is as follows: **Year** / **Cash inflow** 1 / US $20,00,000 2 / US $25,00,000 3 / US $30,00,000 4 / US $40,00,000 5 / US $50,00,000 Calculate the NPV of the project using foreign currency approach. Required rate of return on this project is 14%.	PM_Q15_11.16	
2	Odessa Limited has proposed to expand its operations for which it requires funds of $15 million, net of issue expenses which amount to 2% of the issue size. It proposed to raise the funds though a GDR issue. It considers the following factors in pricing the issue: The expected domestic market price of the share is 300 3 shares underlay each GDR Underlying shares are priced at 10% discount to the market price Expected exchange rate is ₹60/$ You are required to compute the number of GDR's to be issued and cost of GDR to Odessa Limited, if 20% dividend is expected to be paid with a growth rate of 20%.	PM_Q16_11.17	

No.	Question	Reference	
3	XY Limited is engaged in large retail business in India. It is contemplating for expansion into a country of Africa by acquiring a group of stores having the same line of operation as that of India. The exchange rate for the currency of the proposed African country is extremely volatile. Rate of inflation is presently 40% a year. Inflation in India is currently 10% a year. Management of XY Limited expects these rates likely to continue for the foreseeable future. Estimated projected cash flows, in real terms, in India as well as African country for the first three years of the project are as follows:	PM_Q18_11.19	

	Year – 0	Year – 1	Year – 2	Year - 3
Cash flows in Indian ₹(000)	-50,000	-1,500	-2,000	-2,500
Cash flows in AfricanRends (000)	-2,00,000	+50,000	+70,000	+90,000

XY Ltd. assumes the year 3 nominal cash flows will continue to be earned each year indefinitely. It evaluates all investments using nominal cash flows and a nominal discounting rate. The present exchange rate is African Rand 6 to ₹1.

You are required to calculate the net present value of the proposed investment considering the following:
African Rand cash flows are converted into rupees and discounted at a risk adjusted rate.
All cash flows for these projects will be discounted at a rate of 20% to reflect its high risk.
Ignore taxation.

	Year – 1	Year - 2	Year - 3
PVIF@20%	833	.694	579

12. Foreign Exchange and Risk Management

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>1</td><td>ABN-Amro Bank, Amsterdam, wants to purchase ₹15 million against US$ for funding their Vostro account with Canara Bank, New Delhi. Assuming the inter-bank, rates of US$ is ₹51.3625/3700, what would be the rate Canara Bank would quote to ABN-Amro Bank? Further, if the deal is struck, what would be the equivalent US$ amount.</td><td>PM_Q6_12.13</td><td>  </td></tr>
<tr><td>2</td><td>ABC Ltd. of UK has exported goods worth Can $5,00,000 receivable in 6months. The exporter wants to hedge the receipt in the forward market. The following information is available:
<table><tr><td>Spot Exchange Rate</td><td>Can $ 2.5/£</td></tr><tr><td>Interest Rate in UK</td><td>12%</td></tr><tr><td>Interest Rate In Canada</td><td>15%</td></tr></table>The forward rates truly reflect the interest rates differential. Find out the gain/loss to UK exporter if Can $ spot rates (i) declines 2%, (ii) gains 4% or (iii) remains unchanged over next 6 months.</td><td>PM_Q7_12.13</td><td>  </td></tr>
<tr><td>3</td><td>On April 3, 2016 a bank quotes the following

Spot exchange rate (US$1) INR 66.2525 INR 67.5945
2 months swap points 70 90
3 months swap points 160 186
In a spot transaction delivery is made after two days.
Assume spot date as April 5, 2016
Assume 1 swap point = 0.0001
You are required to:
(a) ascertain swap points for 2 months and 15 days (For June 20, 2016)
(b) determine foreign exchange rate for June 20, 2016
(c) compute the annual rate of premium/discount of US$ on INR on an average rate.</td><td>SUGG_Nov16_Q1A</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>4</td><td>On January 28, 2013 an importer customer requested a Bank to remit Singapore Dollar (SGD) 2,500,000 under an irrevocable Letter of Credit (LC). However, due to unavoidable factors, the Bank could effect the remittances only on February 4, 2013. The inter-bank market rates were as follows:
<table>
<tr><th></th><th>January 28, 2013</th><th>February 4, 2013</th></tr>
<tr><td>US$ 1=</td><td>₹45.85/45.90</td><td>₹45.91/45.97</td></tr>
<tr><td>GBP £ 1</td><td>US$ 1.7840/1.7850</td><td>US$ 1.7765/1.7775</td></tr>
<tr><td>GBP £ 1</td><td>SGD 3.1575/3.1590</td><td>SGD 3. 1380/3.1390</td></tr>
</table>
The Bank wishes to retain an exchange margin of 0.125%
Required:
How much does the customer stand to gain or lose due to the delay?
(Note: Calculate the rate in multiples of 0.0001)</td><td>PM_Q12_12.17</td><td>  </td></tr>
<tr><td>5</td><td>Followings are the spot exchange rates quoted at three different forex markets:
USD/INR 48.30 in Mumbai
GBP/INR 77.52 in London
GBP/USD 1.6231 in New York
The arbitrageur has USD1,00,00,000. Assuming that there are no transaction costs, explain whether there is any arbitrage gain possible from the quoted spot exchange rates.</td><td>PM_Q16_12.21</td><td>  </td></tr>
<tr><td>6</td><td>DEF Ltd. has imported goods to the extent of US$ 1 crore. The payment terms are 60 days interest-free credit. For additional credit of 30 days, interest at the rate of 7.75% p.a. will be charged.
The banker of DEF Ltd. has offered a 30 days loan at the rate of 9.5% p.a.
Their quote for the foreign exchange is as follows:
Spot rate INR/US$ 62.50
60 days forward rate INR/US$ 63.15
90 days forward rate INR/US$ 63.45</td><td>PM_Q25_12.28</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>Which one of the following options would be better?
i. Pay the supplier on 60th day and avail bank loan for 30 days.
ii. Avail the supplier's offer of 90 days credit</td><td></td><td></td></tr>
<tr><td>7</td><td>EFD Ltd. is an export business house. The company prepares invoice in customers' currency. Its debtors of US$.10,000,000 are due on April 1, 2015. Market information as at January 1, 2015 is:
<table>
<tr><th colspan="2">Exchange rates US$/INR</th><th colspan="2">Currency Futures US$/INR</th></tr>
<tr><td>Spot</td><td>0.016667</td><td colspan="2">Contract size: ₹24,816,975</td></tr>
<tr><td>1-month forward</td><td>0.016529</td><td>1-month</td><td>0.016519</td></tr>
<tr><td>3-months forward</td><td>0.016129</td><td>3-month</td><td>0.016118</td></tr>
</table>
<table>
<tr><th></th><th>Initial Margin</th><th>Interest rates in India</th></tr>
<tr><td>1-Month</td><td>₹17,500</td><td>6.5%</td></tr>
<tr><td>3-Months</td><td>₹22,500</td><td>7%</td></tr>
</table>
On April 1, 2015 the spot rate US$/INR is 0.016136 and currency future rate is 0.016134.
Which of the following methods would be most advantageous to EFD Ltd?
i. Using forward contract
ii. Using currency futures
iii. Not hedging the currency risk</td><td>PM_Q29_12.32</td><td>  </td></tr>
<tr><td>8</td><td>Spot rate 1 US $ = ₹48.0123
180 days Forward rate for 1 US $ = ₹48.8190
Annualised interest rate for 6 months – Rupee = 12%
Annualised interest rate for 6 months – US $ = 8%
Is there any arbitrage possibility? If yes how an arbitrageur can take advantage of the situation, if he is willing to borrow ₹40,00,000 or US $83,312.</td><td>PM_Q30_12.33</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>9</td><td>An exporter is a UK based company. Invoice amount is $3,50,000. Credit period is three months. Exchange rates in London are :
Spot Rate ($/£) 1.5865 – 1.5905
3-month Forward Rate ($/£) 1.6100 – 1.6140

