

Case: Urvashi

1) **A)**

2) **A)**

3) **A)**

Amount of Housing Loan	6,000,000	
Rate of interest	10.00%	
Tenure	180 months	
EMI	64,476	$PMT(10\%/12,180,-600000,0,0)$
Rental outgo p.m.	50,000	
Present outflows:	90,000	$50000+25000+15000$
Existing SIP in Equity Fund	25,000	
Existing SIP in Balanced Fund	15,000	
Excess of EMI over Rental	14,476	$64476-50000$
Proportionate reduction in Equity SIP	<b>9,048</b>	$14476*25000/(25000+15000)$
Proportionate reduction in Balanced SIP	<b>5,429</b>	$14476*15000/(25000+15000)$
	14,476	$9048+5429$
Future Outflows:	90,000	$64476+(25000-9048)+(15000-5429)$

4) **A)**

5) **A)**

6) **A)**

7)

A)

Interest  
compounding  
effective

8% p.a.  
6 months  
8.16% p.a.

1	-50000			
2	-50000			
3	-50000			
4	-50000			
5	-50000			
6	-50000			
7	-130,000	$\text{ROUNDDOWN}(\text{FV}(4\%,12,0,50000,0)-50000,-2)$	Investment in PO NSC	
8	-130,000			
9	-130,000			
10	-130,000			
11	-130,000			
12	-130,000			
13	-258,100	$\text{ROUNDDOWN}(\text{FV}(4\%,12,0,130000,0)-50000,-2)$		investment in Liquid MF
14	-258,100			
15	-258,100			
16	-258,100			
17	-258,100			
18	-258,100			
19	-463,200	$\text{ROUNDDOWN}(\text{FV}(4\%,12,0,-258100,0)-50000,-2)$	Value at the time of Retirement	
20	-463,200			
21	-413,226	$\text{FV}(4\%,12,0,258100,0)$		
22	-413,226			
23	-413,226			
24	-413,226			
25	-741,598	$\text{FV}(4\%,12,0,463200,0)$		
26	-741,598			
	569,774	$\text{FV}(5.5\%,6,0,413226,0)$		
	540,070	$\text{FV}(5.5\%,5,0,413226,0)$		
	511,915	$\text{FV}(5.5\%,4,0,413226,0)$		
	485,228	$\text{FV}(5.5\%,3,0,413226,0)$		
	825,417	$\text{FV}(5.5\%,2,0,741598,0)$		
	782,386	$\text{FV}(5.5\%,1,0,741598,0)$		
	<b>3,714,791</b>		Total value at the time of Retirement	

8) **A)**

Amount shifted to Debt Scheme	1,500,000	
Balance in Equity scheme	1,745,000	$3245000-1500000$
Amount required in the first month of retirement	384,779	$125000*1.055^{21}$
Corpus to be accumulated to sustain 25 years at inflation-linked withdrawal from investment in risk free instruments	92194311	$PV((1.075/1.055)^{(1/12)}-1,25*12,-384779,0,1)$
Rate of return in Debt schemes	7%	p.a. 0.5654% p.m.
Rate of return in Equity schemes	11%	p.a. 0.8735% p.m.
Accumulation of current PV in Debt scheme in 21 years	6,210,844	$1500000*(1+7\%)^{21}$
Accumulation of current PV in Equity scheme in 21 years	15616294	$1745000*(1+11\%)^{21}$
Balance to be accumulated through SIPs	70367173	$92194311-15616294-6210844$
Let the investment be of Rs. 60 in Debt and of Rs. 40 in Equity schemes		
Fresh Accumulation in Debt Schemes in 21 years	33,515	$FV(0.5654\%,21*12,-60,0,1)$
Fresh Accumulation in Equity Schemes in 21 years	36,721	$FV(0.8735\%,21*12,-40,0,1)$
Total fresh accumulation through SIPs	70,236	$33515+36721$
Thus, Rs. 100 invested through SIPs is equivalent to	100,186	$70367173*100/70236$
Investment in Debt MF scheme	<b>60,112</b>	$100186*0.6$
Investment in Equity MF scheme	<b>40,075</b>	$100186*0.4$

9) **A)**

The rate to be targeted	11% p.a.	r
Fund Management Expenses applied over the year	2.25% p.a.	
The Gross return R per annum to be produced by the Fund to return a rate of r per annum		$r = [(1+R)/(1+e)]-1$
Therefore, the Gross Rate to be produced by Fund	<b>13.50%</b>	$(1+11\%)*(1+2.25\%)-1$

10) **A)**

Dates	Dividends Received	NAV	Units Purchased
2-May-2004	-300,000	12.58	23,847.377
18-Aug-2004	28,616.85	12.95	
20-Nov-2005	28,616.85	13.05	
15-Apr-2007	28,616.85	13.99	
16-Jun-2008	28,616.85	14.68	
2-Apr-2010	397,774.24	16.68	
Rate of Return	<b>11.48%</b>	XIRR	

11)

A)

PPF A/c balance as on March 31 2010		659,000		
Amount invested every year		70,000		
		Balance	Interest	Total
	31-Mar-2010			659,000
1	1-Apr-2010	729,000	58,320	787,320
2	1-Apr-2011	857,320	68,586	925,906
3	1-Apr-2012	995,906	79,672	1,075,578
4	1-Apr-2013	1,145,578	91,646	1,237,224
5	1-Apr-2014	1,307,224	104,578	1,411,802
6	1-Apr-2015	1,481,802	118,544	1,600,346
7	1-Apr-2016	1,670,346	133,628	1,803,974
8	1-Apr-2017	1,873,974	149,918	2,023,892
9	1-Apr-2018	2,093,892	167,511	2,261,403
10	1-Apr-2019	2,331,403	186,512	2,517,916
11	1-Apr-2020	2,587,916	207,033	2,794,949
12	1-Apr-2021	2,794,949		

Amount required for the world tour after 11 years	1,441,674	$FV(5.5\%, 11, 0, -800000, 0)$
Amount utilized half of PPF maturity proceeds as extended	1,397,474	$2794949/2$
Shortfall in amount required	(44,199)	$1397474 - 1441674$

12)

A)

present age	12 years	
marriage at age	24 years	
present cost	1500000	
cost then	2851811	$((1.055)^{12}) * 1500000$
Equity	11% p.a.	0.8735% p.m.
Debt	7% p.a.	0.5654% p.m.

**ASSUMPTIONS**

Suppose she invests Rs. 100 p.m.  
Till the age of 19 years

Debt:Equity	30 : 70	Debt	Equity
Accumulations till age 19		3,232.35	8,699.80
Appreciation of accumulation till 24		4,533.54	14,659.66
Total			19,193

Till the age of 24 years

Debt:Equity	60 : 40	Debt	Equity
Accumulations after age 19, till 24		4,295.90	3,164.62
at age 24			7,460.53
Total accumulation at age 24	Total		26,654

If by investing Rs. 100 p.m. she gets Rs. 26654 so to get Rs. 2851811 she needs to invest

The amount required for both of her childrens' Marriage

10700	$100 * 2851811 / 26654$
21400	$10700 * 2$

13) A)

14) A)

15) A)

Purchase Cost of the Shares	22500	$45 \times 500$
Sales Consideration from Shares	37500	$75 \times 500$
Indexed Cost of acquisition	31812	$22500 \times 632/447$
Capital Gain	5688	$37500 - 31812$
Tax Liability	<b>1138</b>	$20\% \times 5688$