

**PGDM / IB Batch 2017-19**  
**Business Analysis & Valuation**  
**DM-412/IB-406**

**Trimester – IV, End-Term Examination: September 2018**

Time allowed: 2.5 Hours

Max Marks: 50

Roll No: \_\_\_\_\_

**Instruction:** Students are required to write Roll No on every page of the question paper, writing anything except the Roll No will be treated as **Unfair Means**. In case of rough work please use answer sheet.

Make assumptions wherever necessary and write them down at the end of solution.

Sections	No. of Questions to attempt	Marks	Marks
A	3 out of 5 (Short Questions)	5 Marks each	$3 \times 5 = 15$
B	2 out of 3 (Long Questions)	10 Marks each	$2 \times 10 = 20$
C	Compulsory Case Study	15 Marks	15
		<b>Total Marks</b>	<b>50</b>

**SECTION A**

A 1. Pokey Ltd. is trying to forecast its free cash flow for the next three years. Current free cash flow is as follows.

	<i>Expected annual increase</i>	
	%	INR
EBIT	4	500,000
Tax	30% of EBIT	150,000
Depreciation	5	85,000
Capital expenditure	2	150,000
Working capital requirements	3	60,000

By what percentage will free cash flow have increased between now and the end of year 3?

A 2. Company X's hotel division is experiencing considerable financial difficulties. The management is prepared to undertake a buyout, and Company X is willing to sell for \$15 million. After an analysis of the division's performance, the management concluded that the division required a capital injection of \$10 million.

Possible funding sources for the buyout and the additional capital injection are as follows:

From management:

Equity shares of 25c each \$12 million

From venture capitalist:

Equity shares of 25c each \$5.5 million

Debt: 9.5% fixed rate loan \$7.5 million

The fixed rate loan principal is repayable in 10 years' time.

Forecasts of earnings before interest and tax for the next 5 years following the buyout are as follows:



	Year 1	Year 2	Year 3	Year 4	Year 5
	\$'000	\$'000	\$'000	\$'000	\$'000
EBIT	2,200	3,100	3,900	4,200	4,500

Corporation tax is charged at 30%. Dividends are expected to be no more than 12 % of profits for the first five years.

Management has forecast that the value of equity capital is likely to increase by approximately 15 % per annum for the next 5 years.

*Required*

On the basis of the above forecasts, determine whether management's estimate that the value of equity will increase by 15% per annum is a viable one.

A 3 A company is all-equity financed, with 60 million shares. The current market value of the shares is \$5 each. The company currently makes an annual profit before interest and tax of \$40 million. There are no expectations of growth in annual profits.

The company is considering whether to raise \$100 million in debt. The pre-tax interest rate would be 8% and the tax rate is 25%. The debt capital would be used to repurchase and cancel some equity shares.

**Required:**

Estimate the effect the issue of debt and repurchase of shares would have on the weighted average cost of capital (WACC).

A 4. Why is it necessary to estimate asset beta. How can we calculate asset beta from an equity beta?

A 5. The 12-month trailing EPS for Example Fabrication Company as of December 31, 2017, is INR 1.29. Example stock trades at INR 42.50 per share as of 12/31/2017. In the first two quarters of 2007, Example reported an extraordinary loss of INR 0.22 per share. In the third quarter, the company reported a loss from the write-down of inventory of INR 0.04 per share. In the fourth quarter, Example reported a gain of INR 0.08 per share from a change in accounting estimate when it increased the estimate of useful life of certain manufacturing equipment. What is Example's trailing P/E?

## Section B

B 1. Big Ltd. is considering a takeover bid for Little Ltd., another company in the same industry. Little is expected to have earnings next year of INR 86,000. If Big acquires Little, the expected results from Little will be as follows:

	Year after the acquisition		
	Year 1	Year 2	Year 3
		INR	
Sales	200,000	280,000	320,000
Cash costs/expenses	120,000	160,000	180,000
Depreciation	20,000	30,000	40,000
Interest charges	10,000	10,000	10,000
Cash flows to replace assets	25,000	30,000	35,000

From Year 4 onwards, it is expected that the annual cash flows from Little will increase by 4% each year in perpetuity.

Tax is payable at the rate of 30%, and the tax is paid in the same year as the profits to which the tax relates.

If Big acquires Little, it estimates that its gearing after the acquisition will be 35% (measured as the value of its debt capital as a proportion of its total equity plus debt). Its cost of debt is 7.4% before tax. Big has an equity beta of 1.60.

The risk-free rate of return is 6% and the return on the market portfolio is 11%.