Rates of interest in Money Market:
<table><tr><th></th><th>Deposit</th><th>Loan</th></tr><tr><td>$</td><td>7%</td><td>9%</td></tr><tr><td>£</td><td>5%</td><td>8%</td></tr></table>Compute and show how a money market hedge can be put in place. Compare and contrast the outcome with a forward contract.</td><td>PM_Q33_12.35</td><td>  </td></tr>
<tr><td>10</td><td>The rate of inflation in India is 8% per annum and in the U.S.A. it is 4%. The current spot rate for USD in India is ₹46. What will be the expected rate after 1year and after 4years applying the Purchasing Power Parity Theory?</td><td>PM_Q34_12.36</td><td>  </td></tr>
<tr><td>11</td><td>The following table shows interest rates for the United States dollar and French francs. The spot exchange rate is 7.05 francs per dollars. Complete the missing entries:
<table><tr><th></th><th>3 Months</th><th>6 Months</th><th>1 Year</th></tr><tr><td>Dollar interest rate (annually compounded)</td><td>11½%</td><td>12¼%</td><td>?</td></tr><tr><td>Franc interest rate (annually compounded)</td><td>19½</td><td>?</td><td>20%</td></tr><tr><td>Forward franc per dollar</td><td>?</td><td>?</td><td>7.5200</td></tr><tr><td>Forward discount per franc per cent per year</td><td>?</td><td>−6.3%</td><td></td></tr></table></td><td>PM_Q37_12.39</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>12</td><td>XYZ, an Indian firm, will need to pay JAPANESE YEN (JY) 5,00,000 on 30th June. In order to hedge the risk involved in foreign currency transaction, the firm is considering two alternative methods i.e. forward market cover and currency option contract.
On 1st April, following quotations (JY/INR) are made available:
<table><tr><td>Spot</td><td>3months forward</td></tr><tr><td>1.9516/1.9711.</td><td>1.9726./1.9923</td></tr></table>The prices for forex currency option on purchase are as follows:
<table><tr><td>Strike Price</td><td>JY 2.125</td></tr><tr><td>Call option (June)</td><td>JY 0.047</td></tr><tr><td>Put option (June)</td><td>JY 0.098</td></tr></table>For excess or balance of JY covered, the firm would use forward rate as future spot rate.
You are required to recommend cheaper hedging alternative for XYZ.</td><td>PM_Q39_12.42</td><td>  </td></tr>
<tr><td>13</td><td>Suppose you are a treasurer of XYZ plc in the UK. XYZ have two overseas subsidiaries, one based in Amsterdam and one in Switzerland. The Dutch subsidiary has surplus Euros in the amount of 725,000 which it does not need for the next three months but which will be needed at the end of that period (91 days). The Swiss subsidiary has a surplus of Swiss Francs in the amount of 998,077 that, again, it will need on day 91. The XYZ plc in UK has a net balance of £75,000 that is not needed for the foreseeable future.
Given the rates below, what is the advantage of swapping Euros and Swiss Francs into Sterling?
<table><tr><td>Spot Rate (€)</td><td>£0.6858- 0.6869</td></tr><tr><td>91 day Pts</td><td>0.0037 0.0040</td></tr><tr><td>Spot Rate(£)</td><td>CHF 2.3295- 2.3326</td></tr><tr><td>91 day Pts</td><td>0.0242 0.0228</td></tr></table></td><td>PM_Q42_12.44</td><td>  </td></tr>
</table>

No.	Question	Reference	
	Interest rates for the Deposits		

Amount of Currency	91 day Interest Rate % pa		
	£	€	CHF
0 – 100,000	1	¼	0
100,001 – 500,000	2	1 ½	¼
500,001 – 1,000,000	4	2	½
Over 1,000,000	5.375	3	1

14 Columbus Surgicals Inc. is based in US, has recently imported surgical raw materials from the UK and has been invoiced for £480,000, payable in 3months. It has also exported surgical goods to India and France.

The Indian customer has been invoiced for £138,000, payable in 3months, and the French customer has been invoiced for €590,000, payable in 4months.

Current spot and forward rates are as follows:

PM_Q45_12.49

£ / US$	
Spot:	0.9830 – 0.9850
Three months forward:	0.9520 – 0.9545
US$ / €	
Spot:	1.8890 – 1.8920
Four months forward:	1.9510 – 1.9540

Current money market rates are as follows:

UK:	10.0% – 12.0% p.a.
France:	14.0% – 16.0% p.a.
USA:	11.5% – 13.0% p.a.

You as Treasury Manager are required to show how the company can hedge its foreign exchange exposure using Forward markets and Money markets hedge and suggest which the best hedging technique is.

