Taxation - Debt MF Dividend RI: Pramod redeemed entire units of debt oriented mutual fund on 31 December 2011 at Rs 22.16. He originally purchased 3500 units at Rs 18.27 during 2007-08 .He received dividends of 18% 20% 18% 17% in this period. He reinvested the same by Rs 19.15, Rs 20.06, Rs 21.11, Rs 21.81 at last business day of November 08 to 11.Compute his taxable income for this transaction. CII 07-08 551, 08-09 582, 09-10 632, 10-11 711, 11-12 785.

Solution:

		(A)	(B)			(C)	(D)		(A+D)			
	Year	Units	Rate	Amount		Rate Div.	Div. units		Cum. Units	CII	Indexed cost	
Initial investment	2007-08	3,500.000	18.27	63,945.00	(A x B)				3,500.000	551	91,101.32	63945*785/551
Dividend Nov08	2008-09	3,500.000	19.15	6,300.00	(A x C)	1.80	328.982	(A x C)/B	3,828.982	582	8,497.42	6300*785/582
Dividend Nov09	2009-10	3,828.982	20.06	7,657.96		2.00	381.753		4,210.735	632	9,511.87	7657.96*785/632
Dividend Nov10	20010-11	4,210.735	21.11	7,579.32		1.80	359.039		4,569.774	711	8,368.17	7579.32*785/711
Dividend Nov11	20011-12	4,569.774	21.81	7,768.62		1.70	356.195		4,925.969	785		
											117,478.78	Sum:(91101.....8368.)
Sale proceeds on 31st Dec.,2011 (2011-12)			22.16	109,159.48	4925.969*22.16							

All investments except last dividend reinvested would qualify for LTCG

Sale proceeds to be considered for LTCG	101,266.19	4569.774*22.16
Total indexed cost for LTCG	117,478.78	
Long term capital loss	(16,212.58)	Available for set off against similarly eligible long term capital gains or for carrying forward up to 8 years.
Sale proceeds to be considered for STCG	7,893.28	356.195*22.16
Cost to be considered for STCG	7,768.62	
STCG	**124.67**	

RETIREMENT-1: You advise your client aged 31 years to accumulate corpus of for retirement. The client already has in Balanced MF scheme Rs. 1.60 lakh which you advise to extend to achieve this goal. You advise him to start SIP of Rs. 5,000 every month till his age of 35 years, thereafter increase the same to Rs. 7,500 p.m. till his age 40 years, Rs. 10,000 p.m. between 40 – 50 years, and Rs. 15,000 p.m. between 50 – 56 years. You advise him to switch 25% of outstanding Balanced MF portfolio every year to Liquid schemes from age 57 until full redemption on retirement at age 60. How much of the retirement corpus would he be able to accumulate? (Rate of return Balanced MF 9% p.a., Liquid MF 5.5% p.a.)

Solution:

Amount outstanding as on 01.04.2010 in Balanced MF sch.	160,000	Rs	
Rate of Return of Balanced MF scheme	9.00%	% p.a.	
Rate of Return of Balanced MF scheme	0.7207%	% p.m. effective	(1+9%)^(1/12)-1
Balance at the end of age 35	513,441	Rs	FV(0.7207%,12*4,-5000,-160000,1)
Balance at the end of age 40	1,354,529	Rs	FV(0.7207%,5*12,-7500,-513441,1)
Balance at the end of age 50	5,117,523	Rs	FV(0.7207%,10*12,-10000,-1354529,1)
Balance at the end of age 56	10,001,947	Rs	FV(0.7207%,6*12,-15000,-5117523,1)
Balance at the end of age 57	10,902,122	Rs	10001947*(1+9%)
One-fourth is redeemed and invested in Liquid sch. At this stage , i.e. at 57 years			
Balance at the end of age 58 years in Liquid scheme	2,875,435	Rs	(10902122/4)*(1+5.5%)
Balance at the end of age 58 years in Balanced scheme	8,912,485	Rs	(10902122*3/4)*(1+9%)
Balance at the end of age 59 years in Liquid scheme	5,384,251	Rs	(2875435+8912485/4)*(1+5.5%)
Balance at the end of age 59 years in Balanced scheme	7,285,956	Rs	(8912485*3/4)*(1+9%)
Balance at the end of age 60 years in Liquid scheme	7,602,056	Rs	(5384251+7285956/4)*(1+5.5%)
Balance at the end of age 60 years in Balanced scheme	5,956,269	Rs	(7285956*3/4)*(1+9%)
Balance for retirement funds at age 60	**13,558,325**		7602056+5956269

