Solutions: Case 2 (Urvashi)

Q1 **B) Disclose any conflict(s) of interest and how they impact your recommendations.**

Q2 **C) To comply with the 6-step financial planning process, the review being the last step.**

Q3 **D) Rs. 60,703**

(Solution given below)

Current value of the desired house	12,500,000	Rs.	
Expected value of house after 3 years considering 6.5% appreciation	15,099,370	Rs.	12500000*(1+6.5%)^3
Amount of loan to be availed	10,569,559	Rs.	15099370*70%
Tenure of loan = (Urvashi's retirement age - age when loan availed)	18	years	55-37
Rate of interest on housing loan	8.50%	p.a.	
EMI on the housing loan	95,703	Rs.	PMT(8.5%/12,18*12,-10569559,0,0)
Current rental outgo	35,000	Rs. p.m.	
EMI in excess of current house rent	60,703	Rs. p.m.	95703-35000

Q4 **A) Urvashi needs to take cover against disability and critical illness as she is the only earner in the family; other risks are well covered.**

Q5 **B) Rs. 37 lakh**

(Solution given below)

Annual Living expenses required in current terms	1,000,000	Rs. p.a.	
Inflation rate	8.00%	p.a.	
Return on Debt instruments	7.50%	p.a.	
Current age of younger child Dhruvi	9	years	
No. of years expenses required (till her 27 years of age)	18	years	
Corpus required today towards living and eduction expenses	18,729,593	Rs.	PV((1+7.5%)/(1+8%)-1,18,-1000000,0,1)
Current insurance cover	15,000,000	Rs.	
Additional insurance cover required	**3,729,593**	Rs.	18729593-15000000

Q6	**D) Rs. 2.27 crore**			
	(Solution given below)			
	Current sustenance amount	1,500,000	Rs.	
	Increment desired in the annual sustenance amount	5.00%	p.a.	
	Investment Yield from mix of debt instruments	7.50%	p.a.	
	Current age of Suryansh	14	years	
	Current age of Dhruvi	9	years	
	Number of years until Suryansh is 30, when such full amount would be needed	16	years	30-14
	Present value of full sustenance amount in debt instruments for 16 years	20,235,754	Rs.	PV((1+7.5%)/(1+5%)-1,16,-1500000,0,1)
	Remaining years when half such sustenance amount would be needed for Dhruvi	5	years	
	Present value of half sustenance amount in debt for 5 more years after 16 years	2,456,556	Rs.	PV((1+7.5%)/(1+5%)-1,5,-1500000*(1+5%)^16/2,0,1)/(1+7.5%)^16
	Total amount of ideal insurance cover thus estimated is:	22,692,310	Rs.	20235754+2456556
Q7	**B) Rs. 4.12 crore**			
	(Solution given below)			
	Urvashi's current Age	34	yrs	
	Urvashi's retirement Age	55	yrs	
	Urvashi's Life expectancy	85	yrs	
	Current expenses to be considered through retirement	100,000	Rs. p.m.	
	Inflation considered	4.50%	p.a,	
	Annuity returns	6.00%	p.a,	
	Post retirement period after 55 years	30	years	C48-C47
	Corpus required for this annuity income at retirement age	73,868,937	Rs.	PV(((1+6%)/(1+4.5%))^(1/12)-1,30*12,-100000*(1+4.5%)^21,0,1)
	Funds required to buy a 10-year deferred annuity of yield 6% p.a.	**41,248,029**	Rs.	73868937/(1+6%)^10

Q8 **C) Rs. 1.50 crore**

(Solution given below)