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>15</td><td>An importer booked a forward contract with his bank on 10th April for USD 2,00,000 due on 10th June @ ₹64.4000. The bank covered its position in the market at ₹64.2800.
The exchange rates for dollar in the interbank market on 10th June and 20th June were:
<table><tr><td></td><td>10th June</td><td>20th June</td></tr><tr><td>Spot USD 1=</td><td>₹63.8000/8200</td><td>₹63.6800/7200</td></tr><tr><td>Spot/June</td><td>₹63.9200/9500</td><td>₹63.8000/8500</td></tr><tr><td>July</td><td>₹64.0500/0900</td><td>₹63.9300/9900</td></tr><tr><td>August</td><td>₹64.3000/3500</td><td>₹64.1800/2500</td></tr><tr><td>September</td><td>₹64.6000/6600</td><td>₹64.4800/5600</td></tr></table>Exchange Margin 0.10% and interest on outlay of funds @12%. The importer requested on 20th June for extension of contract with due date on 10th August. Rates rounded to 4 decimal in multiples of 0.0025.
On 10th June, Bank Swaps by selling spot and buying one month forward.
Calculate:
i. Cancellation rate
ii. Amount payable on $2,00,000
iii. Swap loss
iv. Interest on outlay of funds, if any
v. New contract rate
vi. Total Cost</td><td>PM_Q54_12.61</td><td>  </td></tr>
<tr><td>16</td><td>M/s Omega Electronics Ltd. exports air conditioners to Germany by importing all the components from Singapore. The company is exporting 2,400 units at a price of Euro 500 per unit. The cost of imported components is S$800 per unit. The fixed cost and other variables cost per unit are ₹1,000 and ₹1,500 respectively. The cash flows in Foreign currencies are due in six months. The current exchange rates are as follows:</td><td>PM_Q59_12.67</td><td>  </td></tr>
</table>

No.	Question	Reference	
	₹/Euro 51.50/55 ₹/S$ 27.20/25 After six months the exchange rates turn out as follows: ₹/Euro 52.00/05 ₹/S$ 27.70/75 (1) You are required to calculate loss/gain due to transaction exposure. (2) Based on the following additional information calculate the loss/gain due to transaction and operating exposure if the contracted price of air conditioners is ₹25,000 : i. the current exchange rate changes to Rs/Euro 51.75/80 Rs/S$ 27.10/15 ii. Price elasticity of demand is estimated to be 1.5 iii. Payments and receipts are to be settled at the end of six months.		
17	Drilldip Inc. a US based company has a won a contract in India for drilling oil field. The project will require an initial investment of ₹500 crore. The oil field along with equipments will be sold to Indian Government for ₹740 crore in one year time. Since the Indian Government will pay for the amount in Indian Rupee (₹) the company is worried about exposure due exchange rate volatility. You are required to: (a) Construct a swap that will help the Drilldip to reduce the exchange rate risk. (b) Assuming that Indian Government offers a swap at spot rate which is 1US$ = ₹50 in one year, then should the company should opt for this option or should it just do nothing. The spot rate after one year is expected to be 1US$ = ₹54. Further you may also assume that the Drilldip can also take a US$ loan at 8% p.a.	PM_Q61_12.70	

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>18</td><td>You as a dealer in foreign exchange have the following position in Swiss Francs on 31st October, 2009:

<table><tr><th></th><th>Swiss Francs</th></tr><tr><td>Balance in the Nostro A/c Credit</td><td>1,00,000</td></tr><tr><td>Opening Position Overbought</td><td>50,000</td></tr><tr><td>Purchased a bill on Zurich</td><td>80,000</td></tr><tr><td>Sold forward TT</td><td>60,000</td></tr><tr><td>Forward purchase contract cancelled</td><td>30,000</td></tr><tr><td>Remitted by TT</td><td>75,000</td></tr><tr><td>Draft on Zurich cancelled</td><td>30,000</td></tr></table>
What steps would you take, if you are required to maintain a credit Balance of Swiss Francs 30,000 in the Nostro A/c and keep as overbought position on Swiss Francs 10,000?</td><td>PM_Q62_12.71</td><td>  </td></tr>
<tr><td>19</td><td>A bank enters into a forward purchase TT covering an export bill for Swiss Francs 1,00,000 at ₹32.4000 due 25th April and covered itself for same delivery in the local interbank market at ₹32.4200. However, on 25th March, exporter sought for cancellation of the contract as the tenor of the bill is changed.

In Singapore market, Swiss Francs were quoted against dollars as under:
Spot USD 1 = Sw. Fcs. 1.5076/1.5120
1 month forward 1.5150/1.5160
2 months forward 1.5250/1.5270
3 months forward 1.5415/5445

And in the interbank market US dollars were quoted as under
Spot USD 1 = ₹49.4302/.4455
1 month forward 0.4100/0.4200
2 months forward 0.4300/0.4400
3 months forward 0.4500/0.4600
Calculate the cancellation charges, payable by the customer if exchange margin required by the bank is 0.10% on buying and selling.</td><td>PM_Q53_12.60</td><td>  </td></tr>
</table>

No.	Question	Reference	
20	On 15th January 2015 you as a banker booked a forward contract for US$ 250000 for your import customer deliverable on 15th March 2015 at ₹65.3450. On due date customer request you to cancel the contract. On this date quotation for US$ in the inter-bank market is as follows: Spot ₹65.2900/2975 per US$ Spot/ April 3000/ 3100 Spot/ May 6000/ 6100 Assuming that the flat charges for the cancellation is ₹100 and exchange margin is 0.10%, then determine the cancellation charges payable by the customer.	SUPP_Q3_C.8	
21	You as a banker has entered into a 3 month's forward contract with your customer to purchase AUD 1,00,000 at the rate of ₹47.2500. However after 2 months your customer comes to you and requests cancellation of the contract. On this date quotation for AUD in the market is as follows: Spot ₹47.3000/3500 per AUD 1 month forward ₹47.4500/5200 per AUD Determine the cancellation charges payable by the customer.	SUPP_Q4_C.9	
22	Suppose you as a banker entered into a forward purchase contract for US$ 50,000 on 5th March with an export customer for 3 months at the rate of ₹59.6000. On the same day you also covered yourself in the market at ₹60.6025. However on 5th May your customer comes to you and requests extension of the contract to 5thJuly. On this date (5th May) quotation for US$ in the market is as follows: Spot ₹59.1300/1400 per US$ Spot/ 5th June ₹59.2300/2425 per US$ Spot/ 5thJuly ₹59.6300/6425 per US$ Assuming a margin 0.10% on buying and selling, determine the extension charges payable by the customer and the new rate quoted to the customer.	SUPP_Q6_C.10	

No.	Question	Reference	
23	An importer requests his bank to extend the forward contract for US$20000 which is due for the maturity on 30th October 2010, for a further period of 3 months. He agrees to pay the required margin money for such extension of the contract. Contracted Rate–US$1=₹42.32 The US Dollar quoted on 30-10-2010:- Spot- ₹41.5000/41.5200 3monthsPremium- 0.87%/0.93% Margin money for buying and selling rate is 0.075% and 0.20% respectively. Compute: (i) The cost to the importer in respect of the extension of the forward contract, and (ii) The rate of new forward contract. ----------**[Nov 2010, 4 Marks]** ----------	PM_Q38_12.41	
24	On 1 October 2015 Mr. X an exporter enters into a forward contract with a BNP Bank to sell US$ 1,00,000 on 31 December 2015 at ₹65.40/$. However, due to the request of the importer, Mr. X received amount on 28 November 2015. Mr. X requested the bank the take delivery of the remittance on 30 November 2015 i.e. before due date. The inter-banking rates on 28 November 2015 was as follows: Spot ₹65.22/65.27 One Month Premium 10/15 If bank agrees to take early delivery then what will be net inflow to Mr. X assuming that the prevailing prime lending rate is 18%.	SUPP_Q2_C.6	

