



Sanskardham Kelavani mandal's  
Jashbhai Maganbhai patel College of Commerce

F.Y.B.Com. (SEM-I)

**Course: Mathematical And Statistical Techniques-I**

**Topic: Unit-I: Shares & Mutual Fund**



Assets:

Liabilities:

Net Asset Value of a unit (N.A.V.):

Entry load:

Exit load:

$NAV = (\text{Current Value of all assets} - \text{Liabilities}) / \text{total no. of units outstanding}$

$N.A.V. \text{ change in Absolute terms} = NAV \text{ at the end of period} - NAV \text{ at the beginning of the period}$

$\text{Percentage Change in NAV} = \text{Absolute change in NAV} * 100 / NAV \text{ at the beginning}$

$\text{Annualised Change in NAV} = \text{Percentage Change} * 12 / \text{NO. of months}$

$\text{Total Percentage Returns} = (\text{Dividends} + \text{Absolute Change in NAV}) * 100 / NAV \text{ at the beginning of the periods}$



Hitesh invested 20000 in Mumbai funds with NAV 15.75.

Find the number of units acquired by him if

a. There is no entry load

b. The entry load is 2%

Total amount invested = 20000

NAV of a unit = 15.75

a. If there is no entry load

Then Total no. of unit acquired =  $20000 / 15.75$

$$= 1269.84 \sim 1270$$

b. if there is entry load = 2%

$$\text{NAV} = 15.75 + 2\% \text{ of } 15.75$$

$$= 15.75 + (2 \times 15.75) / 100$$

$$= 15.75 + 0.315$$

$$= 16.065$$

$$\text{Total No. of unit acquired} = 20000 / 16.065 =$$

$$= 1244.94$$

$$\sim 1245$$



2. An investor sold his 157.4 units of a mutual funds when NAV was 20.5.

Find the amount received by him if

- a. There was no exit load
- b. The exit load was 1.5%

Total units of MF= 157.4

NAV of 1 unit = 20.5

a. **If there is no exit load:**

$$\begin{aligned}\text{The amount received in this transaction} &= 157.4 \times 20.5 \\ &= 3226.7\end{aligned}$$

b. **if there is an exit load of 1.5%**

$$\begin{aligned}\text{NAV of 1 unit} &= 20.5 - 1.5\% \text{ of } 20.5 \\ &= 20.5 - 0.3075 \\ &= 20.1925\end{aligned}$$

$$\text{The Amount received in this transaction} = 157.4 \times 20.1925$$



3) Karan sold his Mutual Funds units at NAV 175 with exit load at 0.5%. If he received 35591.15, find the number of units sold.

NAV= 175

Exit load @ 0.5%

Total investment= 35591.15

NAV after exit load=  $175 - 0.5\% \text{ of } 175 = 175 - 0.875$   
 $= 174.125$

NO. of units sold out=  $\text{Total investment} / \text{NAV after exit load}$   
 $= 35591.15 / 174.125$   
 $= 204.4$



4) Sunita invested 60180 in ICICI Mutual Funds when NAV was 236. She sold all the units when the NAV touched 320. if the entry load is 2% and there is no exit load, find her gain in the transaction

Total investment = 60180

NAV = 236

Entry load @ 2%

NAV on which units sold out= 320

$$\begin{aligned}\text{NAV after entry load} &= 236 + 2\% \text{ of } 236 &= 236 + 4.72 \\ & &= 240.72\end{aligned}$$

$$\begin{aligned}\text{NO. of unit purchased} &= \text{Total investment} / \text{NAV after entry load} \\ &= 60180 / 240.72 \\ &= 250\end{aligned}$$

$$\begin{aligned}\text{Total Amount received after selling} &= 320 \times 250 \\ &= 80000\end{aligned}$$



5) Mr. Deshmukh invested Rs. 25,000/- to purchase 2,500 units of ICICI MF - B plan on 4th April 2007 . He decided to sell the units on 14th Nov. 2007 at NAV of Rs. 16.4 /-. The exit load was 2.5 % . Find his profit (Calculations are upto 2 decimal points)

No. of units =2500

purchase cost = Rs. 25,000/-

NAV on the date of sale = RS. 16.4/-

exit load =2.5%= of 16.4 = 0.41

selling price of 1 unit = 16.4- 0.41 = 15.99

sale value = 2500 x 15.99

= Rs. 39,975/-

Profit = 39,975 - 25 ,000 = Rs. 14,975 .



