MUTUAL FUNDS CLASS 2 HOME WORK SUPPORT COVERAGE

Question			Answer			Lecture Time
Q. No	Page no.	Book	Q. No	Page no.	Book	
11	52	HW Q BOOK	11	146	HW ANS BOOK	00:00:32 - 01:01:28
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PART III: VARIOUS TYPES OF PLAN

Topic 12 TYPES OF PLAN

Question 11: SSEI HW Book Page No. 52

Sun Moon Mutual Fund (Approved Mutual Fund) sponsored open-ended equity oriented scheme "Chanakya Opportunity Fund". There were three plans viz. 'A' – Dividend Re- investment Plan, 'B' – Bonus Plan & 'C' – Growth Plan.

At the time of Initial Public Offer on 1.4.2009, Mr. Anand, Mr. Bacchan & Mrs. Charu, three investors invested ₹ 1,00,000 each & chosen 'B', 'C' & 'A' Plan respectively.

The History of the Fund is as follows:

Date	Dividend %	Bonus Ratio	Net Asset Value per Unit (F.V. ₹ 10)		
			Plan A	Plan B	Plan C
28.07.2013	20		30.70	31.40	33.42
31.03.2014	70	5 : 4	58.42	31.05	70.05
31.10.2017	40		42.18	25.02	56.15
15.03.2018	25		46.45	29.10	64.28
31.03.2018		1 : 3	42.18	20.05	60.12
24.03.2019	40	1 : 4	48.10	19.95	72.40
31.07.2019			53.75	22.98	82.07

On 31st July 2019 all three investors redeemed all the balance units.

Calculate:

i. Annual rate of return of Mrs. Charu who has invested in 'A' – Dividend Re-investment Plan.
ii. Annual rate of return of Mr. Anand who has invested in 'B' – Bonus Plan.
iii. Annual rate of return of Mr. Bacchan who has invested 'C' – Growth Plan.

Assumptions:

1. Long-term Capital Gain is exempt from Income tax.
2. Short-term Capital Gain is subject to 10% Income tax.
3. Security Transaction Tax 0.2 per cent only on sale/redemption of units.
4. Ignore Education Cess

(Source: ICAI)

ANSWER:

i. Return of Mrs. Charu invested in Plan A (Dividend Reinvestment)

(Amount in ₹)

Date	*Investment*	*Dividend payout (%)*	*Dividend Re-invested (Closing Units X Face value of '10 X Dividend Payout %)*	*NAV*	*Units*	*Closing Unit Balance ∑ Units*
01.04.2009	1,00,000.00			10.00	10,000.00	10,000.00
28.07.2013		*20*	20,000.00	30.70	651.47	10,651.47
31.03.2014		*70*	74,560.29	58.42	1,276.28	11,927.75
31.10.2017		*40*	47,711.00	42.18	1,131.13	13,058.88
15.03.2018		*25*	32,647.20	46.45	702.85	13,761.73
24.03.2019		40	55,046.92	48.10	1,144.43	14,906.16

Redemption value 14,906.16 × 53.75	8,01,206.10
Less: Security Transaction Tax (STT) is 0.2%	1,602.41
Net amount received	7,99,603.69
Less: Short term capital gain tax @ 10% on 1,144.43 (53.64* – 48.10≈) = 6,340	634
Net of tax	7,98,969.69
Less: Investment	1,00,000.00
	6,98,969.69

*(53.75 – STT @ 0.2%) ≈ This value can also be taken as zero

Annual average return (%) $\frac{6,98,969.69}{1,00,000} \times \frac{12}{124} \times 100 = 67.64\ \%$

ii. Return of Mr. Anand invested in Plan B – (Bonus)

(Amount in ₹)

Date	*Units*	*Bonus units*	*Total Balance*	*NAV per unit*
01.04.2009	10,000		10,000	10
31.03.2014		12,500	22,500	31.05
31.03.2018		7,500	30,000	20.05
24.03.2019		7,500	37,500	19.95

Redemption value 37,500 × 22.98	8,61,750.00
Less: Security Transaction Tax (STT) is 0.2%	1,723.50
Net amount received	8,60,026.50
Less: Short term capital gain tax @ 10%	
7,500 × (22.93† – 19.95) = 22,350	2,235.00
Net of tax	8,57,791.50
Less: Investment	1,00,000.00
Net gain	7,57,791.50

†(22.98 – STT @ 0.2%)

Annual average return (%) $\frac{7,57,791.50}{1,00,000} \times \frac{12}{124} \times 100 = 73.33\ \%$

iii. Return of Mr. Bacchan invested in Plan C – (Growth)

Particulars	*(Amount in ₹)*
Redemption value 10,000 × 82.07	8,20,700.00
Less: Security Transaction Tax (S.T.T) is .2%	1,641.40
Net amount received	8,19,058.60
Less: Short term capital gain tax @ 10%	0.00
Net of tax	8,19,058.60
Less: Investment	1,00,000.00
Net gain	7,19,058.60

Annual average return (%) $\frac{7,19,058}{1,00,000} \times \frac{12}{124} \times 100 = 69.59\ \%$

Note: Alternatively, figure of * and † can be taken as without net of Tax because, as per Proviso 5 of Section 48 of IT Act, no deduction of STT shall be allowed in computation of Capital Gain.

