

# MUTUAL FUNDS CLASS 3

## CLASS WORK COVERAGE

To streamline our learning process, I've categorized the questions we'll tackle in class into four distinct groups:

1. **Classic:** *These questions are exactly as presented in your book, providing a familiar foundation.*
2. **Transformed:** *Here, we've converted book questions into multiple-choice format to enhance your analytical skills.*
3. **Adapted:** *These are similar to book questions but with altered numbers or names, presented as multiple-choice questions for varied practice.*
4. **Original:** *These are entirely new questions not found in your book, designed to challenge and expand your understanding.*

*This structure will help us navigate through a range of problems, ensuring a comprehensive grasp of the material. Looking forward to our next session!*

Q. No	Type	Book	Page No.
11	Classic	CW Q BOOK	80
12	Classic	CW Q BOOK	81
13	Classic	CW Q BOOK	81
14	Classic	CW Q BOOK	82
15	Classic	CW Q BOOK	82
16	Classic	CW Q BOOK	82
25	Classic	CW Q BOOK	86
26	Classic	CW Q BOOK	86
27	Classic	CW Q BOOK	86
28	Classic	CW Q BOOK	86

**PART II: LOAD AND RETURN CALCULATION**
**Topic 9 EFFECTIVE YIELD**
**Question 11: SSEI CW Book Page No. 80**

Mr. D had invested in three mutual funds (MF) as per the following details:

Particulars	MF 'A'	MF 'B'	MF 'C'
Amount of Investment	2,00,000	5,00,000	4,00,000
NAV at the time of purchase	10.00	25.00	20.00
Dividend Yield up to 31.03.2022	3%	5%	4%
NAV as on 31.03.2022	10.50	22.80	20.80
Annualized Yield as on 31.03.2022	9.733%	- 11.185%	15%

Assume 1 Year = 365 Days.

Mr. D has misplaced the documents of his investments.

You are required to help Mr. D to find out the following:

- i. Number of units allotted in each scheme,
- ii. Value of his investments as on 31.03.2022,
- iii. Holding period of his investments in number of days as on 31.03.2022
- iv. Dates of original investments
- v. Total Return on investments,
- vi. Assuming past performance of all three schemes will continue for next one year, what action the investor should take? What will be the expected return for the next one year after the above action?
- vii. Will your answer as above point no. (vi) changes if the Mutual fund charges exit load of 5% if the investment is redeemed within one year? If so, advise the investor what and when the action to be taken to optimise the returns.

**(Source: ICAI)**

**ANSWER:**

**i. Number of Units in each Scheme**

MF 'A'	₹ 2,00,000/ ₹ 10.00	20,000
MF 'B'	₹ 5,00,000/ ₹ 25.00	20,000
MF 'C'	₹ 4,00,000/ ₹ 20.00	20,000

**ii. Value of Investment on 31.03.2022**

MF 'A'	20,000 x ₹ 10.50	₹ 2,10,000
MF 'B'	20,000 x ₹ 22.80	₹ 4,56,000
MF 'C'	20,000 x ₹ 20.80	₹ 4,16,000
Total		₹ 10,82,000

**iii. Yield on each Fund**

	Capital Yield	Dividend Yield	Total	Yield (%)
MF 'A'	₹ 2,10,000 - ₹ 2,00,000 = ₹ 10,000	₹ 6,000	₹ 16,000.00	8.00
MF 'B'	₹ 4,56,000 - ₹ 5,00,000 = - ₹ 44,000	₹ 25,000	- ₹ 19,000.00	-3.80
MF 'C'	₹ 4,16,000 - ₹ 4,00,000 = ₹ 16,000	₹ 16,000	₹ 32,000.00	8.00
			₹ 29,000.00	

**No. of Days Investment Held**

	MF 'A'	MF 'B'	MF 'C'
Period of Holding (Days)	$\frac{8.00}{9.733} \times 365$ = 300 Days	$\frac{-3.80}{-11.185} \times 365$ = 124 Days	$\frac{8.00}{15.00} \times 365$ = 195 Days

iv. Date of Original Investment    04.06.21                      27.11.21                      17.09.21

v. Total Yield = (₹ 29,000.00/ ₹ 11,00,000) × 100 = 2.636%

vi. If past of all three schemes will continue for next one year, the investor should redeem the units of MFs 'A' and 'B' and invest the proceeds in MF 'C'. The expected return next will be 15%.

vii. If the Mutual funds are charging exit load of 5%, if investment is redeemed within one year, then investor should get redeemed units of MF 'B' now and units of MF 'A' after 65 days.

