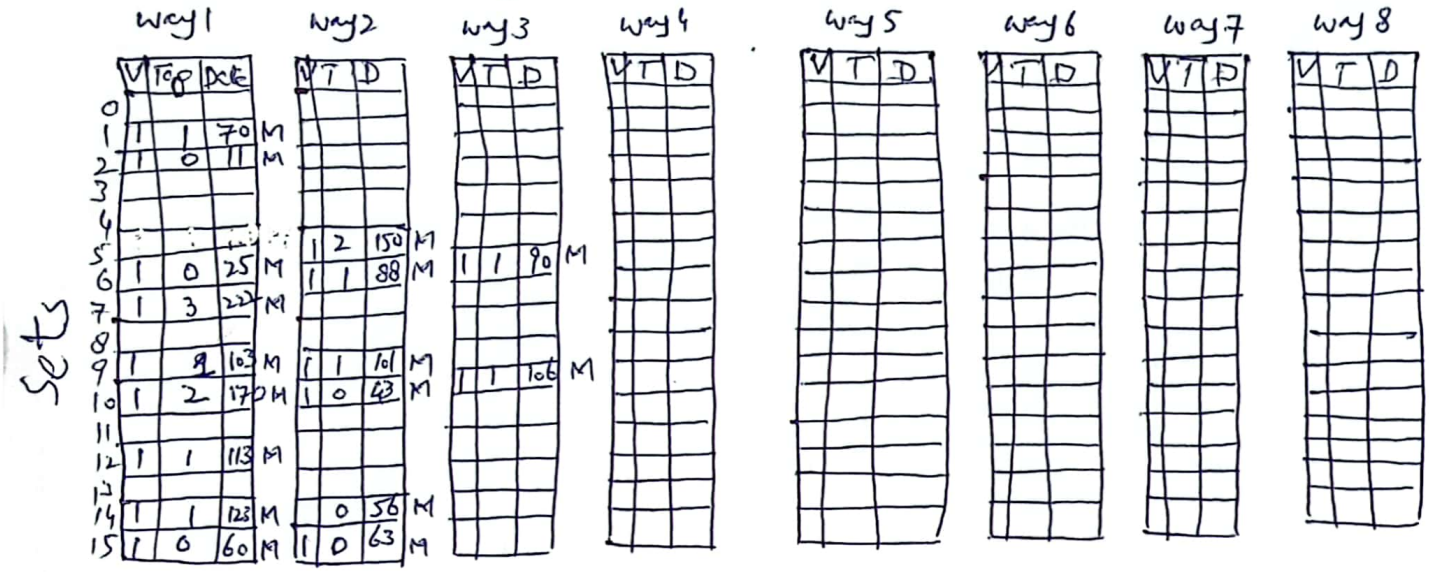
8-way Set Associative Cache :-

Cache size = 128 Blocks

Block size = 4 words.

Associativity = 8

No. of sets = $\frac{128}{8}$ = 16 sets



Word Address	Main Memory Block	Cache set	Tag value
25	25/4 = 6	6 MOD 16 = 6	6/16 = 0
170	170/4 = 42	42 MOD 16 = 10	42/16 = 2
222	222/4 = 55	55 MOD 16 = 7	55/16 = 3
103	103/4 = 25	25 MOD 16 = 9	25/16 = 1
60	60/4 = 15	15 MOD 16 = 15	15/16 = 0
106	106/4 = 26	26 MOD 16 = 10	26/16 = 1
63	63/4 = 15	15 MOD 16 = 15	15/16 = 0
113	113/4 = 28	28 MOD 16 = 12	28/16 = 1
101	101/4 = 25	25 MOD 16 = 9	25/16 = 1
123	123/4 = 30	30 MOD 16 = 14	30/16 = 1
150	150/4 = 37	37 MOD 16 = 5	37/16 = 2
11	11/4 = 2	2 MOD 16 = 2	2/16 = 0
56	56/4 = 14	14 MOD 16 = 14	14/16 = 0
70	70/4 = 17	17 MOD 16 = 1	17/16 = 1
88	88/4 = 22	22 MOD 16 = 6	22/16 = 1
90	90/4 = 22	22 MOD 16 = 6	22/16 = 1
43	43/4 = 10	10 MOD 16 = 10	10/16 = 0

Total number of words in a Block = 4 words.

miss penalty = 150ns x 1 + 10ns x 3 = 180ns

hit rate = 80%, miss rate = 100 - 80 = 20%

hit rate = 5ns

AMAT = ht + mr x mp = 5ns + 0.20 x 180ns = 5 + 36 = 41ns