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>25</td><td>On 10th July, an importer entered into a forward contract with bank for US $ 50,000 due on 10th September at an exchange rate of ₹66.8400. The bank covered its position in the interbank market at ₹66.6800.
How the bank would react if the customer requests on 20th September:
(i) to cancel the contract?
(ii) to execute the contract?
(iii) to extend the contract with due date to fall on 10th November?
The exchange rates for US$ in the interbank market were as below:
<table>
<tr><th></th><th>10th September</th><th>20th September</th></tr>
<tr><td>Spot US$1</td><td>66.1500/1700</td><td>65.9600/9900</td></tr>
<tr><td>Spot/September</td><td>66.2800/3200</td><td>66.1200/1800</td></tr>
<tr><td>Spot/October</td><td>66.4100/4300</td><td>66.2500/3300</td></tr>
<tr><td>Spot/November</td><td>66.5600/6100</td><td>66.4000/4900</td></tr>
</table>
Exchange margin was 0.1% on buying and selling. Interest on outlay of funds was 12% p.a.
You are required to show the calculations to:
(i) cancel the Contract,
(ii) execute the Contract, and
(iii) extend the Contract as above.</td><td>SUGG_NOV16_Q2B</td><td>  </td></tr>
</table>

13. Merger, Acquisition & Restructuring

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>1</td><td>Eagle Ltd. reported a profit of ₹77 lakhs after 30% tax for the financial year 2011-12. An analysis of the accounts revealed that the income included extraordinary items of ₹8 lakhs and an extraordinary loss of ₹10 lakhs. The existing operations, except for the extraordinary items, are expected to continue in the future. In addition, the results of the launch of a new

Product are expected to be as follows:
<table><tr><td></td><td>₹ In lakhs</td></tr><tr><td>Sales</td><td>70</td></tr><tr><td>Material costs</td><td>20</td></tr><tr><td>Labour costs</td><td>12</td></tr><tr><td>Labour costs</td><td>10</td></tr></table>You are required to:
I. Calculate the value of the business, given that the capitalization rate is 14%.
II. Determine the market price per equity share, with Eagle Ltd. ‘s share capital being comprised of 1,00,000 13% preference shares of ₹ 100 each and 50,00,000 equity shares of ₹ 10 each and the P/E ratio being 10 times.</td><td>PM_Q11_13.13</td><td>  </td></tr>
<tr><td>2</td><td>A Ltd. wants to acquire T Ltd. and has offered a swap ratio of 1:2 (0.5 shares for every one share of T Ltd.). Following information is provided:
<table><tr><td></td><td>A Ltd.</td><td>T. Ltd.</td></tr><tr><td>Profit after tax</td><td>₹18,00,000</td><td>₹3,60,000</td></tr><tr><td>Equity shares outstanding (Nos.)</td><td>6,00,000</td><td>1,80,000</td></tr><tr><td>EPS</td><td>₹3</td><td>₹2</td></tr><tr><td>PE Ratio</td><td>10 times</td><td>7 times</td></tr><tr><td>Market price per share</td><td>₹30</td><td>₹14</td></tr></table>Required:
1) The number of equity shares to be issued by A Ltd. for acquisition of T Ltd.
2) What is the EPS of A Ltd. after the acquisition?
3) Determine the equivalent earnings per share of T Ltd.
4) What is the expected market price per share of A Ltd. after the acquisition, assuming its PE multiple remains unchanged?
5) Determine the market value of the merged firm.</td><td>PM_Q15_13.19</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>3</td><td>The CEO of a company thinks that shareholders always look for EPS. Therefore he considers maximization of EPS as his company's objective. His company's current Net Profits are ₹80.00 lakhs and P/E multiple is 10.5. He wants to buy another firm which has current income of ₹15.75 lakhs & P/E multiple of 10.

What is the maximum exchange ratio which the CEO should offer so that he could keep EPS at the current level, given that the current market price of both the acquirer and the target company are ₹42 and ₹105 respectively?

