Question 33

SBI mutual fund has a NAV of ₹ 8.50 at the beginning of the year. At the end of the year NAV increases to ₹ 9.10. Meanwhile fund distributes ₹ 0.90 as dividend and ₹ 0.75 as capital gains.

1. What is the fund's return during the year?
2. Had these distributions been re-invested at an average NAV of ₹ 8.75 assuming 200 units were purchased originally. What is the return?

(Nov 17, 5 Marks)

Solution

Return for the year (all changes on a per year basis)

Particulars	₹/Unit
Change in price (₹ 9.10 – ₹ 8.50)	0.60
Dividend received	0.90
Capital gain distribution	0.75
Total Return	2.25

$$\text{Return on investment} = \frac{2.25}{8.50} \times 100 = 26.47\%$$

If all dividends and capital gain are reinvested into additional units at ₹ 8.75 per unit the position would be.

Total amount reinvested = ₹ 1.65 X 200 = ₹ 330

$$\text{Additional units added} = \frac{₹ 330}{8.75} = 37.71 \text{ Units}$$

Value of 237.71 units at end of year = ₹ 2,163.16
Price paid for 200 units in beginning of the year (200 X ₹ 8.50) = ₹ 1,700

$$\text{Return} = \frac{₹ 2,163.16 - ₹ 1,700}{₹ 1,700} = \frac{₹ 463.16}{₹ 1,700} = 27.24\%$$

Question 34

A reputed financial institution of the country floated a Mutual fund having a corpus of ₹ 10 crores consisting of 1 crore units of ₹ 10 each. Mr. Vijay invested ₹ 10,000 for 1000 units of ₹ 10 each on 1st July 2014. For the financial year ended 31st March 2015, the fund declared a dividend of 10% and Mr. Vijay found that his annualized yield from the fund was 153.33%. The mutual fund during the financial year ended 31st March 2016, declared a dividend of 20%. Mr. Vijay has reinvested the entire dividend in acquiring units of this mutual fund at its appropriate NAV. On 31st March 2017 Mr. Vijay redeemed all his balances of 1129.61 units when his annualized yield was 73.52%. You are required to find out NAV as on 31st March 2015, 31st March 2016 and 31st March 2017.

(Nov 17, 8 Marks)

Solution

Yield for 9 months $= 153.33 \times \dfrac{9}{12} = 115\%$

Market value of Investments as on 31.03.2015

$= 10,000 + (10,000 \times 115\%) = ₹\ 21,500$

Therefore, NAV as on 31.03.2015 $= \dfrac{21,500 - 1,000}{1,000} = ₹\ 20.50$

(NAV would stand reduced to the extent of dividend payout, being

$= 1,000 \times 10 \times 10\% = ₹\ 1,000$

Since dividend was reinvested by Mr. X, additional units acquired

$= \dfrac{₹\ 1,000}{₹\ 20.50} = 48.78$ units

Therefore, units as on 31.03.2015

$= 1,000 + 48.78 = 1048.78$

[Alternately, units as on 31.03.2015 $= \dfrac{21,500}{20.50} = 1,048.78$

Dividend as on 31.03.2016

$= 1048.78 \times 10 \times 0.2 = ₹\ 2,097.56$

Let X be the NAV on 31.03.2016, then number of new units reinvested will be ₹ 2097.56/X. Accordingly 1129.61 units shall consist of reinvested units and 1048.78 (as on 31.03.2015). Thus, by way of equation it can be shown as follows:

$1,129.61 = \dfrac{2,097.56}{X} + 1,048.78$

Therefore, NAV as on 31.03.2016 $= \dfrac{2,097.56}{1,129.61 - 1,048.78} = ₹25.95$

NAV as on 31.03.2017 $= \dfrac{₹\ 10,000\ (1 + 0.7352 \times 33/12)}{1,129.61} = ₹\ 26.75$

Question 35

SG Mutual Fund Company has the following assets under it on the close of business as on:

Company	No. of Shares	1st August 2017 Market price per share (₹)	2nd August 2017 Market price per share (₹)
Q Ltd.	2,000	200.00	205.00
R Ltd.	30,000	312.40	360.00
S Ltd.	40,000	180.60	191.55
T Ltd.	60,000	505.10	503.90

Total No. of Units issued by the Mutual Fund is 6,00,000.