**Required**

- (a) Suggest what the offer price for Little should be if Big chooses to value Little on a forward P/E multiple of 8.0 times. 2
- (b) Calculate a cost of capital for Big. 3
- (c) Suggest what the offer price for little might be using a DCF-based valuation. 5

B 2. a) What is real option approach in valuation? What benefits it brings to the table. 5

b) The present value of Sporting Financial Services (SFS) projected residual income for the next five years plus beginning book value is INR 75.00 per share. Beyond that time horizon, the firm will sustain a residual income of INR 11.25 per share, which is the residual income for Year 6. The cost of equity is 10%. Estimate the justified value of SFS's common stock. 5

B 3. Happy Times (HT) is a firm engaged in hotels and resorts. Recently it estimated its cost of capital (adjusted for tax) as 10%. Happy Times is looking for expansion and estimated that it will require INR 750 million. To meet this INR 250 million will be coming through internal resources but firm will have to take a loan for the balance amount. HT already has a 10 year loan of INR 500 million in its books which was taken 5 years back. Firm's current credit rating is AA+.

New loan will be required for a 5 year term and it is estimated that it will bring down the rating of the firm's whole debt to A+.

Current market capitalization of firm's equity is INR 2000 million. Marginal corporate tax rate is 30% and expected to remain the same. Analysis of yield curves reveals that the risk free rate is 6% for 5 years and 7% for 10 years. Corporate bond spreads on different terms are given below:

Rating	AA+	AA	AA-	A+
Tenor				
1	0.50%	0.79%	0.97%	1.26%
2	0.68%	0.93%	1.16%	1.43%
3	0.68%	0.89%	1.17%	1.42%
4	0.69%	0.90%	1.16%	1.48%
5	0.77%	0.98%	1.23%	1.62%
6	0.96%	0.96%	1.21%	1.58%
7	0.63%	0.84%	1.09%	1.44%
8	0.62%	0.83%	1.08%	1.41%
9	0.82%	1.03%	1.28%	1.59%
10	1.06%	1.26%	1.51%	1.81%

**Required:**

Estimate the expected cost of capital for the firm on the assumption that the additional finance is raised through a bond issue.

**Section C**

The board of directors of NOW have asked for a four-year financial plan to be prepared for next four years. They have approved the following assumptions for the plan:

- (1) Sales growth will be at the rate of 6% each year into the foreseeable future.
- (2) Cash operating costs will be 70% of sales.



(3) Investment in new plant and equipment is expected to grow in line with the growth in sales, and the net book value of plant and equipment will grow at the same rate.

(4) Tax-allowable depreciation will grow in line with the growth in sales.

(5) Inventory, receivables, cash and trade payables will also increase at the same rate as the growth in sales.

(6) There will be no change in long-term borrowing. Interest on the bank overdraft will be payable at 7%. The interest charge for bank overdraft in the income statement each year should be calculated on the opening bank overdraft at the beginning of the year.

(7) Tax on company profits will be 30%.

(8) The company policy is to pay dividends as a constant percentage amount of earnings. This policy will not change.

(9) The cost of equity capital has been estimated as 12%.

Latest income statement of NOW is as follows:

	INR million
Sales	1,800
Cash operating costs	(1,260)
EBITDA	540
Tax allowable depreciation	(160)
Earnings before interest	380
Interest	(78)
Profit before tax	302
Tax at 30%	(91)
Profit after tax	211
Dividends	(135)
Retained profit	76

Latest balance sheet of NOW is as follows:

	INR m	INR m
Plant and equipment		2,020
Current assets		
Inventory	520	
Receivables	640	
Cash	30	
Total assets		1,190 3,210
Share capital (shares of INR 10 each)	450	
Reserves	1,200	
		1,650
Long term loan at 8%		800
Trade payables		450
Bank overdraft		310
Total Liabilities		3,210

### Required

- (a) Prepare a financial plan for Years 1 to 4, showing the profit after tax, dividends, retained profits for each year and a summary balance sheet as at the end of each year. 8
- (b) Calculate the expected free cash flow in each year of the financial plan. 4
- (c) Comment briefly on the financial plan. 3



### Present Value Table

Present value of 1 i.e.  $(1 + r)^{-n}$

Where  $r$  = discount rate  
 $n$  = number of periods until payment

Periods (n)	Discount rate (r)										
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	2
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	3
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	4
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	5
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	6
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	7
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	8
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	9
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	10
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	11
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	12
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	13
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	14
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	15
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833	1
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694	2
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579	3
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482	4
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402	5
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335	6
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279	7
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233	8
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194	9
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162	10
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135	11
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112	12
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093	13
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078	14
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065	15



### Annuity Table

Present value of an annuity of 1 i.e.  $\frac{1 - (1 + r)^{-n}}{r}$

Where  $r$  = discount rate  
 $n$  = number of periods

Periods (n)	Discount rate (r)										
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	2
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	3
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	4
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	5
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	6
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	7
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	8
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	9
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	10
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	11
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	12
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103	13
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367	14
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606	15
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833	1
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528	2
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106	3
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589	4
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991	5
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326	6
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605	7
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837	8
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031	9
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192	10
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327	11
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439	12
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533	13
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611	14
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675	15