Retirement income considered in current terms	1,200,000	Rs. p.a.	12*100000
Inflation expected throughout	4.50%	p.a.	
Urvashi's working years (retirement at 55, current age 34)	21	yrs	
Living expenses needed on retirement	3,024,289	Rs. p.a.	1200000*(1+4.5%)^21
No. of years retirement income stream required (up to age 85)	30	yrs	
Yield of investment instruments post retirement	6.50%	p.a.	
Retirement Corpus required at age 55 of Urvashi	69,854,203	Rs.	PV((1+6.5%)/(1+4.5%)-1,30,-3024289,0,1)
Accumulation:			
NPS account current balance	2,187,000	Rs.	
Total contributions in the current year	500,000	Rs.	2*250000
Rate of return expected upto retorement (21 years)	7.50%	p.a.	
Increment expected year-on-year in NPS contributions	5.00%		
Value of NPS account on retirement age	45,596,351	Rs.	2187000*(1+7.5%)^21+500000*((1+7.5%)^21-(1+5%)^21)/(7.5%-5%)
PPF Balance at age 34 (initial maturity in 11 years)	659,000	Rs.	
Total contributions till Urvashi's age 55 (after 2 extension blocks of 5 years each)	21		11+5+5
Annual contributions starting immediately	150,000	Rs.	
Average rate of return considered from PPF	6.50%	p.a.	
Value of PPF account on retirement age	9,238,263	Rs.	FV(6.5%,21,-150000,-659000,1)
Total accumulation toward retirement corpus	54,834,614	Rs.	45596351+9237263
Excess/(shortfall) in meeting retirement goal	**(15,019,589)**	Rs.	54834614-69854203

Q9 **A) Concentration risk and liquidity risk**

Q10 **B) Rs. 11.16 lakh**

(Solution given below)			
Funds required for each child's marriage at their respective age of 27	1,000,000	Rs.	
Cost escalation for marriage expenses	6%	p.a.	
Return expected from equity portfolio	11%	p.a.	
Suryansh's marriage goal will have then cost after 13 years (he is 14 now)	2,132,928	Rs.	1000000*(1+6%)^13
Value of 3-year, 6.5% p.a. secured debentures to be bought 3 years prior	1,765,743	Rs.	PV(6.5%,3,0,-2132928,0)
PV in equity portfolio required today for this goal (10 years prior)	621,867	Rs. (PV1)	1765743/(1+11%)^10
Dhruvi's marriage goal will have then cost after 18 years (she is 9 now)	2,854,339	Rs.	1000000*(1+6%)^18
Value of 3-year, 6.5% p.a. secured debentures to be bought 3 years prior	2,362,962	Rs.	PV(6.5%,3,0,-2854339,0)
PV in equity portfolio required today for this goal (15 years prior)	493,869	Rs. (PV1)	2362962/(1+11%)^15
Total funds to be carved out from equity potyfolio for the purpose	1,115,737	PV (1+2)	621867+493869

Q11 **C) Rs. 4,37,562**

(Solution given below)			
Current Amount required for vacation today	500,000	Rs.	
Cost escalation for vacation expenses	7%	p.a.	
Vacation to start from December next year; first vacation expense	562,849	Rs.	500000*(1+7%)^1.75
Urvashi is currently 34, vacation starts just before her age 36 and continues until she is 74, i.e. total drawal years from fund	20		
As the vacation is in alternate years, the escalation rate between two successive vacations will be:	14.49%		(1+7%)^2-1
Return from Equity ETF	11.00%	p.a.	
Impact of double year growth in Equity ETFs	23.21%		(1+11%)^2-1
The size of vacation fund required on first withdrawal in Dec next year, considering Equity ETFs	6,120,702	Rs.	PV((1+23.21%)/(1+14.49%)-1,20,-562849,0,1)
PV of these funds when annual contributions start	5,233,796	Rs.	6120702/(1+11%)^1.5
Accumulation:			
Amount earmarked today from demat account, valued at June this year	1,311,782	Rs.	1278000*(1+11%)^(1/4)
Balance funds to be accumulated through annual conributions beginning June this year until retirement, i.e. for 21 years (considering last conribution at age 54)	3,922,014	Rs.	5233796-1311796
Annual contributions required	437,562	Rs.	PMT(11%,21,-3922014,0,1)