If the CEO borrows funds at 15% and buys out Target Company by paying cash, how much should he offer to maintain his EPS? Assume tax rate of 30%.</td><td>PM_Q17_13.21</td><td>  </td></tr>
<tr><td>4</td><td>The following information is provided related to the acquiring Firm Mark Limited and the target Firm Mask Limited:
<table><tr><th></th><th>Firm
Mark Limited</th><th>Firm
Mask Limited</th></tr><tr><td>Earnings after tax (₹)</td><td>2,000 lakhs</td><td>400 lakhs</td></tr><tr><td>Number of shares outstanding</td><td>200 lakhs</td><td>100 lakhs</td></tr><tr><td>P/E ratio (times)</td><td>10</td><td>5</td></tr></table>Required:
1. What is the Swap Ratio based on current market prices?
2. What is the EPS of Mark Limited after acquisition?
3. What is the expected market price per share of Mark Limited after acquisition, assuming P/E ratio of Mark Limited remains unchanged?
4. Determine the market value of the merged firm.
5. Calculate gain/loss for shareholders of the two independent companies after acquisition.</td><td>PM_Q22_13.27</td><td>  </td></tr>
<tr><td>5</td><td>XYZ Ltd. wants to purchase ABC Ltd. by exchanging 0.7 of its share for each share of ABC Ltd. Relevant financial data are as follows:
<table><tr><td>Equity shares outstanding</td><td>10,00,000</td><td>4,00,000</td></tr><tr><td>EPS (₹)</td><td>40</td><td>28</td></tr><tr><td>Market price per share (₹)</td><td>250</td><td>160</td></tr></table>1. Illustrate the impact of merger on EPS of both the companies.
2. The management of ABC Ltd. has quoted a share exchange ratio of 1:1 for the merger. Assuming that P/E ratio of XYZ Ltd. will remain</td><td>PM_Q23_13.29</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>unchanged after the merger, what will be the gain from merger for ABC Ltd.?
3. What will be the gain/loss to shareholders of XYZ Ltd.?
4. Determine the maximum exchange ratio acceptable to shareholders of XYZ Ltd.</td><td></td><td></td></tr>
<tr><td>6</td><td>Yes Ltd. wants to acquire No Ltd. and the cash flows of Yes Ltd. and the merged entity are given below:
<table><tr><td></td><td></td><td></td><td></td><td></td><td>(₹ In lakhs)</td></tr><tr><td>Year</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td></tr><tr><td>Yes Ltd.</td><td>175</td><td>200</td><td>320</td><td>340</td><td>350</td></tr><tr><td>Merged Entity</td><td>400</td><td>450</td><td>525</td><td>590</td><td>620</td></tr></table>Earnings would have witnessed 5% constant growth rate without merger and 6% with merger on account of economies of operations after 5 years in each case. The cost of capital is 15%.
The number of shares outstanding in both the companies before the merger is the same and the companies agree to an exchange ratio of 0.5 shares of Yes Ltd. for each share of No Ltd.
PV factor at 15% for years 1-5 are 0.870, 0.756; 0.658, 0.572, 0.497 respectively.
You are required to:
(i) Compute the Value of Yes Ltd. before and after merger.
(ii) Value of Acquisition and
(iii) Gain to shareholders of Yes Ltd.</td><td>PM_Q28_13.37</td><td>  </td></tr>
<tr><td>7</td><td>T Ltd. and E Ltd. are in the same industry. The former is in negotiation for acquisition of the latter. Important information about the two companies as per their latest financial statements is given below:
<table><tr><th></th><th>T Ltd</th><th>E Ltd</th></tr><tr><td>₹10 Equity shares outstanding</td><td>12 Lakhs</td><td>6 Lakhs</td></tr><tr><td>Debt:</td><td></td><td></td></tr><tr><td>10% Debentures (₹Lakhs)</td><td>580</td><td>-</td></tr><tr><td>12.5% Institutional Loan (₹Lakhs)</td><td>-</td><td>240</td></tr><tr><td>Earning before interest, depreciation and tax (EBIDAT) (₹Lakhs)</td><td>400.86</td><td>115.71</td></tr><tr><td>Market Price/share (₹)</td><td>220.00</td><td>110.00</td></tr></table></td><td>PM_Q34_13.47</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>T Ltd. plans to offer a price for E Ltd., business as a whole which will be 7 times EBIDAT reduced by outstanding debt, to be discharged by own shares at market price.
E Ltd. is planning to seek one share in T Ltd. for every 2 shares in E Ltd. based on the market price. Tax rate for the two companies may be assumed as 30%.
Calculate and show the following under both alternatives - T Ltd.'s offer and E Ltd.'s plan:
i. Net consideration payable.
ii. No. of shares to be issued by T Ltd.
iii. EPS of T Ltd. after acquisition.
iv. Expected market price per share of T Ltd. after acquisition.
v. State briefly the advantages to T Ltd. from the acquisition.
Calculations (except EPS) may be rounded off to 2 decimals in lakhs.</td><td></td><td></td></tr>
<tr><td>8</td><td>H Ltd. agrees to buy over the business of B Ltd. Effective 1st April, 2012.The summarized Balance Sheets of H Ltd. and B Ltd. as on 31st March 2012 are as follows:

Balance sheet as at 31st March, 2012 (In Crores of Rupees)
<table>
<tr><th><u>Liabilities</u>:</th><th>H. Ltd</th><th>B. Ltd.</th></tr>
<tr><td>Paid up Share Capital</td><td></td><td></td></tr>
<tr><td>Equity Shares of ₹100 each</td><td>350.00</td><td>-</td></tr>
<tr><td>Equity Shares of ₹10 each</td><td>-</td><td>6.50</td></tr>
<tr><td>Reserve & Surplus</td><td>950.00</td><td>25.00</td></tr>
<tr><td>Total</td><td>1,300.00</td><td>31.50</td></tr>
<tr><td><u>Assets:</u></td><td></td><td></td></tr>
<tr><td>Net Fixed Assets</td><td>220.00</td><td>0.50</td></tr>
<tr><td>Net Current Assets</td><td>1,020.00</td><td>29.00</td></tr>
<tr><td>Deferred Tax Assets</td><td>60.00</td><td>2.00</td></tr>
<tr><td>Total</td><td>1,300.00</td><td>31.50</td></tr>
</table>
H Ltd. proposes to buy out B Ltd. and the following information is provided to you as part of the scheme of buying:
1. The weighted average post tax maintainable profits of H Ltd. and B Ltd. for the last 4 years are ₹300 crores and ₹10 crores respectively.
2. Both the companies envisage a capitalization rate of 8%.
3. H Ltd. has a contingent liability of ₹300 crores as on 31st March, 2012.
4. H Ltd. to issue shares of ₹100 each to the shareholders of B Ltd. in terms of the exchange ratio as arrived on a Fair Value basis. (Please consider</td><td>PM_Q36_13.51</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>weights of 1 and 3 for the value of shares arrived on Net Asset basis and Earnings capitalization method respectively for both H Ltd. and B Ltd.)

You are required to arrive at the value of the shares of both H Ltd. and B Ltd. under:

i. Net Asset Value Method
ii. Earnings Capitalisation Method
iii. Exchange ratio of shares of H Ltd. to be issued to the shareholders of B Ltd. on a Fair value basis (taking into consideration the assumption mentioned in point 4 above.)</td><td></td><td></td></tr>
<tr><td>9</td><td>R Ltd. and S Ltd. are companies that operate in the same industry. The financial statements of both the companies for the current financial year are as follows:

Balance Sheet

<table>
<tr><th>Particulars</th><th>R. Ltd. (₹)</th><th>S. Ltd (₹)</th></tr>
<tr><td>Equity & Liabilities</td><td></td><td></td></tr>
<tr><td>Shareholders Fund</td><td></td><td></td></tr>
<tr><td>Equity Capital (₹10 each)</td><td>20,00,000</td><td>16,00,000</td></tr>
<tr><td>Retained earnings</td><td>4,00,000</td><td>-</td></tr>
<tr><td>Non-current Liabilities</td><td></td><td></td></tr>
<tr><td>16% Long term Debt</td><td>10,00,000</td><td>6,00,000</td></tr>
<tr><td>Current Liabilities</td><td>14,00,000</td><td>8,00,000</td></tr>
<tr><td>Total</td><td>48,00,000</td><td>30,00,000</td></tr>
<tr><td>Assets</td><td></td><td></td></tr>
<tr><td>Non-current Assets</td><td>20,00,000</td><td>10,00,000</td></tr>
<tr><td>Current Assets</td><td>28,00,000</td><td>20,00,000</td></tr>
<tr><td>Total</td><td>48,00,000</td><td>30,00,000</td></tr>
</table>