**Question 12: SSEI CW Book Page No. 81**

Mr. Suhail has invested in three Mutual Fund Schemes as given below:

Particulars	Scheme A	Scheme B	Scheme C
Date of investment	1-4-2011	1-5-2011	1-7-2011
Amount of Investment (₹)	12,00,000	4,00,000	2,50,000
Net Asset Value (NAV) at entry date(₹)	10.25	10.15	10.00
Dividend received up to 31-7-2011 (₹)	23,000	6,000	Nil
NAV as at 31-7-2011 (₹)	10.20	10.25	9.90

You are required to calculate the effective yield on per annum basis in respect of each of the three Schemes to Mr. Suhail up to 31-7-2011.

Take one year = 365 days.

Show calculations up to two decimal points.

**(Source: ICAI)**

**ANSWER:**

Scheme	Investment (₹)	Unit Nos. (Investment/NAV at entry date)	Unit NAV 31.7.2011 (₹)	Total NAV 31.7.2011 (Unit Nos. X Unit NAV as on 31.7.2011) (₹)
MF A	12,00,000	1,17,073.17	10.20	11,94,146.33
MF B	4,00,000	39,408.87	10.25	4,03,940.92
MF C	2,50,000	25,000	9.90	2,47,500.00

Scheme	NAV (+) / (-) (NAV as on 31.7.2011 – Investment) (₹)	Dividend Received (₹)	Total Yield Change in NAV +Dividend (₹)	Number of days	Effective Yield (% p.a.) (Total Yield/ Investment) X (365/No. of days) X 100
MF A	(-)5,853.67	23,000	17,146.33	122	4.275%
MF B	(+)3,940.92	6,000	9,940.92	92	9.86%
MF C	(-)2,500	Nil	(-)2,500	31	(-)11.77%

**Question 13: SSEI CW Book Page No. 81**

A mutual fund that had a net asset value of ₹ 20 at the beginning of month - made income and capital gain distribution of ₹ 0.0375 and ₹ 0.03 per share respectively during the month, and then ended the month with a net asset value of ₹ 20.06. Calculate monthly return.

**(Source: ICAI)**

**ANSWER:**

Calculation of Monthly Return on the Mutual Funds

$$r = \left[ \frac{(\text{NAV}_t - \text{NAV}_{t-1}) + I_t + G_t}{\text{NAV}_{t-1}} \right]$$

Where,

r = Return on the mutual fund

NAV<sub>t</sub> = Net assets value at time period t

NAV<sub>t-1</sub> = Net assets value at time period t – 1

I<sub>t</sub> = Income at time period t

G<sub>t</sub> = Capital gain distribution at time period t

$$= \left[ \frac{(\text{₹ } 20.06 - \text{₹ } 20.00) + (\text{₹ } 0.0375 + \text{₹ } 0.03)}{20} \right]$$

$$= \frac{0.06 + 0.0675}{20}$$

$$= \frac{0.1275}{20} = 0.006375$$

Or, r = 0.6375% p.m.

Or = 7.65% p.a.

