Time allowed: 2 Hours   Max Marks: 40

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	4 Questions	5 Marks each	4*5 =20
B	Compulsory Case Study	20 Marks	20
		Total Marks	**40**

SECTION A

1a. Please consider the following data:

Name of Company	P/E	EV/EBIT	EV/EBITDA
Get Fit	22.5x	15.3x	14.1x
Workout Co.	27.1x	21.3x	19.9x
Health Fitness Center	18.0x	14.4x	13.9x
Fit for Fun	23.2x	16.0x	15.1x
The Crossfit Club	24.1x	17.2x	15.8x
Average	*23.0x*	*16.8x*	*15.8x*

P&L Items (in USD mln)	**Sports World Co.**
EBIT	10.2
EBITDA	11.7
Net Earnings	3.5
Debt	100

Estimate of the enterprise value of Sports World Co. using the P/E multiple.   (CO 3)

OR

1b. You have gathered the following data for Moon Ltd.

Recent share price	Rs 32.00
Shares outstanding	30 lakhs
Market value of debt	Rs 115 lakhs
Cash and marketable securities	Rs 47 lakhs
Investments	Rs 200 lakhs
Net income	Rs 159.4 lakhs
Interest expense	Rs 5.8 lakhs
Depreciation	Rs 6.9 lakhs
Amortization	Rs 2.3 lakhs
Taxes	Rs 85 lakhs

Calculate EV/EBITDA multiple for the company.   (CO 3)

2a. Param Ltd. has FCF of Rs 1.7 billion and FCE of Rs 1.3 billion. Param's WACC is 11 percent, and its required rate of return for equity is 13 percent. FCF is expected to grow forever at 7 percent, and FCE is expected to grow forever at 7.5 percent. Param have debt outstanding of Rs 15 billion.
A. What is the total value of Param's equity using the FCFF valuation approach?
B. What is the total value of Param's equity using the FCFE valuation approach? (CO 1)

OR

2b. Why might discounted cash flow valuation be difficult to do for the following types of firms?
A. A cyclical firm, during a recession.
B. A troubled firm, which has made significant losses and is not expected to get out of trouble for a few years.
C. A firm, which is in the process of restructuring, where it is selling some of its assets and changing its financial mix.   (CO 1)

3a. QuickGros, which owns and operates grocery stores across the United States, currently has $50 million in debt and $100 million in equity outstanding. Its stock has a beta of 1.2. It is planning a leveraged buyout (LBO), where it will increase its debt-to-equity ratio of 8. If the tax rate is 40%, what will the beta of the equity in the firm be after the LBO?   (CO 2)

OR

3b. You observe market beat of X ltd. a ceramic company as 1.38 on the basis of last 36 monthly observations. Relevant industry data follows:

Company	Market Beta	D/E Ratio
A Ltd.	.9	0.5
B Ltd.	1.1	0.7
C Ltd.	1.2	1.2
D Ltd.	1.0	0.9
X Ltd.	1.38	1.1

10-year Government bond yield is 9% nowadays. X Ltd. has a credit rating of AA and current spread is 200 basis points. Company has total Rs. 500 million debt on its books. Expected equity risk premium is 8%. Marginal tax rate is 30%.
Calculate the discount rate for the valuation purposes.   (CO 2)

4a. Continental Banks has a required rate of return of 14%. The current book value is Rs 13. Earnings forecasts for 2009, 2010, and 2011 are Rs 2.20, 2.00, and 2.20, respectively. Dividends in 2009 and 2010 are forecasted to be Rs 1 and 1.20, respectively. The dividend in 2011 is a liquidating dividend, which means that Continental will pay out its entire book value in dividends and cease doing business at the end of 2011. Calculate the value of Continental's stock using the residual income model. (CO 4)

OR

4b. MetaMagic Co (MMC) is considering whether to undertake the development of a new computer game based on an adventure film due to be released in 22 months. It is expected that the game will be available to buy two months after the film's release, by which time it will be possible to judge the popularity of the film with a high degree of certainty. However, at present, there is considerable uncertainty about whether the film, and therefore the game, is likely to be successful. Although MMC would pay for the exclusive rights to develop and sell the game now, the directors are of the opinion that they should delay the decision to produce and market the game until the film has been released and the game is available for sale.
MMC has forecast the following end of year cash flows for the four-year sales period of the game.