1. Calculate Net Assets Value (NAV) of the Fund.

Mutual Funds

2. Following information is also given:
   Assuming that Mr. Zubin, an investor, submits a cheque of ₹ 30,00,000 to the Mutual Fund and the Fund Manager of this entity purchases 8,000 shares of R Ltd; and the balance amount is held in Bank. In such a case, what would be the position of the Fund?
3. Calculate new NAV of the Fund as on 2nd August 2017.

(May 18, 10 Marks)

Solution
1. NAV of the Fund

$$= \frac{₹\,4,00,000 + ₹\,93,72,000 + ₹\,72,24,000 + ₹\,3,03,06,000}{6,00,000}$$

$$= \frac{₹\,4,73,02,000}{6,00,000} = ₹\,78.8366 \text{ Rounded } ₹78.84$$

Company	2/8/17 Market Price /share	Value
Q	205	4,10,000
R	360	1,08,00,000
S	191.55	76,62,000
T	503.90	302,34,000
Total		491,06,000

$$\text{NAV per Unit} = \frac{4,91,06,000}{6,00,000} = 81.84$$

2. The revised position of fund shall be as follows:

Shares	No. of shares	Price	Amount (₹)
Q Ltd.	2,000	200	4,00,000
R Ltd.	38,000	312.40	1,18,71,200
S Ltd.	40,000	180.60	72,24,000
T Ltd.	60,000	505.10	3,03,06,000
Cash			5,00,800
			5,03,02,000

$$\text{No. of units of fund} = 6,00,000 + \frac{30,00,000}{78.8366} = 6,38,053$$

3. On 2nd August 2017, the NAV of fund will be as follows:

Shares	No. of shares	Price	Amount (₹)
Q Ltd.	2,000	205	410,000
R Ltd.	38,000	360.00	1,36,80,000
S Ltd.	40,000	191.55	76,62,000
T Ltd.	60,000	503.90	3,02,34,000
Cash			5,00,800
			5,24,86,800

$$\text{NAV as on 2}^{\text{nd}} \text{ August 2017} = \frac{₹ 5,24,86,800}{6,38,053} = 82.26 \text{ per unit}$$

Question 36

A mutual fund having 300 units has shown its NAV of ₹ 8.75 and ₹ 9.45 at the beginning and at the end of the year respectively. The Mutual fund has given two options to the investors:

i.   Get dividend of ₹ 0.75 per unit and capital gain of ₹ 0.60 per unit, or

ii.   These distributions are to be reinvested at an average NAV of ₹ 8.65 per unit. What difference would it make in terms of returns available and which option is preferable by the investors?

(Nov 18, 8 Marks)

Solution

Option 1: When Dividend and Capital Gain are paid:

Calculation of monthly return on the mutual funds:

$$r = \frac{(NAV_t - NAV_{t-1}) + L_t + G_t}{NAV_{t-1}}$$

$$\text{Or, } r = \frac{(₹ 9.45 - ₹ 8.75) + (₹ 0.75 + ₹ 0.60)}{₹ 8.75}$$

$$= \frac{0.70 + 1.35}{8.75}$$

$$= 23.43\%$$

Option 2: When Dividend and Capital Gain are reinvested:

If all dividends and capital gain are reinvested into additional units at ₹ 8.65 per unit the position would be.

Total amount reinvested = ₹ 1.35 X 300 = ₹ 405

Additional units added

$$= \frac{₹ 405}{8.65} = 46.82 \text{ units or 47 units}$$

Value of units at the end = 346.82 units X ₹ 9.45 = ₹ 3277.45

Or   = 347 units X ₹ 9.45 = ₹ 3279.15

Price paid for 300 units as at the beginning = (300 X ₹ 8.75) = ₹ 2,625

$$\text{Return} = \frac{₹ 3,279.15 - ₹ 2,625}{₹ 2,625}$$

$$= \frac{₹ 654.15}{₹ 2,625}$$

$$= 24.92\%$$

From the above, it can be said that reinvestment option is better.