Income Statement

<table>
<tr><th>Particulars</th><th>R. Ltd. (₹)</th><th>S. Ltd. (₹)</th></tr>
<tr><td>A. Net Sales</td><td>69,00,000</td><td>34,00,000</td></tr>
<tr><td>B. Cost of Goods sold</td><td>55,20,000</td><td>27,20,000</td></tr>
<tr><td>C. Gross Profit (A-B)</td><td>13,80,000</td><td>6,80,000</td></tr>
<tr><td>D. Operating Expenses</td><td>4,00,000</td><td>2,00,000</td></tr>
<tr><td>E. Interest</td><td>1,60,000</td><td>96,000</td></tr>
<tr><td>F. Earnings before taxes [C-(D+E)]</td><td>8,20,000</td><td>3,84,000</td></tr>
<tr><td>G. Taxes @ 35%</td><td>2,87,000</td><td>1,34,400</td></tr>
</table>
</td><td>PM_Q40_13.58</td><td></td></tr>
</table>

No.	Question	Reference	

H. Earnings After Tax (EAT)	5,33,000	2,49,600

Additional Information:

No. of equity shares	2,00,000	1,60,000
Dividend payment Ratio (D/P)	20%	30%
Market price per share	₹50	₹20

Assume that both companies are in the process of negotiating a merger through exchange of Equity shares:

You are required to:

i. Decompose the share price of both the companies into EPS & P/E components. Also segregate their EPS figures into Return On Equity (ROE) and Book Value/Intrinsic Value per share components.

ii. Estimate future EPS growth rates for both the companies

iii. Based on expected operating synergies, R Ltd. estimated that the intrinsic value of S Ltd. Equity share would be ₹25 per share on its acquisition.

iv. You are required to develop a range of justifiable Equity Share Exchange ratios that can be offered by R Ltd. to the shareholders of S Ltd. Based on your analysis on parts (i) and (ii), would you expect the negotiated terms to be closer to the upper or the lower exchange ratio limits and why?

10 Bank 'R' was established in 2005 and doing banking in India. The bank is facing DO OR DIE situation. There are problems of Gross NPA (Non Performing Assets) at 40% & CAR/CRAR (Capital Adequacy Ratio/ Capital Risk Weight Asset Ratio) at 4%. The net worth of the bank is not good. Shares are not traded regularly. Last week, it was traded @ ₹8 per share. RBI Audit suggested that bank has either to liquidate or to merge with other bank. Bank 'P' is professionally managed bank with low gross NPA of 5%.It has Net NPA as 0% and CAR at 16%. Its share is quoted in the market @ ₹128 per share. The board of directors of bank 'P' has submitted a proposal to RBI for take-over of bank 'R' on the basis of share exchange ratio.

PM_Q42_13.63

The Balance Sheet details of both the banks are as follows:

	Bank 'R' Amt. in ₹ lacs	**Bank 'P' Amt. in ₹lacs**
Paid up share capital	140	500
Reserves & Surplus	70	5,500
Deposits	4,000	40,000
Other liabilities	890	2,500

No.	Question	Reference	

Total Liabilities	**5,100**	**48,500**
Cash in hand & with RBI	400	2,500
Balance with other banks	-	2,000
Investments	1,100	15,000
Advances	3,500	27,000
Other Assets	100	2,000
Total Assets	**5,100**	**48,500**

It was decided to issue shares at Book Value of Bank 'P' to the shareholders of Bank 'R'. All assets and liabilities are to be taken over at Book Value.

For the swap ratio, weights assigned to different parameters are as follows:

Gross NPA	30%
CAR	20%
Market price	40%
Book value	10%

a) What is the swap ratio based on above weights?
b) How many shares are to be issued?
c) Prepare Balance Sheet after merger
d) Calculate CAR & Gross NPA % of Bank 'P' after merger.

11 A valuation done of an established company by a well-known analyst has estimated a value of ₹500 lakhs, based on the expected free cash flow for next year of ₹20 lakhs and an expected growth rate of 5%.

While going through the valuation procedure, you found that the analyst has made the mistake of using the book values of debt and equity in his calculation. While you do not know the book value weights he used, you have been provided with the following information:

i. Company has a cost of equity of 12%,
ii. After tax cost of debt is 6%,
iii. The market value of equity is three times the book value of equity, while the market value of debt is equal to the book value of debt.

You are required to estimate the correct value of the company.

PM_Q43_13.65

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td>12</td><td>Following information are available in respect of XYZ Ltd. which is expected to grow at a higher rate for 4 years after which growth rate will stabilize at a lower level:
Base year information:
<table>
<tr><td>Revenue</td><td>₹2,000 crores</td></tr>
<tr><td>EBIT</td><td>₹300 crores</td></tr>
<tr><td>Capital expenditure</td><td>₹280 crores</td></tr>
<tr><td>Depreciation</td><td>₹200 crores</td></tr>
</table>
Information for high growth and stable growth period are as follows:
<table>
<tr><td></td><td>High Growth</td><td>Stable Growth</td></tr>
<tr><td>Growth in Revenue & EBIT</td><td>20%</td><td>10%</td></tr>
<tr><td>Growth in capital expenditure and depreciation</td><td>20%</td><td>Capital expenditure are offset by depreciation</td></tr>
<tr><td>Risk free rate</td><td>10%</td><td>9%</td></tr>
<tr><td>Equity beta</td><td>1.15</td><td>1</td></tr>
<tr><td>Market risk premium</td><td>6%</td><td>5%</td></tr>
<tr><td>Pre-tax cost of debt</td><td>13%</td><td>12.86%</td></tr>
<tr><td>Debt equity ratio</td><td>1 : 1</td><td>2 : 3</td></tr>
</table>
For all time, working capital is 25% of revenue and corporate tax rate is 30%. What is the value of the firm?</td><td>PM_Q45_13.67</td><td>  </td></tr>
<tr><td>13</td><td>Following information is given in respect of WXY Ltd., which is expected to grow at a rate of 20% p.a. for the next three years, after which the growth rate will stabilize at 8% p.a. normal level, in perpetuity.
<table>
<tr><td></td><td>For the year ended March 31, 2014</td></tr>
<tr><td>Revenues</td><td>₹7,500 Crores</td></tr>
<tr><td>Cost of Goods Sold (COGS)</td><td>₹3,000 Crores</td></tr>
<tr><td>Operating Expenses</td><td>₹2,250 Crores</td></tr>
<tr><td>Capital Expenditure</td><td>₹750 Crores</td></tr>
<tr><td>Depreciation (included in COGS & Operating Expenses)</td><td>₹600 Crores</td></tr>
</table></td><td>PM_Q46_13.69</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>During high growth period, revenues & Earnings before Interest & Tax (EBIT) will grow at 20% p.a. and capital expenditure net of depreciation will grow at 15% p.a. From year 4 onwards, i.e. normal growth period revenues and EBIT will grow at 8% p.a. and incremental capital expenditure will be offset by the depreciation. During both high growth & normal growth period, net working capital requirement will be 25% of revenues.
The Weighted Average Cost of Capital (WACC) of WXY Ltd. is 15%.
Corporate Income Tax rate will be 30%.
Required:
Estimate the value of WXY Ltd. using Free Cash Flows to Firm (FCFF) & WACC methodology. The PVIF @ 15 % for the three years are as below:
<table>
<tr><td>Year</td><td>t1</td><td>t2</td><td>t3</td></tr>
<tr><td>PVIF</td><td>0.8696</td><td>0.7561</td><td>0.6575</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>14</td><td>ABC, a large business house is planning to sell its wholly owned subsidiary KLM. Another large business entity XYZ has expressed its interest in making a bid for KLM. XYZ expects that after acquisition the annual earning of KLM will increase by 10%.