Year	1	2	3	4
Cash flows (INR million)	25	18	10	5

MMC will spend INR 7 million at the start of each of the next two years to develop the game, the gaming platform, and to pay for the exclusive rights to develop and sell the game. Following this, the company will require INR 35 million for production, distribution and marketing costs at the start of the four-year sales period of the game.
It can be assumed that all the costs and revenues include inflation. The relevant cost of capital for this project is 11% and the risk free rate is 3·5%. MMC has estimated the likely volatility of the cash flows at a standard deviation of 30%. Use $d_1 = 0.6170$ and $d_2 = 0.1927$
Estimate the financial impact of the directors' decision to delay the production and marketing of the game. (CO 4)

Section B

5. The board of directors of Indigo Ltd is not happy with the current stock price of the company and thinks that the market is not valuing the shares properly. They have requested the production of a four-year financial plan. The key assumptions behind the plan are:
(i) Historically, sales growth has been 9% per year. Uncertainty about future economic prospects over the next four years from 2005–2008 however implies that this growth rate will reduce by 1% each year after the financial year 2005 (e.g. to 8% in 2006 and so on). After four years, growth is expected to remain constant at the 2008 rate.
(ii) Cash operating costs are estimated to be approximately 68% of sales.
(iii) Depreciation for the past few years has been approximately 15% of the net book value of plant and machinery at previous year end.
(iv) Inventories, receivables, cash in hand and "other payables" are assumed to increase in proportion to the increase in sales.
(v) Net book value of, plant and machinery is expected to increase in line with sales. No investment is planned in other fixed assets other than a refurbishment of buildings at an estimated cost of Rs 40 million in late 2007.
(vi) Any change in interest paid as a result of changes in borrowing may be assumed to be effective in the next year. Indigo plans to meet any changes in financing needs, with the exception of the repayment of the fixed rate loan, by adjusting its overdraft.

(vii) Indigo currently pays 7% per annum interest on its short-term borrowing.
(viii) Corporation tax is expected to continue at its present rate over the next four years.
(ix) For the last few years the company's dividend policy has been to pay a constant percentage of earnings after tax. No changes in this policy are planned.

Income Statement for the year ended March 2004

	Rs million
Turnover	1,639
Operating costs before depreciation	(1,225)
	———
EBITDA	414
Tax allowable depreciation	(152)
	———
EBIT	262
Net interest payable	(57)
	———
Profit on ordinary activities before tax	205
Tax on ordinary activities (30%)	(62)
Dividends	(80)
Amount transferred to reserves	63

Statement of Financial Position as at 31 March 2004

		Rs million
Fixed assets		
Land and buildings	342	
Plant and machinery (net)	1,012	1,354
		———
Current assets		
Inventories	448	
Receivables	564	
Cash in hand and short-term deposits	20	1,032
		———
Current liabilities:		
Short term loans and overdrafts	230	
Other payables	472	(702)
		———
Non-current liabilities:		
Borrowings (8% fixed rate)		(580)
		———
		1,104
Capital and reserves		
Share capital (Rs 1 per share)		240
Reserves		864
		———
		1,104
		———

The company's current share price Rs 21 and its weighted average cost of capital is 10%.

Write the amount in absolute figures. For the sake of simplicity assume change in net working capital as 'Change in Total Current Assets minus Total Change in Current Liabilities'.

Required:
Using free cash flow analysis, evaluate and discuss whether or not the Board of Directors' claim is correct. (CO 1,2)

Present Value Table

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

Where   r = discount rate

           n = number of periods until payment

Discount rate (r)

Periods (n)	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. $\dfrac{1-(1+r)^{-n}}{r}$

Where   r = discount rate

        n = number of periods

Discount rate (r)