Mutual Funds

Question 37

A Mutual Fund Company introduces two schemes – Dividend Plan and Bonus Plan. The face value of the Unit is ₹10 on 1-4-2014. Mr. R invested ₹ 5 lakh in Dividend Plan and ₹ 10 lakh in Bonus Plan. The NAV of Dividend Plan is ₹ 46 and NAV of Bonus Plan is ₹ 42. Both the plans matured on 31-03-2019. The particulars of Dividend and Bonus declared over the period are as follows:

Date	Dividend %	Bonus Ratio	NAV of Dividend Plan (₹)	NAV of Bonus Plan (₹)
31-12-2014	12%	-	47.0	42.0
30-09-2015	-	1:4	48.0	43.0
31-03-2016	15%	-	49.5	41.5
30-09-2017	-	1:6	50.0	44.0
31-03-2018	10%	-	48.0	43.5
31-03-2019	-	-	49.0	44.0

You are required to calculate the effective yield per annum in respect of the above two plans.

(May 19, 8 Marks)

Solution
Dividend Plan

$$\text{Unit acquired} = \frac{5,00,000}{46} = 10,869.57$$

Date	Units Held	Dividend		Reinvestment	New	Total
		%	Amount			
01.04.2014						10,869.57
31.12.2014	10,869.57	12	13,043.48	47.0	277.52	11,147.09
31.03.2016	11,147.09	15	16,720.64	49.5	337.79	11,484.88
31.03.2018	11,484.88	10	11,484.88	48.0	239.27	11,724.15
31.03.2019	Maturity Value (₹ 49.0 X 11724.15)					₹ 5,74,483.35
	Less: Cost of Acquisition					₹ 5,00,000.00
	Total Gain					₹ 74,483.35

$$\therefore \text{Effective Yield} = \frac{₹\ 74,483.35}{₹\ 5,00,000} \times \frac{1}{5} \times 100 = 2.98\%$$

Bonus Plan

$$\text{Unit acquired} = \frac{10,00,000}{42} = 23,809.52$$

Date	Particulars	Calculation Working	No. of Units	NAV (₹)
1.4.14	Investment		23,809.52	42
30.9.15	Bonus	23,809.52/4 =	5952.38	
			29,761.90	43
30.9.17	Bonus	29,761.90/6 =	4960.32	
			34,722.22	44
31.3.19	Maturity Value	34,722.22 X ₹ 44 =		15,27,777.68
	Less: Investment			10,00,000.00
	Gain			5,27,777.68

$$\therefore \text{Effective Yield} = \frac{₹ 5,27,777.68}{₹ 10,00,000} \times \frac{1}{5} \times 100 = 10.56\%$$

Question 38

Cinderella Mutual find, 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 1st April 2009, Mr. Amit, Mr. Ashish and Mr. Arun, there 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.

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 case.

You are required:
i. To calculate the Effective Yield per annum (annual rate of return) of each the investors.
ii. To suggest the name of investors with the highest effective yield per annum with the difference to his nearest investors.
   (Show your calculation up to two decimal points)

Mutual Funds

Solution
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 24,522.5 X 53.75	13,18,084.38
Less: Security Transaction Tax (STT) is 0.2%	2,636.17
Net amount received	13,15,448.21
Less: Short term capital gain tax @ 10% on 978.94 (53.64* – 48.10≈) = 5,423.33	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 X 22.98	17,23,500
Less: Security Transaction Tax (STT) is 0.2%	3,447
Net amount received	17,20,053

CA Nikhil Jobanputra

Less: Short term capital gain tax @ 10% 15,000 X (22.93† – 19.95) = 44,700	4,470
Net of tax	17,15,583
Less: Investment	2,00,000
Net gain	15,15,583

†(22.98 – STT @ 0.2%)

Annual average return (%)

$$= \frac{15,15,583}{2,00,000} \text{ X } \frac{12}{124} \text{ X } 100 = 73.33\%$$

Mr. Ashish Plan C – Growth

Particulars	(Amount in ₹)
Redemption value 20,000 X 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

Annual average return (%)

$$= \frac{14,38,117.20}{2,00,000} \text{ X } \frac{12}{124} \text{ X } 100 = 69.59\%$$

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 ₹ 553.10. Accordingly Net of tax will be ₹ 13,14,895.10 and the net gain would be ₹ 11,14,895.10.

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