RETIREMENT-2: Your client aged 34 now requires at his retirement age of 60 years a corpus to sustain an annuity of Rs. 55,000 p.m. (current cost) inflation linked for a post-retirement life of 25 years up to which he expects to live. You estimate that his goal would be achieved by investing corpus at a return of 8%. Your client apprises you that he would additionally like to start a Trust with a donation of Rs. 1 crore (value then) on his reaching age 70 years and would bequeath posthumously a further amount of Rs. 1 crore (value then) for his son. He asks you whether this arrangement would be feasible by taking a little more risk while investing the retirement corpus. You estimate by taking 1% additional return than envisaged and opine that _____. (Consider inflation at 5.5%)

Solution:				Goal Seek -1	Goal Seek -2
Expense requirement after retirement, inflation-linked	55,000	Rs. p. m.		55,000	55,000
Rate of return	8.00%	p.a.		8.00%	8.00%
Inflation rate	5.50%	p.a.		5.50%	5.50%
Inflation adjusted rate of return	2.3697%	p.a.	(1+8%)/(1+5.5%)-1	2.3697%	2.3697%
Monthly effective real rate of return	0.1954%	p.m.	(1+2.3697%)^(1/12)-1	0.1954%	0.1954%
Current age of client	34	years		34	34
Retirement age	60	years		60	60
Life expectancy	85	years		85	85
Required for expenses in the first month after retirement	221,272	Rs. p. m.	55000*(1+5.5%)^(60-34)	221,272	221,272
Retirement Corpus to be accumulated	50,294,015	Rs.	PV(0.1954%,12*25,-221722,0,1)	50,294,015	50,294,015
Additional 1% return targeted at	9.00%	p.a.	8%+1%	**9.10%**	9.00%
Monthly effective real rate of return	0.2723%	p.m.	((1+9%)/(1+5.5%))^(1/12)-1	0.2803%	0.2723%
Revised corpus needed for expenses	45,440,545	Rs.	PV(0.2723,12*(85-60),-221272,0,1	44,977,554	45,440,545
Additional corpus (each) provisioned	10,000,000	Rs.		10,000,000	**9,014,975**
Additional corpus for Rs. 1 crore at 70 years	4,224,108	Rs.	10000000/(1+9%)^10	4,184,069	3,808,023
Additional corpus for Rs. 1 crore at 85 years	1,159,678	Rs.	10000000/(1+9%)^25	1,132,393	1,045,447
Revised corpus needed to meet goals	50,824,331	Rs.	45440545+4224108+1159678	50,294,015	50,294,015
Additional funds required at retirement to fund post-retirement goals	**530,316**	Rs.	50824331-50294015	**0**	**0**
Alternately, if the additional funds are not arranged, the shortfall expected in bequeathing to son would be	**4,572,959**	Rs.	530316/(1.09)^25		

Further, questions can be framed as:

1. What return should be aimed at to achieve the goals?   **9.10%** p.a.   (By employing Goal Seek function)

2. By how much the additional goals should be moderated in order to achieve them by taking risk of just 1% extra return?   **90,14,975** Rs. (Goal Seek)

ACCUMULATION/SWITCHES-1: The higher education costs per annum are Rs. 3 lakh at present costs. The costs are escalating @9% per annum. Mr. A estimates for his son that such funds would be required for 5 years after 6 years from now. He starts accumulating funds immediately in a systematic manner every month in an equity mutual fund scheme. He would switch equivalent funds required for a particular year to liquid mutual fund scheme one year in advance. The funds would continue to be accumulated for a period up to the last switch to liquid fund. What should be the SIP amount in the equity growth fund? (Take expected return from equity growth funds @12% p.a. and from liquid fund @6% p.a.)

