1&2) Cache Hits / Misses

i) 128 Bytes 1-way direct mapped cache with 16 bytes per line

```
------------------------------------------
             CACHE PARAMETERS
------------------------------------------
L (Bytes per cache line)    -> 16
K (Cache lines per set)     -> 1
N (Number of sets)          -> 8


------------------------------------------
             CACHE INFORMATION
------------------------------------------
Cache Size                  -> 128
Set Selector Length (Bits) -> 3
```

HEX	TAG BITS	DATA	OFFSET	RESULT
0x0000	000000000	000	0000	MISS
0x0004	000000000	000	0100	HIT
0x000c	000000000	000	1100	HIT
0x2200	001000100	000	0000	MISS
0x00d0	000000001	101	0000	MISS
0x00e0	000000001	110	0000	MISS
0x1130	000100010	011	0000	MISS
0x0028	000000000	010	1000	MISS
0x113c	000100010	011	1100	HIT
0x2204	001000100	000	0100	HIT
0x0010	000000000	001	0000	MISS
0x0020	000000000	010	0000	HIT
0x0004	000000000	000	0100	MISS
0x0040	000000000	100	0000	MISS
0x2208	001000100	000	1000	MISS
0x0008	000000000	000	1000	MISS
0x00a0	000000001	010	0000	MISS
0x0004	000000000	000	0100	HIT
0x1104	000100010	000	0100	MISS
0x0028	000000000	010	1000	MISS
0x000c	000000000	000	1100	MISS
0x0084	000000001	000	0100	MISS
0x000c	000000000	000	1100	MISS
0x3390	001100111	001	0000	MISS
0x00b0	000000001	011	0000	MISS
0x1100	000100010	000	0000	MISS
0x0028	000000000	010	1000	HIT
0x0064	000000000	110	0100	MISS
0x0070	000000000	111	0000	MISS
0x00d0	000000001	101	0000	HIT
0x0008	000000000	000	1000	MISS
0x3394	001100111	001	0100	HIT

```
Total Hit Count = 9
Total Miss Count = 23
```

ii) 128 Bytes 2-way set associative cache with 16 bytes per line

```
----------------------------------------------
              CACHE PARAMETERS
----------------------------------------------
L (Bytes per cache line)    -> 16
K (Cache lines per set)     -> 2
N (Number of sets)          -> 4


----------------------------------------------
              CACHE INFORMATION
----------------------------------------------
Cache Size                  -> 128
Set Selector Length (Bits) -> 2

|  HEX   | TAG BITS   | DATA | OFFSET | RESULT
----------------------------------------------
| 0x0000 | 0000000000 |  00  |  0000  | MISS
| 0x0004 | 0000000000 |  00  |  0100  | HIT
| 0x000c | 0000000000 |  00  |  1100  | HIT
| 0x2200 | 0010001000 |  00  |  0000  | MISS
| 0x00d0 | 0000000011 |  01  |  0000  | MISS
| 0x00e0 | 0000000011 |  10  |  0000  | MISS
| 0x1130 | 0001000100 |  11  |  0000  | MISS
| 0x0028 | 0000000000 |  10  |  1000  | MISS
| 0x113c | 0001000100 |  11  |  1100  | HIT
| 0x2204 | 0010001000 |  00  |  0100  | HIT
| 0x0010 | 0000000000 |  01  |  0000  | MISS
| 0x0020 | 0000000000 |  10  |  0000  | HIT
| 0x0004 | 0000000000 |  00  |  0100  | HIT
| 0x0040 | 0000000001 |  00  |  0000  | MISS
| 0x2208 | 0010001000 |  00  |  1000  | HIT
| 0x0008 | 0000000000 |  00  |  1000  | MISS
| 0x00a0 | 0000000010 |  10  |  0000  | MISS
| 0x0004 | 0000000000 |  00  |  0100  | HIT
| 0x1104 | 0001000100 |  00  |  0100  | MISS
| 0x0028 | 0000000000 |  10  |  1000  | HIT
| 0x000c | 0000000000 |  00  |  1100  | HIT
| 0x0084 | 0000000010 |  00  |  0100  | MISS
| 0x000c | 0000000000 |  00  |  1100  | MISS
| 0x3390 | 0011001110 |  01  |  0000  | MISS
| 0x00b0 | 0000000010 |  11  |  0000  | MISS
| 0x1100 | 0001000100 |  00  |  0000  | HIT
| 0x0028 | 0000000000 |  10  |  1000  | HIT
| 0x0064 | 0000000001 |  10  |  0100  | MISS
| 0x0070 | 0000000001 |  11  |  0000  | MISS
| 0x00d0 | 0000000011 |  01  |  0000  | MISS
| 0x0008 | 0000000000 |  00  |  1000  | HIT
| 0x3394 | 0011001110 |  01  |  0100  | HIT

Total Hit Count = 14
Total Miss Count = 18
```