**Question 14: SSEI CW Book Page No. 82**

Mr. Sinha has invested in three Mutual fund schemes as per details below:

	Scheme X	Scheme Y	Scheme Z
Date of Investment	01.12.2008	01.01.2009	01.03.2009
Amount of Investment	₹ 1,00,000	₹ 50,000	₹ 5,00,000
Net Asset Value at entry date	₹ 10.50	₹ 10.00	₹ 10.00
Dividend received upto 31.03.2009	₹ 9,500	₹ 1,500	Nil
NAV as at 31.3.2009	₹ 10.40	₹ 10.10	₹ 9.80

You are required to calculate the effective yield on per annum basis in respect of each of the three schemes to Mr. Sinha upto 31.03.2009.

**(Source: ICAI)**

**ANSWER:**

Calculation of effective yield on per annum basis in respect of three mutual fund schemes to Mr. Sinha up to 31-03-2009:

Particulars	MF X	MF Y	MF Z
(a) Investments	₹ 5,00,000	₹ 1,00,000	₹ 50,000
(b) Opening NAV	₹10.50	₹10.00	₹10.00
(c) No. of units (a/b)	47,619.05	10,000	5,000
(d) Unit NAV ON 31-3-2009	₹ 10.40	₹ 10.10	₹ 9.80
(e) Total NAV on 31-3-2009 (c x d)	₹ 4,95,238.12	₹ 1,01,000	₹ 49,000
(f) Increase / Decrease of NAV (e - a)	(₹ 4,761.88)	₹ 1,000	(₹ 1,000)
(g) Dividend Received	₹ 9,500	₹ 1,500	Nil
(h) Total yield (f + g)	₹ 4,738.12	₹ 2,500	(₹ 1,000)
(i) Number of Days	121	90	31
(j) Effective yield p.a. (h/a x 365/i x 100)	2.859%	10.139%	(-) 23.55%

**Question 15: SSEI CW Book Page No. 82**

The NAV of per unit of XYZ Mutual Fund (a Close Ended Funds) on 1.1.2014 was Rs. 28. The value on 31.12.2014 comes to Rs. 28.80. On the same date unit was trading in market at a premium of 3% though on 1.1.2014 same was trading at a discount at 5%. On 31.12.2014, XYZ distributed a sum of Rs. 2.80 as incomes and capital gains. You are required to compute rate of return to the investor during the year.

**(Source: ICAI)**

**ANSWER:**

Price of each unit on 1.1.2014 = Rs. 28 x 0.95 = Rs. 26.60

Price of each unit on 31.12.2014 = Rs. 28.80 x 1.03 = Rs. 29.66

The price of fund increase by = Rs. 3.06 (29.66 – 26.60)

$$\text{Rate of Return} = \frac{2.80 + 3.06}{26.60} \times 100 = 22.03\%$$

**Question 16: SSEI CW Book Page No. 82**

Mr. Y has invested in the three mutual funds (MF) as per the following details:

Particulars	MF 'X'	MF 'Y'	MF 'Z'
Amount of Investment (₹)	2,00,000	4,00,000	2,00,000
Net Assets Value (NAV) at the time of purchase(₹)	10.30	10.10	10
Dividend Received up to 31.03.2018 (₹)	6,000	0	5000
NAV as on 31.03.2018 (₹)	10.25	10	10.20
Effective Yield per annum as on 31.03.2018(percent)	9.66	-11.66	24.15

Assume 1 Year =365 days

Mr. Y has misplaced the documents of his investment. Held him in finding the date of his original investment after ascertaining the following:

- i. Number of units in each scheme;
- ii. Total NPV;
- iii. Total Yield; and
- iv. Number of days investment held.

**(Source: ICAI)**

**ANSWER:**

**i. Number of Units in each Scheme**

MF 'X'	₹ 2,00,000/ ₹ 10.30	19,417.48
MF 'Y'	₹ 4,00,000/ ₹ 10.10	39,603.96
MF 'Z'	₹ 2,00,000/₹ 10.00	20,000.00

**ii. Total NAV on 31.03.2018**

MF 'X'	= 19,417.48 x ₹ 10.25	₹ 1,99,029.17
MF 'Y'	= 39,603.96 x ₹ 10.00	₹ 3,96,039.60
MF 'Z'	= 20,000.00 x ₹ 10.20	₹ 2,04,000.00
Total		₹ 7,99,068.77