PART II: LOAD AND RETURN CALCULATION

Topic 11 DIRECT INVESTMENT VS INVESTMENT IN MUTUAL FUND

Question 10: SSEI HW Book Page No. 51

Mr. A can earn a return of 16 per cent by investing in equity shares on his own. Now he is considering a recently announced equity based mutual fund scheme in which initial expenses are 5.5 per cent and annual recurring expenses are 1.5 per cent. How much should the mutual fund earn to provide Mr. A return of 16 per cent?

(Source: ICAI)

ANSWER:

Personal earnings of Mr. A = R_1 = 16%

Mutual Fund earnings = R_2

$$R_2 = \frac{1}{1 - \text{Initial expenses}(\%)} R_1 + \text{Recurring expenses}(\%)$$

$$= \frac{1}{1-0.055} \times 16\% + 1.5\%$$

$$= 18.43\%$$

Mutual Fund earnings = 18.43%

PART III: VARIOUS TYPES OF PLAN

Topic 12 TYPES OF PLAN

Question 14: SSEI HW Book Page No. 53

Cinderella Mutual Fund, an approved mutual fund, sponsored open -ended equity oriented scheme "Rudolf Opportunity Fund". There are three plans under the scheme viz. 'A' - Dividend Re-investment plan, 'B' - Bonus plan and 'C' - Growth plan.

At the time of initial public offer on 1-4-2009, Mr. Amit, Mr. Ashish and Mr. Arun, three investors invested ₹ 2,00,000 each at face value of ₹ 10 per unit and chosen plan 'B', 'C' and 'A' respectively.

The particulars of the fund over the period are as follows:

Date	Dividend %	Bonus Ratio	Net Asset Value per unit (₹)		
			Plan A	Plan B	Plan C
31.07.2013	10	-	30.70	31.20	35.40
31.03.2014	35	5:4	58.42	31.05	58.25
30.10.2017	20	-	42.18	26.45	56.45
15.03.2018	12.50	-	46.45	27.72	62.78
31.03.2018	-	1:3	45.20	20.05	67.12
25.03.2019	20	1:4	48.10	19.95	71.42
31.07.2019	-	-	53.75	22.98	82.07

On 31st July, 2019, all the three investors redeemed all the balance units.

1. Consider the following:
   a. Long-term capital gain is exempt from Income-tax.
   b. Short-term capital gain is subject to 10% Income-tax.
   c. Security Transaction Tax is 0.2% only on sale/ redemption of units.
   d. Ignore Education Cess.
2. You are required:
   i. To calculate the Effective Yield per annum (annual rate of return) of each of the investors.
   ii. To suggest the name of investor with the highest Effective Yield per annum with the difference to his nearest investor.

   (Show your calculations up to two decimal points)

(Source: ICAI)

ANSWER:

i. Calculation of effective yield per annum of each of the investors

Mr. Arun Plan A Dividend Reinvestment

(Amount in ₹)

Date	Investment	Dividend payout (%)	Dividend Re-invested (Closing Units X Face value of '10 X Dividend Payout %)	NAV	Units	Closing Unit Balance
01.04.2009	2,00,000.00			10.00	20,000.00	20,000.00
31.07.2013		10	20,000.00	30.70	651.47	20,651.47
31.03.2014		35	72,280.15	58.42	1,237.25	21,888.72
30.10.2017		20	43,777.44	42.18	1,037.87	22,926.59
15.03.2018		12.5	28,658.24	46.45	616.97	23,543.56
25.03.2019		20	47,087.12	48.10	978.94	24,522.50

Redemption value 24522.5 × 53.75	13,18,084.38
Less: Security Transaction Tax (STT) is 0.2%	2636.17
Net amount received	13,15,448.21
Less: Short term capital gain tax @ 10% on 978.94 (53.64* – 48.10≈) = 5423.33	542.33
Net of tax	13,14,905.88
Less: Investment	2,00,000.00
	11,14,905.88

*(53.75 – STT @ 0.2%) ≈ This value can also be taken as zero

Annual average return (%) $\frac{11,14,905.88}{2,00,000} \times \frac{12}{124} \times 100 = 53.95\%$

Mr. Amit Plan B – Bonus

(Amount in ₹)

Date	Units	Bonus units	Total Balance	NAV per unit
01.04.2009	20,000		20,000	10
31.03.2014		25,000	45,000	31.05
31.03.2018		15,000	60,000	20.05
25.03.2019		15,000	75,000	19.95

Redemption value 75,000 × 22.98	17,23,500
Less: Security Transaction Tax (STT) is 0.2%	3447
Net amount received	17,20,053
Less: Short term capital gain tax @ 10%	
15,000 × (22.93† – 19.95) = 44,700	4470
Net of tax	17,15,583

Less: Investment	2,00,000
Net gain	15,15,583

†(22.98 – STT @ 0.2%)

$$\text{Annual average return (\%)} = \frac{15,15,583}{2,00,000} \times \frac{12}{124} \times 100 = 73.33\ \%$$