Following information, ignoring any potential synergistic benefits arising out of possible acquisitions, are available:
i. Profit after tax for KLM for the financial year which has just ended is estimated to be ₹10 crore.
ii. KLM's after tax profit has an increasing trend of 7% each year and the same is expected to continue.
iii. Estimated post tax market return is 10% and risk free rate is 4%. These rates are expected to continue.
iv. Corporate tax rate is 30%.
<table>
<tr><td></td><td>XYZ</td><td>ABC</td><td>Proxy entity for KLM in the same line of business</td></tr>
<tr><td>No. of shares</td><td>100 lakhs</td><td>80 lakhs</td><td>--</td></tr>
<tr><td>Current share price</td><td>₹287</td><td>₹375</td><td>--</td></tr>
<tr><td>Dividend pay out</td><td>40%</td><td>50%</td><td>50%</td></tr>
<tr><td>Debt : Equity at market values</td><td>1 : 2</td><td>1 : 3</td><td>1 : 4</td></tr>
<tr><td>P/E ratio</td><td>10</td><td>13</td><td>12</td></tr>
<tr><td>Equity beta</td><td>1</td><td>1. 1</td><td>1.1</td></tr>
</table></td><td>PM_Q47_13.70</td><td>  </td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>Assume gearing level of KLM to be the same as for ABC and a debt beta of zero. You are required to calculate:
a) Appropriate cost of equity for KLM based on the data available for the proxy entity.
b) A range of values for KLM both before and after any potential synergistic benefits to XYZ of the acquisition.</td><td></td><td></td></tr>
<tr><td>15</td><td>The following is the Balance-sheet of Grape Fruit Company Ltd as at March 31st, 2011.
<table>
<tr><th>Liabilities</th><th>(₹ in lakhs)</th><th>Assets</th><th>(₹ in lakhs)</th></tr>
<tr><td>Equity shares of ₹100 each</td><td>600</td><td>Land and Building</td><td>200</td></tr>
<tr><td>14% preference shares of ₹100/- each</td><td>200</td><td>Plant and Machinery</td><td>300</td></tr>
<tr><td>13% Debentures</td><td>200</td><td>Furniture and Fixtures</td><td>50</td></tr>
<tr><td>Debenture interest accrued and payable</td><td>26</td><td>Inventory</td><td>150</td></tr>
<tr><td>Loan from bank</td><td>74</td><td>Sundry debtors</td><td>70</td></tr>
<tr><td>Trade creditors</td><td>340</td><td>Cash at bank</td><td>130</td></tr>
<tr><td></td><td></td><td>Preliminary expenses</td><td>10</td></tr>
<tr><td></td><td></td><td>Cost of issue of debentures</td><td>5</td></tr>
<tr><td></td><td></td><td>Profit and Loss account</td><td>525</td></tr>
<tr><td></td><td>1440</td><td></td><td>1440</td></tr>
</table>
The Company did not perform well and has suffered sizable losses during the last few years. However, it is felt that the company could be nursed back to health by proper financial restructuring. Consequently the following scheme of reconstruction has been drawn up :
i. Equity shares are to be reduced to ₹25/- per share, fully paid up;
ii. Preference shares are to be reduced (with coupon rate of 10%) to equal number of shares of ₹50 each, fully paid up.
iii. Debenture holders have agreed to forgo the accrued interest due to them. In the future, the rate of interest on debentures is to be reduced to 9 percent.
iv. Trade creditors will forego 25 percent of the amount due to them.</td><td>PM_Q49_13.73</td><td></td></tr>
</table>

No.	Question	Reference	
	v. The company issues 6 lakh of equity shares at ₹25 each and the entire sum was to be paid on application. The entire amount was fully subscribed by promoters. vi. Land and Building was to be revalued at ₹450 lakhs, Plant and Machinery was to be written down by ₹120 lakhs and a provision of ₹5 lakhs had to be made for bad and doubtful debts. Required: i. Show the impact of financial restructuring on the company's activities. ii. Prepare the fresh balance sheet after the reconstructions is completed on the basis of the above proposals.		
16	The equity shares of XYZ Ltd. are currently being traded at ₹24 per share in the market. XYZ Ltd. has total 10,00,000 equity shares outstanding in number; and promoters' equity holding in the company is 40%. PQR Ltd. wishes to acquire XYZ Ltd. because of likely synergies. The estimated present value of these synergies is ₹80,00,000. Further PQR feels that management of XYZ Ltd. has been over paid. With better motivation, lower salaries and fewer perks for the top management, will lead to savings of ₹4,00,000 p.a. Top management with their families are promoters of XYZ Ltd. Present value of these savings would add ₹30,00,000 in value to the acquisition. Following additional information is available regarding PQR Ltd.: Earnings per share `₹4 Total number of equity shares outstanding 15,00,000 Market price of equity share ₹40 Required: i. What is the maximum price per equity share which PQR Ltd. can offer to pay for XYZ Ltd.? ii. What is the minimum price per equity share at which the management of XYZ Ltd. will be willing to offer their controlling interest?	PM_Q51_13.77	
17	With the help of the following information of Jatayu Limited compute the Economic Value Added: Capital Structure: Equity capital ₹160 Lakhs; Reserves and Surplus ₹140 lakhs; 10% Debentures ₹400 lakhs Cost of equity: 14% Financial Leverage: 1.5 times Income Tax Rate: 30%	PM_Q52_13.78	

No.	Question	Reference	
18	The following data pertains to XYZ Inc. engaged in software consultancy business as on 31 December 2010.	PM_Q57_13.83	

($ Million)

Income from consultancy	935.00
EBIT	180.00
Less: Interest on Loan	18.00
EBT	162.00
Tax @ 35%	56.70
	105.30

Balance Sheet

($ Million)

Liabilities	Amount	Assets	Amount
Equity Stock (10 million share @ $ 10 each)	100	Land and Building	200
Reserves & Surplus	325	Computers & Softwares	295
Loans	180	**Current Assets:**	
Current Liabilities	180	Debtors 150	
		Bank 100	
		Cash 40	290
	785		**785**

With the above information and following assumption you are required to compute:

a) Economic Value Added
b) Market Value Added

Assuming that:

i. WACC is 12%.
ii. The share of company currently quoted at $ 50 each.