**iii. Total Yield**

	Capital Yield	Dividend Yield	Total
MF 'X'	₹ 1,99,029.17 - ₹ 2,00,000	₹ 6,000	₹ 5,029.17
	= - ₹ 970.83		
MF 'Y'	₹ 3,96,039.60 - ₹ 4,00,000	Nil	- ₹ 3,960.40
	= - ₹ 3,960.40		
MF 'Z'	₹ 2,04,000 - ₹ 2,00,000	₹ 5,000	₹ 9,000.00
	= ₹ 4,000		
Total			₹ 10,068.77

$$\text{Total Yield} = \frac{₹ 10,068.77}{₹ 8,00,000} \times 100 = 1.2586\%$$

**iv. No. of Days Investment Held**

	MF 'X'	MF 'Y'	MF 'Z'
Let No. of days be	X	Y	Z
Initial Investment (₹)	2,00,000	4,00,000	2,00,000
Yield (₹)	5,029.17	-3,960.40	9,000.00
Yield (%)	2.5146	- 0.9901	4.5
Period of Holding (Days)	$\frac{2.5146}{9.66} \times 365$	$\frac{-0.9901}{-11.66} \times 365$	$\frac{4.5}{24.15} \times 365$
	= 95 Days	= 31 Days	= 68 Days

Date of Original Investment    27.12.17    01.03.18    23.01.18

Alternatively following dates can also be considered:

Date of Original Investment    26.12.17    28.02.18    22.01.18

**PART III: VARIOUS TYPES OF PLAN****Topic 13 SUMS BASED ON BACK CALCULATION****Question 25: SSEI CW Book Page No. 86**

A reputed financial institution of the country floated a Mutual fund having a corpus of ₹ 10crores 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.

**(Source: ICAI)**

**ANSWER:**

Yield for 9 months =  $(153.33 \times 9/12) = 115\%$

Market value of Investments as on 31.03.2015 =  $10,000/- + (10,000 \times 115\%) = ₹ 21,500/-$

Therefore, NAV as on 31.03.2015 =  $(21,500 - 1,000)/1,000 = ₹ 20.50$

(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 =  $₹ 1,000/20.50 = 48.78$  units

Therefore, units as on 31.03.2015 =  $1,000 + 48.78 = 1048.78$

[Alternately, units as on 31.03.2015 =  $(21,500/20.50) = 1048.78$ ]

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:

$$1129.61 = \frac{2097.56}{X} + 1048.78$$

Therefore, NAV as on 31.03.2016 =  $2097.56/(1,129.61 - 1,048.78) = ₹ 25.95$

NAV as on 31.03.2017 =  $₹ 10,000 (1 + 0.7352 \times 33/12)/1129.61 = ₹ 26.75$

**Question 26: SSEI CW Book Page No. 86**

Mr. X on 1.7.2007, during the initial offer of some Mutual Fund invested in 10,000 units having face value of ₹ 10 for each unit. On 31.3.2008, the dividend paid by the M.F. was 10% and Mr. X found that his annualized yield was 153.33%. On 31.12.2009, 20% dividend was given. On 31.3.2010, Mr. X redeemed all his balance of 11,296.11 units when his annualized yield was 73.52%.

What are the NAVs as on 31.3.2008, 31.3.2009 and 31.3.2010?

**(Source: ICAI)**

**ANSWER:**

Yield for 9 months =  $(153.33 \times 9/12) = 115\%$

Market value of Investments as on 31.03.2008 =  $1,00,000/- + (1,00,000 \times 115\%) = ₹2,15,000/-$

Therefore, NAV as on 31.03.2008 =  $(2,15,000 - 10,000) / 10,000 = ₹20.50$

(NAV would stand reduced to the extent of dividend payout, being  $(10,000 \times 10 \times 10\%) = ₹10,000$ )

Since dividend was reinvested by Mr. X, additional units acquired =  $₹10,000 / ₹20.50 = 487.80$  units