Periods (n)	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

Standard normal distribution table

	0·00	0·01	0·02	0·03	0·04	0·05	0·06	0·07	0·08	0·09
0·0	0·0000	0·0040	0·0080	0·0120	0·0160	0·0199	0·0239	0·0279	0·0319	0·0359
0·1	0·0398	0·0438	0·0478	0·0517	0·0557	0·0596	0·0636	0·0675	0·0714	0·0753
0·2	0·0793	0·0832	0·0871	0·0910	0·0948	0·0987	0·1026	0·1064	0·1103	0·1141
0·3	0·1179	0·1217	0·1255	0·1293	0·1331	0·1368	0·1406	0·1443	0·1480	0·1517
0·4	0·1554	0·1591	0·1628	0·1664	0·1700	0·1736	0·1772	0·1808	0·1844	0·1879
0·5	0·1915	0·1950	0·1985	0·2019	0·2054	0·2088	0·2123	0·2157	0·2190	0·2224
0·6	0·2257	0·2291	0·2324	0·2357	0·2389	0·2422	0·2454	0·2486	0·2517	0·2549
0·7	0·2580	0·2611	0·2642	0·2673	0·2704	0·2734	0·2764	0·2794	0·2823	0·2852
0·8	0·2881	0·2910	0·2939	0·2967	0·2995	0·3023	0·3051	0·3078	0·3106	0·3133
0·9	0·3159	0·3186	0·3212	0·3238	0·3264	0·3289	0·3315	0·3340	0·3365	0·3389
1·0	0·3413	0·3438	0·3461	0·3485	0·3508	0·3531	0·3554	0·3577	0·3599	0·3621
1·1	0·3643	0·3665	0·3686	0·3708	0·3729	0·3749	0·3770	0·3790	0·3810	0·3830
1·2	0·3849	0·3869	0·3888	0·3907	0·3925	0·3944	0·3962	0·3980	0·3997	0·4015
1·3	0·4032	0·4049	0·4066	0·4082	0·4099	0·4115	0·4131	0·4147	0·4162	0·4177
1·4	0·4192	0·4207	0·4222	0·4236	0·4251	0·4265	0·4279	0·4292	0·4306	0·4319
1·5	0·4332	0·4345	0·4357	0·4370	0·4382	0·4394	0·4406	0·4418	0·4429	0·4441
1·6	0·4452	0·4463	0·4474	0·4484	0·4495	0·4505	0·4515	0·4525	0·4535	0·4545
1·7	0·4554	0·4564	0·4573	0·4582	0·4591	0·4599	0·4608	0·4616	0·4625	0·4633
1·8	0·4641	0·4649	0·4656	0·4664	0·4671	0·4678	0·4686	0·4693	0·4699	0·4706
1·9	0·4713	0·4719	0·4726	0·4732	0·4738	0·4744	0·4750	0·4756	0·4761	0·4767
2·0	0·4772	0·4778	0·4783	0·4788	0·4793	0·4798	0·4803	0·4808	0·4812	0·4817
2·1	0·4821	0·4826	0·4830	0·4834	0·4838	0·4842	0·4846	0·4850	0·4854	0·4857
2·2	0·4861	0·4864	0·4868	0·4871	0·4875	0·4878	0·4881	0·4884	0·4887	0·4890
2·3	0·4893	0·4896	0·4898	0·4901	0·4904	0·4906	0·4909	0·4911	0·4913	0·4916
2·4	0·4918	0·4920	0·4922	0·4925	0·4927	0·4929	0·4931	0·4932	0·4934	0·4936
2·5	0·4938	0·4940	0·4941	0·4943	0·4945	0·4946	0·4948	0·4949	0·4951	0·4952
2·6	0·4953	0·4955	0·4956	0·4957	0·4959	0·4960	0·4961	0·4962	0·4963	0·4964
2·7	0·4965	0·4966	0·4967	0·4968	0·4969	0·4970	0·4971	0·4972	0·4973	0·4974
2·8	0·4974	0·4975	0·4976	0·4977	0·4977	0·4978	0·4979	0·4979	0·4980	0·4981
2·9	0·4981	0·4982	0·4982	0·4983	0·4984	0·4984	0·4985	0·4985	0·4986	0·4986
3·0	0·4987	0·4987	0·4987	0·4988	0·4988	0·4989	0·4989	0·4989	0·4990	0·4990

This table can be used to calculate $N(d)$, the cumulative normal distribution functions needed for the Black-Scholes model of option pricing. If $d_i > 0$, add 0·5 to the relevant number above. If $d_i < 0$, subtract the relevant number above from 0·5.

End of Question Paper