iii) 128 Bytes 4-way set associative cache with 16 bytes per line

```
--------------------------------------
            CACHE PARAMETERS
--------------------------------------
L (Bytes per cache line)    -> 16
K (Cache lines per set)     -> 4
N (Number of sets)          -> 2



--------------------------------------
           CACHE INFORMATION
--------------------------------------
Cache Size                  -> 128
Set Selector Length (Bits) -> 1

|  HEX  |  TAG BITS  | DATA | OFFSET | RESULT
-------------------------------------------
| 0x0000 | 00000000000 | 0 |  0000  | MISS
| 0x0004 | 00000000000 | 0 |  0100  | HIT
| 0x000c | 00000000000 | 0 |  1100  | HIT
| 0x2200 | 00100010000 | 0 |  0000  | MISS
| 0x00d0 | 00000000110 | 1 |  0000  | MISS
| 0x00e0 | 00000000111 | 0 |  0000  | MISS
| 0x1130 | 00010001001 | 1 |  0000  | MISS
| 0x0028 | 00000000001 | 0 |  1000  | MISS
| 0x113c | 00010001001 | 1 |  1100  | HIT
| 0x2204 | 00100010000 | 0 |  0100  | HIT
| 0x0010 | 00000000000 | 1 |  0000  | MISS
| 0x0020 | 00000000001 | 0 |  0000  | HIT
| 0x0004 | 00000000000 | 0 |  0100  | HIT
| 0x0040 | 00000000010 | 0 |  0000  | MISS
| 0x2208 | 00100010000 | 0 |  1000  | HIT
| 0x0008 | 00000000000 | 0 |  1000  | MISS
| 0x00a0 | 00000000101 | 0 |  0000  | MISS
| 0x0004 | 00000000000 | 0 |  0100  | MISS
| 0x1104 | 00010001000 | 0 |  0100  | MISS
| 0x0028 | 00000000001 | 0 |  1000  | HIT
| 0x000c | 00000000000 | 0 |  1100  | MISS
| 0x0084 | 00000000100 | 0 |  0100  | MISS
| 0x000c | 00000000000 | 0 |  1100  | MISS
| 0x3390 | 00110011100 | 1 |  0000  | MISS
| 0x00b0 | 00000000101 | 1 |  0000  | MISS
| 0x1100 | 00010001000 | 0 |  0000  | MISS
| 0x0028 | 00000000001 | 0 |  1000  | HIT
| 0x0064 | 00000000011 | 0 |  0100  | MISS
| 0x0070 | 00000000011 | 1 |  0000  | MISS
| 0x00d0 | 00000000110 | 1 |  0000  | MISS
| 0x0008 | 00000000000 | 0 |  1000  | MISS
| 0x3394 | 00110011100 | 1 |  0100  | HIT

Total Hit Count = 10
Total Miss Count = 22
```

iv) 128 Bytes 8-way set associative cache with 16 bytes per line

```
----------------------------------------------
                CACHE PARAMETERS
----------------------------------------------
L (Bytes per cache line)    -> 16
K (Cache lines per set)     -> 8
N (Number of sets)          -> 1


----------------------------------------------
                CACHE INFORMATION
----------------------------------------------
Cache Size                  -> 128
Set Selector Length (Bits) -> 0

|   HEX  |   TAG BITS  | DATA | OFFSET | RESULT
----------------------------------------------------
| 0x0000 | 000000000000 | 0 |  0000  | MISS
| 0x0004 | 000000000000 | 0 |  0100  | HIT
| 0x000c | 000000000000 | 0 |  1100  | HIT
| 0x2200 | 001000100000 | 0 |  0000  | MISS
| 0x00d0 | 000000001101 | 0 |  0000  | MISS
| 0x00e0 | 000000001110 | 0 |  0000  | MISS
| 0x1130 | 000100010011 | 0 |  0000  | MISS
| 0x0028 | 000000000010 | 0 |  1000  | MISS
| 0x113c | 000100010011 | 0 |  1100  | HIT
| 0x2204 | 001000100000 | 0 |  0100  | HIT
| 0x0010 | 000000000001 | 0 |  0000  | MISS
| 0x0020 | 000000000010 | 0 |  0000  | HIT
| 0x0004 | 000000000000 | 0 |  0100  | HIT
| 0x0040 | 000000000100 | 0 |  0000  | MISS
| 0x2208 | 001000100000 | 0 |  1000  | HIT
| 0x0008 | 000000000000 | 0 |  1000  | HIT
| 0x00a0 | 000000001010 | 0 |  0000  | MISS
| 0x0004 | 000000000000 | 0 |  0100  | MISS
| 0x1104 | 000100010000 | 0 |  0100  | MISS
| 0x0028 | 000000000010 | 0 |  1000  | HIT
| 0x000c | 000000000000 | 0 |  1100  | MISS
| 0x0084 | 000000001000 | 0 |  0100  | MISS
| 0x000c | 000000000000 | 0 |  1100  | MISS
| 0x3390 | 001100111001 | 0 |  0000  | MISS
| 0x00b0 | 000000001011 | 0 |  0000  | MISS
| 0x1100 | 000100010000 | 0 |  0000  | MISS
| 0x0028 | 000000000010 | 0 |  1000  | HIT
| 0x0064 | 000000000110 | 0 |  0100  | MISS
| 0x0070 | 000000000111 | 0 |  0000  | MISS
| 0x00d0 | 000000001101 | 0 |  0000  | HIT
| 0x0008 | 000000000000 | 0 |  1000  | MISS
| 0x3394 | 001100111001 | 0 |  0100  | MISS

Total Hit Count = 11
Total Miss Count = 21
```