Therefore, units as on 31.03.2008 =  $10,000 + 487.80 = 10,487.80$

[Alternately, units as on 31.03.2008 =  $(2,15,000 / 20.50) = 10,487.80$ ]

Dividend as on 31.03.2009 =  $10,487.80 \times 10 \times 0.2 = ₹20,975.60$

Let X be the NAV on 31.03.2009, then number of new units reinvested will be  $₹20,975.60 / X$ . Accordingly 11296.11 units shall consist of reinvested units and 10487.80 (as on 31.03.2008). Thus, by way of equation it can be shown as follows:

$$11296.11 = \frac{20975.60}{X} + 10487.80$$

Therefore, NAV as on 31.03.2009 =  $20,975.60 / (11,296.11 - 10,487.80) = ₹25.95$

NAV as on 31.03.2010 =  $₹1,00,000 (1 + 0.7352 \times 33/12) / 11296.11 = ₹26.75$

**Question 27: SSEI CW Book Page No. 86**

M/s. Strong an AMC has floated a dividend bonus plan on 1st April, 2016 at a certain net asset value (NAV). The fund has a robust growth and has declared a bonus of 1:5 (1 bonus unit for 5 right units held) on 30th September, 2017 and a second bonus of 1:4 (1 bonus unit for 4 right units held) on 30th September 2019. The fund, as on 31st March 2021, has generated an average yield of 17.5%.

Mr. Optimistic has made an investment of ₹ 16 lakhs in the plan before the declaration of the first bonus and remain invested thereafter.

The following information is also available :

Date	01.04.2016	30.09.2017	30.09.2019	31.03.2021
NAV (₹)	?	85	92	100

Calculate the opening NAV, which is required by Mr. Optimistic to calculate the capital appreciation.

**(Source: ICAI)**

**ANSWER:**

<b>Particulars</b>	
(a) Amount invested by Mr. Optimistic as on 01/04/2016	₹ 16,00,000
(b) Gain during 5 years (16,00,000 x 17.5% x 5 years)	₹ 14,00,000
(c) Value of investment as on 31/03/2021 (a + b)	₹ 30,00,000
(d) NAV as on 31/03/2021	₹ 100 per Unit
(e) Total number of units as on 31/03/2021 (c / d)	30000 Units
Total units before second bonus = 30,000 x 4/5	24000 Units
Total units before first bonus = 24,000 x 5/6	20000 Units
NAV as on 01/04/2016 = 16,00,000/ 20000	₹ 80 per Unit

**Question 28: SSEI CW Book Page No. 86**

The Asset Management Company of the mutual fund (MF) has declared a dividend of 9.98% on the units under the dividend reinvestment plan for the year ended 31st March, 2021. The investors are issued additional units for the dividend at the rate of closing Net Asset Value (NAV) for the year as per the conditions of the scheme.

The closing NAV was ₹ 24.95 as on 31st March, 2021. An investor Mr. X who is having 20,800 units at the year-end has made an investment in the units before the declaration of the dividend and at the rate of opening NAV plus an entry load of ₹ 0.04. The NAV has appreciated by 25% during the year.

Assume the face value of the unit as ₹ 10.00.

Calculate:

1. Opening NAV,
2. Number of the units purchased,
3. Original amount of the investment.

**(Source: ICAI)**

**ANSWER:**

- 1. Let N be the opening NAV, then**

$$N (1 + 0.25) = ₹ 24.95$$

$$N = ₹ 19.96$$

- 2. Let X be the number of units purchased**

Then ending units = 20,800

Accordingly,

$$20800 = X + \frac{0.998X}{24.95}$$

$$20800 = \frac{24.95X + 0.998X}{24.95}$$

$$X = 20000$$

Thus, number of units to be purchased = 20,000

- 3. Original amount of investment**

Initial NAV	₹ 19.96
Entry Load	₹ 0.04
	₹ 20.00
Number of funds purchased	20,000
Amount of investment	₹ 4,00,000