Q12 **C) Rs. 27,603**

(Solution given below)

Funds required for each child's professional course at their respective age of 22	2,500,000	Rs.	
Cost escalation for professional course expenses	8%	p.a.	
Combined return expected from strategic theme equity funds	12.50%	p.a.	
Suryansh's professional course will have then cost after 8 years (he is 14 now)	4,627,326	Rs.	2500000*(1+8%)^8
Value to be redeemed and invested in 6.5% p.a. instrument of 3 years duraion	1,915,364	Rs.	(4627325/2)/(1+6.5%)^3
Value to be redeemed and invested in 5% p.a. instrument of 1 years duraion	2,203,488	Rs.	(4627325/2)/(1+5%)
Total funds required in equity schemes today for Suryansh's professional course	2,029,037	Rs. (PV1)	1915363/(1+12.5%)^5+2203488/(1+12.5%)^7
Dhruvi's professional course will have then cost after 13 years (she is 9 now)	6,799,059	Rs.	2500000*(1+8%)^13
Value to be redeemed and invested in 6.5% p.a. instrument of 3 years duraion	2,814,298	Rs.	(6799059/2)/(1+6.5%)^3
Value to be redeemed and invested in 5% p.a. instrument of 1 years duraion	3,237,647	Rs.	(6799059/2)/(1+5%)
Total funds required in equity schemes today for Suryansh's professional course	1,654,422	Rs. (PV2)	2814297/(1+12.5%)^10+3237647/(1+12.5%)^12
Total funds required in equity schemes today for both children's prof. courses	3,683,459	PV (1+2)	2029036+1654421
Funds available today in equity MF schemes rearranged	1,545,000	Rs.	
Balance funds to be accumulated through regular monthly equity investments	2,138,459	Rs.	3683459-1545000
Monthly investment in Equity segments for 12 years	27,603	Rs.	PMT((1+12.5%)^(1/12)-1,12*12,-2138459,0,1)

Q13 **A) Such a Trust shall protect assets transferred and shall manage them as per guidelines issued to the trustee until either or both of her children reach/es a specified age to be defined by Urvashi**

Q14 **B. LTCG tax of Rs. 63898**

(Solution given below)

Acquisition price of unlisted shares (Sept 2014)	75,000	Rs.	7500*10
Transfer price in April 2019	425,000	Rs.	
CII: 2014-15	184		
CII: 2019-20	289		
Indexed cost of acquisition	117,799		75000*289/184
Capital Gains with indexation	307,201		425000-117799
Long Term Capital Gain Tax @20.8%	**63,898**		307201*20.8%

Q15 B) Rs. 30,960

(Solution given below)

Initial investment made on 1st March 2016	100,000	Rs.	
NAV of initial investment	17.521	Rs.	
Units allotted in initial investment	5,707.437	units	100000/17.521
Current fund value	765,000	Rs.	
Total funds invested through SIPs with the last three years	540,000	Rs.	
Current NAV at which the fund is valued	26.238	Rs.	
Value of units redeemed that were allotted in the initial investment (more than 3 years)	149,752	Rs.	5707.437*26.238
Value of units redeemed that were allotted in the SIPs (within last 3 years)	615,248	Rs.	765000-149752
Cost Inflation Index 2015-16	254		
Cost Inflation Index 2019-20	289		
Cost of acquisition of initial investmenmt for long term capital gains	113,780	Rs.	100000*289/254
Long term capital gains	35,972	Rs.	149752-113780
Short term capital gains	75,248	Rs.	615248-540000
Long term capital gains tax	7,482	Rs.	35972*20.8%
Short term capital gains tax	23,477	Rs.	75248*31.2%
Total tax liability on the redemption transaction alone for AY2020-21	**30,960**	Rs.	7482+23477