Solution:

As the funds for higher educatiuon are required for 5 consecutive years after 6 years and the requisite funds for a particular year are transferred one year prior in the liquid fund, the funds transferred from equity to liquid would be in 5,6,7,8 and 9 years from now. Thus, the accumulation in equity would be for 9 years, i.e. up to last switch.

Rs. 3 lakh required after 6 years at 9% cost escalation	503,130	Rs.	300000*(1+9%)^6
Amount transferred to Liquid fund from equity fund a year prior, i.e. year 5	474,651	Rs.	503130/(1+6%)
PV of such funds now if accumulated in an equity fund	269,330	Rs.	474651/(1+12%)^5
Rs. 3 lakh required after 7 years at 9% cost escalation	548,412	Rs.	300000*(1+9%)^7
Amount transferred to Liquid fund from equity fund a year prior, i.e. year 6	517,370	Rs.	548412/(1+6%)
PV of such funds now if accumulated in an equity fund	262,116	Rs.	517370/(1+12%)^6
Rs. 3 lakh required after 8 years at 9% cost escalation	597,769	Rs.	300000*(1+9%)^8
Amount transferred to Liquid fund from equity fund a year prior, i.e. year 7	563,933	Rs.	597769/(1+6%)
PV of such funds now if accumulated in an equity fund	255,095	Rs.	563933/(1+12%)^7
Rs. 3 lakh required after 9 years at 9% cost escalation	651,568	Rs.	300000*(1+9%)^9
Amount transferred to Liquid fund from equity fund a year prior, i.e. year 8	614,687	Rs.	651568/(1+6%)
PV of such funds now if accumulated in an equity fund	248,262	Rs.	614687/(1.12)^8
Rs. 3 lakh required after 10 years at 9% cost escalation	710,209	Rs.	300000*(1+9%)^10
Amount transferred to Liquid fund from equity fund a year prior, i.e. year 9	670,009	Rs.	670009/(1+6%)
PV of such funds now if accumulated in an equity fund	241,612	Rs.	670009/(1+12%)^9
PV of total funds required to be accumulated	1,276,413	Rs.	269330+262116+255095+248262+241612
SIP for 9 years to accumulate this amount	**18,764**	Rs.	PMT(1.12^(1/12)-1,12*9,-1276413,0,1)

ACCUMULATION/SWITCHES-2: For his son's higher education after 15 years, a client estimates a lump sum required of Rs. 50 lakh and a further Rs. 30 lakh for his son's business establishment 3 years later. You devise an investment strategy whereby equivalent funds are available in liquid scheme after 15 years. This involves starting a SIP in equity schemes immediately, increasing such investment by 20% after every three-year period and thus continuing for a total 12 years. At the end of 12 years, 30% of the outstanding equity fund corpus every year is redeemed and invested in liquid funds until entire equity fund is redeemed after 15 years. What Equity SIP amount is required immediately? If a stress test is applied for 2% reduction in equity returns and 1% reduction in liquid returns, by what percentage equity SIP amount should be stepped up in every three-year span? (Assume returns from equity funds and liquid funds in the first analysis to be 12% and 6%, respectively.