**Narendra Purchased 200 units of SBI M.F. on 2nd May 2012, when N.A.V. of Rs. 45. His NAV on 30th Dec. 2012 was Rs.50 and he sold all the units. The fund had 2% entry load and 2.5% exit load. Find amount invested and his net profit.**

Amount paid to buy 1 unit of MF =  $45 + 2\% \text{ of } 45 = 45 + 0.9 = 45.9$

Amount paid to buy 200 unit of MF =  $45.9 \times 200 = 9180$

Amount received after selling 1 unit of MF =  $50 - 2.5\% \text{ of } 50 = 50 - 1.25 = 48.75$

Amount received after selling 200 unit of MF =  $48.75 \times 200 = 9750$

Profit = selling price – purchase price =  $9750 - 9180 = 570$



**Mr. Kamble invested Rs. 20000 in mutual fund on 1<sup>st</sup> October 2005 when NAV was 65.28. On 5<sup>th</sup> May 2006 he redeemed all units of mutual funds at an NAV of Rs. 67.18. Find the total gain of Mr. kamble?**

**Solution:**

**Investment = 20000**

On 1<sup>st</sup> October: NAV= 25.18

On 5<sup>th</sup> may: NAV=27.18

No. of units of MF purchased = Total investment / NAV of per unit of MF =  
= 20000/25.18 = **794.28**

**Amount received after selling all units of MF= 27.18 x 794.28 = 21588.53**

**Gain = 21588.53 – 20000 = 1588.53**



Mr. Bajaj invested Rs. 70000 on 10<sup>th</sup> February 2008 in mutual fund when NAV was 19.80 an entry load of 2.25%. Calculate the value of his investment on the date of his purchase and the number of unit. Also find its value on 20<sup>th</sup> October 2008 when NAV was Rs. 32.8.

**Solution:**

Investment= 70000

NAV=19.80

Entry load= 2.25%

On 20 October: NAV=32.8

Amount paid to buy 1 unit of MF=  $19.80 + 2.25\% \text{ of } 19.80 = 19.80 + 0.44 = \mathbf{20.24}$

**No. of unit of MF purchased =  $70000/20.24 = 3458.49$**

**On 20 October;**

**Total investment =  $32 \times 3458.49 = 110671.68$**

Mr. Rustam invested ₹ 6000 per month in an S.I.P. for four months when the NAV's were ₹ 23.48, ₹ 16.90, ₹ 17, and ₹ 19.67 respectively.

- Find the average unit cost occurred to him using the Rupee Coast Averaging Method.
- If he has sold all the units of MF after 4 months at NAV ₹ 25.12 then find the gain or loss in this transaction.

Months	Investment	NAV	Units of MF
1	6000	23.48	255.54
2	6000	16.9	355.03
3	6000	17	352.94
4	6000	19.67	305.03
<b>TOTAL</b>	<b>24000</b>		<b>1268.54</b>

By Rupee Cost Averaging Method:

The Average Unit Cost of MF = Total Investment / Total Unit of MF =  $24000 / 1268.54 = 18.92$

Total Sales amount =  $1268.52 \times 25.12 = 31865.22$

**Profit = 7865.22**



Mr. Desai invested ₹ 7000/- on 1st of every month for 5 months in a SIP of a M.F. with NAV's as ₹ 48.15, ₹ 52.83, ₹ 41.28, ₹ 35.44 & ₹ 32.65 respectively .There was no entry load charged. Find the average price, Mr. Desai paid using the Rupee-cost-Averaging method. After 5 months, he sold all his units, when NAV was Rs. 51.64 with contingent deferred sales charge (CDSC) as 2.25 %. Find his net gain.

Months	Investment	NAV	Units of MF
1	7000	48.15	145.38
2	7000	52.83	132.50
3	7000	41.28	169.57
4	7000	35.44	197.52
5	7000	32.65	214.40
<b>Total</b>	<b>35000</b>		<b>859.37</b>

By Rupee Cost Averaging Method:

The Average Unit Cost of MF = Total Investment / Total Unit of MF =  $35000 / 859.37 = 40.72$

Total Sales amount =  $859.37 \times (51.64 - 2.25\% \text{ of } 51.64) = 859.37 \times 50.48 = 43380.75$

**Profit = 43380.75 – 35000 = 8380.75**