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Avaliação Fundamentos da Computação
Aluno: Eligem Vailont

(1)

I - $(1111001011011)_2 \rightarrow (\ )_{10}$

2^{13}	2^{12}	2^{11}	2^{10}	2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
1	1	1	1	0	0	1	0	1	1	0	1	1	1

8192+4096+2048+1024+128+32+16+4+2+1 = $15543_{(10)}$

II - $(74256)_{(8)}$

7 4 2 5 6

4|2|1 4|2|1 4|2|1 4|2|1 4|2|1

1 1 1, 1 0 0 0, 1 0 1 0, 1 1 0

0111 1000 1010 1110

8|4|2|1 8|4|2|1 8|4|2|1 8|4|2|1 → $78AE_{(16)}$

7 8 10 14

7 8 A E

III $(A7|38C9)_{16} \rightarrow (\ )_{10}$

9 = 9 × (16^0) = 9

C = 12 × (16^1) = 192

8 = 8 × (16^2) = 2048

3 = 11 × (16^3) = 45056

7 = 7 × (16^4) = 458752

A = 10 × (16^5) = 10485760

→ $10991817_{(10)}$

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(2) I (45574)$_8$

2^2	2^1	2^0
4	2	1

4 = 100$_2$
5 = 101
5 = 101
7 = 111
4 = 100

→ 1001011011111100$_{(2)}$

1001011011111100

(0x2)+1=1 (18x2)+1=37 (603x2)+1=1207
(1x2)+0=2 (37x2)+1=75 (1207x2)+1=2415
(2x2)+0=4 (75x2)+0=150 (2415x2)+1=4831
(4x2)+1=9 (150x2)+1=301 (4831x2)+0=9662
(9x2)+0=18 (301x2)+1=603 (9662x2)+0=19324

19324$_{10}$

II (D4E5F6)$_{16}$ → ( )$_{10}$

6 = 6x(16^0) = 6
F = 15x(16^1) = 240
5 = 5x(16^2) = 1280
E = 14x(16^3) = 57344
4 = 4x(16^4) = 262144
D = 13x(16^5) = 13631488

→ 13952502$_{10}$

III (2251058)$_{10}$ → ( )$_{16}$

2251058/16 → 2
140691/16 → 3
8793/16 → 9
549/16 → 5
34/16 → 2
2/16 → 2

→ 22593216

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3) I $(AAF456)_{16} \rightarrow (\ )_{10}$

$6 \times 16^0 = 6$

$5 \times 16^1 = 80$

$4 \times 16^2 = 1024$

$15 \times 16^3 = 61440$

$10 \times 16^4 = 655360$

$10 \times 16^5 = 10485760$

$11\,903\,670_{10}$

II $(772354)_8 \rightarrow (\ .\ )_{10}$

$4 \times 8^0 = 4$

$5 \times 8^1 = 40$

$3 \times 8^2 = 192$

$2 \times 8^3 = 1024$

$7 \times 8^4 = 28672$

$7 \times 8^5 = 229376$

$259\,308_{10}$

III $(4689933)_{10} \rightarrow (16240001)_8$?

$1 \times 8^0 = 1$

$4 \times 8^3 = 2048$

$2 \times 8^4 = 8192$

$6 \times 8^5 = 196608$

$1 \times 8^6 = 262144$

$468\,993_{10}$

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④ I $(CCAAB7B9)_{16}$ → ? → $(549398588825)_{10}$

$9 \times 16^0 = 9$
$8 \times 16^1 = 128$
$7 \times 16^2 = 1792$
$11 \times 16^3 = 45056$
$11 \times 16^4 = 720896$

$10 \times 16^5 = 10485760$
$10 \times 16^6 = 167772160$
$12 \times 16^7 = 3221225472$
$12 \times 16^8 = 51539607552$

$(549398588825)_{10}$

II $(1111111010101010001)_2$

17 16 15 14 13 12 11 10 8 6 4 0

$2^0 = 1$
$2^4 = 16$
$2^6 = 64$
$2^8 = 256$
$2^{10} = 1024$

$2^{12} = 4096$
$2^{14} = 16384$
$2^{15} = 32768$
$2^{16} = 65536$
$2^{17} = 131072$

$2^{18} = 262144$
524288
1048576

III $(11100101001000100001)_2$

20 19 18 15 13 10 6 5 0

$2^0 = 1$
$2^5 = 8$
$2^6 = 64$
$2^{10} = 1024$
$2^{13} = 8192$
$2^{15} = 32768$

$2^{18} = 262144$
$2^{19} = 524288$
$2^{20} = 1048576$

1877065_{10}

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⑤ I $(4562189)_{10}$ → $(10001011001110100001001)_2$

22 18 16 15 13 11 10 8 7 0

$10001011001110100001001_2$

$2^0 = 1$
$2^3 = 8$
$2^8 = 256$
$2^{10} = 1024$
$2^{11} = 2048$
$2^{12} = 4096$
$2^{15} = 32768$
$2^{16} = 65536$
$2^{18} = 262144$
$2^{22} = 4194304$

$4.562.185_{10}$

II $(111000110101010001)_2$ → $(931157)_{10}$

$2^0 = 1$
$2^4 = 16$
$2^6 = 64$
$2^8 = 256$
$2^{10} = 1024$
$2^{12} = 4096$
$2^{13} = 8192$
$2^{14} = 16384$
$2^{18} = 262144$
$2^{19} = 524288$

→ 931153_{10}

III $(011001010001000100001)_2$ → $(828489)_{10}$

19 18 15 13 10 6 0

$2^0 = 1$
$2^3 = 8$
$2^6 = 64$
$2^{10} = 1024$
$2^{13} = 8192$
$2^{15} = 32768$
$2^{18} = 262144$
$2^{19} = 524288$

→ 828489

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(9) I $(4781056)_{10} \xrightarrow{?} (10111011001100000101010000)_2$

$2^4 = 16$ $2^{10} = 1024$ $2^{20} = 1048576$
$2^6 = 64$ $2^{15} = 32768$ $2^{22} = 4194304$
$2^7 = 128$ $2^{16} = 65536$ $2^{23} = 8388608$
$2^9 = 512$ $2^{19} = 524288$ $2^{25} = 33554432$

4781056_{10}

II $(AAD3C5)_{16} \xrightarrow{?} (11185334)_{10}$

$10 \times 16^5 + 10 \times 16^4 + 13 \times 4096 + 3 \times 256 + 12 \times 16 + 5 \times 1 =$
11185333

III $(111111000110010)_2 \xrightarrow{?} (64613)$

$2^0 = 1$ $2^{11} = 2048$
$2^2 = 4$ $2^{12} = 4096$ $\rightarrow 64613_{10}$
$2^5 = 32$ $2^{13} = 8192$
$2^6 = 64$ $2^{14} = 16384$
$2^{10} = 1024$ $2^{15} = 32768$

(10) 2,5 Terabytes (Tb) - Megabytes (Mb)
1 Terabyte = 1048576 MB

$2,5 \times 1048576 = 2621440$ MB