Mr. Ashish Plan C – Growth

Particulars	(Amount in ₹)
Redemption value 20,000 × 82.07	16,41,400.00
Less: Security Transaction Tax (S.T.T) is 0.2%	3282.80
Net amount received	16,38,117.20
Less: Short term capital gain tax @ 10%	0.00
Net of tax	16,38,117.20
Less: Investment	2,00,000.00
Net gain	14,38,117.20

$$\text{Annual average return (\%)} \quad \frac{14,38,117.20}{2,00,000} \times \frac{12}{124} \times 100 = 69.59\ \%$$

ii. Mr. Amit (Bonus Plan) earns the highest effective yield per annum of 73.33% and the difference to his nearest investor Mr. Ashish is 3.74 (73.33 – 69.59%).

Note: Alternatively, figure of * and † can be taken as without net of Tax because, as per Proviso 5 of Section 48 of IT Act, no deduction of STT shall be allowed in computation of Capital Gain.

In such case:

Mr. Arun Plan A – Short term capital gains tax would be Rs 553.10. Accordingly Net of tax will be ₹ 13,14,895.10 and the net gain would be Rs 11,14,895.10.

Mr. Amit Plan B – Bonus Plan – Short term capital gains tax would be Rs 4,545. Accordingly Net of tax will be ₹17,15,508 and the net gain would be Rs 15,15,508.

PART III: VARIOUS TYPES OF PLAN

Topic 12 TYPES OF PLAN

Question 16: SSEI HW Book Page No. 54

A mutual fund company introduces two schemes i.e. Dividend plan (Plan-D) and Bonus plan (Plan-B). The face value of the unit is ₹ 10. On 1-4-2005 Mr. K invested ₹ 2,00,000 each in Plan-D and Plan-B when the NAV was ₹ 38.20 and ₹ 35.60 respectively. Both the plans matured on 31-3-2010.

Particulars of dividend and bonus declared over the period are as follows:

Date	Dividend %	Bonus Ratio	Net Asset Value (₹)	
			Plan D	Plan B
28.07.2003	10		39.10	35.60
31.03.2004		1:5	41.15	36.25
31-03-2007	15		44.20	33.10
15-09-2008	13		45.05	37.25
30-10-2008		1:8	42.70	38.30
27-03-2009	16		44.80	39.10
11-04-2009		1:10	40.25	38.90
31-03-2010			40.40	39.70

What is the effective yield per annum in respect of the above two plans?

(Source: ICAI)

ANSWER:

Plan – D

$$\text{Unit acquired} = \frac{2,00,000}{38.20} = 5235.60$$

Date	Units held	Dividend		Reinvestment	New	Total
		%	Amount	Rate	Units	Units
01.04.2005						5235.60
30.09.2005	5235.60	10	5235.60	39.10	133.90	5369.50
31.03.2007	5369.50	15	8054.25	44.20	182.22	5551.72
15.09.2008	5551.72	13	7217.24	45.05	160.20	5711.92
27.03.2009	5711.92	16	9139.07	44.80	204	5915.92
31.03.2010	Maturity Value		(₹ 40.40 X 5915.92)			₹ 2,39,003.17
	Less: Cost of Acquisition					₹ 2,00,000.00
	Total Gain					₹ 39,003.17

$$\therefore \text{Effective Yield} = \frac{₹39,003.17}{₹2,00,000} \times \frac{1}{5} \times 100 = 3.90\%$$

Alternatively, it can be computed by using the IRR method as follows:

NPV at 4% = -2,00,000 + 1,96,443 = -3,557

NPV at 2% = -2,00,000 + 2,16,473 = 16,473

$$\text{IRR} = \text{LR} + \frac{\text{NPV at LR}}{\text{NPV at LR - NPV at HR}} (\text{HR - LR}) = 2\% + \frac{16473}{16473 - (-3557)} (4\% - 2\%) = 3.645\%$$

Plan – B

Date	Particulars	Calculation Working	No. of Units	NAV (₹)
1.4.05	Investment	₹2,00,000/35.60=	5617.98	35.60
30.6.06	Bonus	5617.98/5 =	1123.60	36.25
			6741.58	
30.10.08	"	6741.58/8 =	842.70	38.30
			7584.28	
11.4.09	"	7584.28/10 =	758.43	38.90
			8342.71	
31.3.10	Maturity Value	8342.71 x ₹ 39.70=		3,31,205.59
	Less: Investment			2,00,000.00
	Gain			1,31,205.59

$$\therefore \text{Effective Yield } \frac{1,31,205.59}{2,00,000} x \frac{1}{5} x100 = 13.12\%$$

Alternatively, it can be computed by using the IRR method as follows:

NPV at 13% = -2,00,000 + 1,79,765 = -20,235

NPV at 8% = -2,00,000 + 2,25,413 = 25,413

$$\text{IRR} = \text{LR} + \frac{\text{NPV at LR}}{\text{NPV at LR} - \text{NPV at HR}} (\text{HR} - \text{LR}) = 8\% + \frac{25413}{25413 - (-20235)} (13\% - 8\%) = 10.78\%$$