No.	Question	Reference	
19	BRS Inc. deals in computer and IT hardware's and peripherals. The expected revenue for the next 8 years is as follows:	PM_Q60_13.88	

Years	Sales Revenue ($ Million)
1	8
2	10
3	15
4	22
5	30
6	26
7	23
8	20

Summarized financial position as on 31 March 2012 was as follows:

$ Million

Liabilities	Amount	Assets	Amount
Equity Stocks	12	Fixed Assets (Net)	17
12% Bonds	8	Current Assets	3
	20		**20**

Additional Information:

a) Its variable expenses is 40% of sales revenue and fixed operating expenses (cash) are estimated to be as follows:

Period	Amount ($Million)
1- 4 years	1.6
5 – 8 years	2

b) An additional advertisement and sales promotion campaign shall be launched requiring expenditure as per following details:

Period	Amount ($Million)
1 year	0.50
2-3 years	1.50
4-6 years	3.00
7-8 years	1.00

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>
c) Fixed assets are subject to depreciation at 15% as per WDV method.
d) The company has planned additional capital expenditures (in the beginning of each year) for the coming 8 years as follows:
<table>
<tr><th>Period</th><th>Amount ($Million)</th></tr>
<tr><td>1</td><td>0.50</td></tr>
<tr><td>2</td><td>0.80</td></tr>
<tr><td>3</td><td>2.00</td></tr>
<tr><td>4</td><td>2.50</td></tr>
<tr><td>5</td><td>3.50</td></tr>
<tr><td>6</td><td>2.50</td></tr>
<tr><td>7</td><td>1.50</td></tr>
<tr><td>8</td><td>1.00</td></tr>
</table>
e) Investment in Working Capital is estimated to be 20% of Revenue.
f) Applicable tax rate for the company is 30%
g) Cost of Equity is estimated to be 16%.
h) The Free Cash Flow of the firm is expected to grow at 5% per annuam after 8 years.
With above information you are require to determine the:
i. Value of Firm
ii. Value of Equity
</td><td></td><td></td></tr>
<tr><td>20</td><td>
The Nishan Ltd. has 35,000 shares of equity stock outstanding with a book value of ₹20 per share. It owes debt ₹15,00,000 at an interest rate of 12%. Selected financial results are as follows.
<table>
<tr><th colspan="2">Income and Cash Flow</th><th colspan="2">Capital</th></tr>
<tr><td>EBIT</td><td>₹80,000</td><td>Debt</td><td>₹1,500,000</td></tr>
<tr><td>Interest</td><td>1,80,000</td><td>Equity</td><td>7,00,000</td></tr>
<tr><td>EBT</td><td>(₹1,00,000)</td><td></td><td>₹2,200,000</td></tr>
<tr><td>Tax</td><td>0</td><td></td><td></td></tr>
<tr><td>EAT</td><td>(₹1,00,000)</td><td></td><td></td></tr>
<tr><td>Depreciation</td><td>₹50,000</td><td></td><td></td></tr>
<tr><td>Principal repayment</td><td>(₹75,000)</td><td></td><td></td></tr>
<tr><td>Cash Flow</td><td>(₹1,25,000)</td><td></td><td></td></tr>
</table>
Restructure the financial line items shown assuming a composition in which creditors agree to convert two thirds of their debt into equity at book value.
</td><td>PM_Q61_13.91</td><td></td></tr>
</table>

<table>
<tr><th>No.</th><th>Question</th><th>Reference</th><th></th></tr>
<tr><td></td><td>Assume Nishan will pay tax at a rate of 15% on income after the restructuring, and that principal repayments are reduced proportionately with debt. Who will control the company and by how big a margin after the restructuring?</td><td></td><td></td></tr>
<tr><td>21</td><td>ABC (India) Ltd., a market leader in printing industry, is planning to diversify into defense equipment businesses that have recently been partially opened up by the GOI for private sector. In the meanwhile, the CEO of the company wants to get his company valued by a leading consultants, as he is not satisfied with the current market price of his scrip.

He approached consultant with a request to take up valuation of his company with the following data for the year ended 2009:
<table>
<tr><td>Share Price</td><td>₹66 per share</td></tr>
<tr><td>Outstanding debt</td><td>1934 lakh</td></tr>
<tr><td>Number of outstanding shares</td><td>75 lakh</td></tr>
<tr><td>Net income (PAT)</td><td>17.2 lakh</td></tr>
<tr><td>EBIT</td><td>245 lakh</td></tr>
<tr><td>Interest expenses</td><td>218.125 lakh</td></tr>
<tr><td>Capital expenditure</td><td>234.4 lakh</td></tr>
<tr><td>Depreciation</td><td>234.4 lakh</td></tr>
<tr><td>Working capital</td><td>44 lakh</td></tr>
<tr><td>Growth rate 8% (from 2010 to 2014)</td><td></td></tr>
<tr><td>Growth rate 6% (beyond 2014)</td><td></td></tr>
<tr><td>Free cash flow</td><td>240.336 lakh (year 2014 onwards)</td></tr>
</table>
The capital expenditure is expected to be equally offset by depreciation in future and the debt is expected to decline by 30% in 2014.
Required:
Estimate the value of the company and ascertain whether the ruling market price is undervalued as felt by the CEO based on the foregoing data. Assume that the cost of equity is 16%, and 30% of debt repayment is made in the year 2014.</td><td>PM_Q62_13.93</td><td>  </td></tr>
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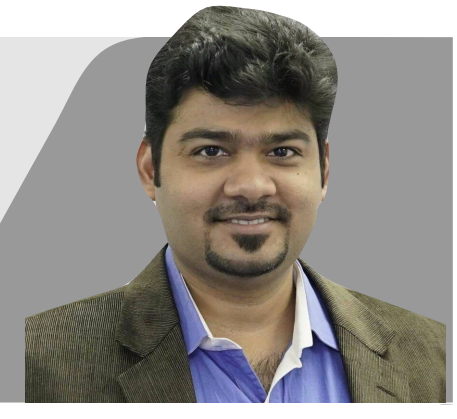

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