Solution:			Stress Test
Return assumed on Index Equity Fund	12.00%		10.00%
Return assumed on Liquid Fund	6.00%		5.00%
Amount required in liquid fund scheme after 15 years	5,000,000		5,000,000
PV of Rs. 30 lakh required 3 years' later in liquid funds	2,518,858	3000000/(1+6%)^3	2,591,513
Funds required in Liquid funds after 15 years	7,518,858	5000000+2518858	7,591,513
Equity SIP to be stepped up by	20.00%		35.07%
Let the Equity SIP is started at Rs. 100			
Corpus accumulated in Equity Index Fund after 3 years	4,308	FV((1+12%)^(1/12)-1,3*12,-100,0,1)	4,184
Corpus accumulated in Equity Index Fund after 6 years	11,222	FV((1+12%)^(1/12)-1,3*12,-100*(1+20%),-4308,1)	11,220
Corpus accumulated in Equity Index Fund after 9 years	21,969	FV((1+12%)^(1/12)-1,3*12,-100*(1+20%)^2,-11222,1)	22,567
Corpus accumulated in Equity Index Fund after 12 years	38,309	FV((1+12%)^(1/12)-1,3*12,-100*(1+20%)^3,-21969,1)	40,346
Redeemed from Index Fund and invested in Liquid - 12 yrs.	11,493	38309*0.3	12,104
Outstanding Corpus in Equity Index Fund - 12 years	26,817	38309-11493	28,242
Funds available in Liquid - 13 yrs.	21,193	11493*(1+6%)+26817*(1+12%)*0.3	22,029
Outstanding Corpus in Equity Index Fund - 13 years	21,024	26817*(1+12%)*0.7	21,747
Funds available in Liquid - 14 yrs.	29,528	21193*(1+6%)+21024*(1+12%)*0.3	30,307
Outstanding Corpus in Equity Index Fund - 14 years	16,483	21024*(1+12%)*0.7	16,745
Funds available in Liquid - 15 yrs.	49,761	29528*(1+6%)+16483*(1+12%)	50,242
Hence, Equity SIP	**15,110**	(7518858/49761)*100	**15,110**

Stress Test: Goal Seek function under "What If Analysis" or Trial & Error method to change percentage rise so that the same starting SIP is reached.

LIFE INSURANCE COVER: You estimate life cover for your client who is 32 years old, has Rs. 25 lakh in loan liabilities, has a non-working spouse of age 30 and children of age 7 years and 5 years. Additionally, the client wants higher education for each of his children Rs. 30 lakh after 15 years and marriage expenses of Rs. 15 lakh after 20 years. Both are considerd at current costs. Their present household expenses are Rs. 50,000 per month which includes housing loan EMI of Rs. 15,000. The client consumes per month Rs. 8,000 on self. You additionally provide for 30 years' living expenses after the spouse's age of 55 considering she would require only 60% of expenses thereafter. He has an insurance cover of Rs. 40 lakh presently and his financial investments are Rs. 15 lakh. The additional quantum of life insurance cover is _____. (Assumes that all expenses required are inflation adjusted at average inflation of 5% and the claim amount invested to yield 8% p.a.)

Solution	Rate of return from investments	8.00%	p.a.	
		0.6434%	p.m.	(1+8%)^(1/12)-1
	Rate of inflation	5.00%	p.a.	
		0.4074%	p.m.	(1+5%)^(1/12)-1
	Real rate of return	0.2350%	p.m.	(1+0.6434%)/(1+0.4074%)-1

The ideal insurance cover at this stage should take care of:

1	Outstandinf loan liabilities	2,500,000	Rs. (1)	
2	Higher Education expenses	3,932,189	Rs. (2)	((3000000*1.05^15)/1.08^15)*2
3	Marriage expenses	1,707,781	Rs. (3)	((1500000*1.05^20)/1.08^20)*2
4	Living expenses for family until spouse's age of 55			
	Net expenses to be covered	27,000	Rs. p.m.	
	Number of years	25	years	
		300	months	25*12
	PV of living expenses till spouse's age of 55	5,821,067	Rs. (4)	PV(0.2350%,300,-27000,0,1)
5	Living expenses for spouse after her age of 55 years			
	Net expenses to be covered	54,859	Rs. p.m.	(27000*1.05^25)*0.6
	Number of years	30	years	
		360	months	30*12
	PV of living expenses till spouse's age at 55 for 30 years	13,347,236	Rs. (5)	PV(0.2350%,360,-54859,0,1)
	PV of such expense now	1,948,935		13347236/(1.08)^25
	Insurance cover	15,909,972	Rs. (1 to 5)	2500000+3932189+1707781+5821067+13347236
	Present insurance cover	4,000,000	Rs.	
	Investments accumulated	1,500,000	Rs.	
	Additional insurance cover required now	**10,409,972**	Rs.	15909972-4000000-1500000