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CSCI2160Quiz1F09HexCodes Name: Brandon Barbosa

Complete the below table (12 pts):

Character	Hollerith (punches)	EBCDIC (binary codes)	EBCDIC Hex	ASCII Binary	ASCII Hex	ASCII Decimal
F	12 - 6 ✓	1100 0110	C6 ✓	0100 0110 ✓	46 ✓	70 ✓
N	11 - 5 ✓	1001 0101 X	95 X	0101 1101 X	5D X	78 ✓
V	0 - 5	1011 0101 X	A5 X	0110 0110 X	66 X	86 ✓
7	7 ✓	0000 0111 X	07 X	0000 0111 X	07 X	7 X

-7

(4 pts) Why are there 8 bits in a byte (give 2 reasons)?

- To represent all characters such as letters, numbers, and symbols, 8 bits were needed to represent the entire set
- It is easier to read because 8 bits can make 2 hex digits

(12) pts_Perform the below computations (The tiny numbers indicate the base)

$1BAC_{16}$ (Base 16)
$+9FDC_{16}$
$BB88_h$ ✓

10101101_2
$+01011111_2$
100001100_2 ✓

234_5 (Base 5)
$\times 32_5$
1023
1312
2340_5 X

$2123A_{16}$
$-B4DE_{16}$
$15D5C_h$ ✓

-3

-10

3. (22 pts) Fill in the below table using the the boot sector defined below:

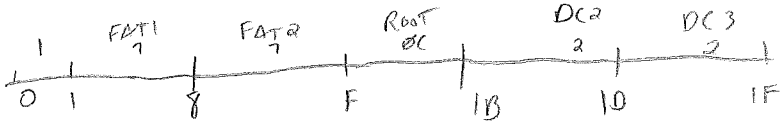
```
-d 100
13F3:0100  EB 34 90 54 41 4E 20 20-33 2E 33 00 02 02 02 00
13F3:0110  02 C0 00 40 0B F0 07 00-12 00 02 00 00 00 00 00
13F3:0120  00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 12
13F3:0130  00 00 00 00 01 00 FA 33-C0 8E D0 BC 00 7C 16 07
13F3:0140  BB 78 00 36 C5 37 1E 56-16 53 BF 2B 7C B9 0B 00
13F3:0150  FC AC 26 80 3D 00 74 03-26 8A 05 AA 8A C4 E2 F1
13F3:0160  06 1F 89 47 02 C7 07 2B-7C FB CD 13 72 73 80 3E
13F3:0170  15 7C ED 75 05 C6 06 90-04 54 A0 10 7C 98 F7 26
-_
```

Parameter	Answer in HEX
# bytes/sector	EB 34
# sectors/cluster	90
# FATs	4E
# Sectors/FAT	0024
Max # of Root directory entries	2020
# Sectors in Root	
Absolute starting Sector # for Root	
Absolute starting Sector # for 1st data cluster	
Abs. sector # for 2nd data cluster	
Abs. sector # for data cluster 2Ch	

144

2020 entries · 20 bytes/entry / EB 34 bytes/sector =

Draw the disk layout for the above diskette.



ABS = start of DC2 + 2 × (N-2)

4. (50 pts) Given that the below represents an entry at 0300h for a file in DOS, answer the below questions:

```
13F3:0300  42 41 49 4C 45 59 20 20-46 49 4C 20 00 1E A6 6E
13F3:0310  37 2F 29 3B 00 00 75 6E-29 3B 1D 00 4B 08 00 00
13F3:0320  00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00
```

a) What is the name and extension of the file? BAILEY.FIL

b) What is the size of the file in bytes

0840_h = 2048 + 64 + 11 = 2123 byts

c) What is the beginning disk cluster for the file? 0010_h

d) Assuming 2 FATs, 9 sectors/FAT, 0Eh sectors/Root, 1 sector per cluster, what is the absolute sector for the disk cluster in c)?

$21 + (10-2) \times 1$

$21 + 18$

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e) What is the date of the last update?

3B 29 = 0011 1001 0010 1001 = 28 | 9 | 5

September 9, 2009

f) What is the time of the last update?

6E 75 = 0110 1110 0111 0101 = 13 | 51 | 21

1:51:42 P.M.

g) Suppose that you want to change the date of the last update to October 15, 2009. What would you type at the command line (after the dash) for the above file?

0011 1011 0100 1111 = 3 B 4 F

-e 318 4F 3B

h) Suppose that you want to change the time of the last update to 4:15:22 PM. What would you type at the command line (after the dash) for the above file?

1000 0011 1110 1011
8 3 E B

-e 316 EB 8B

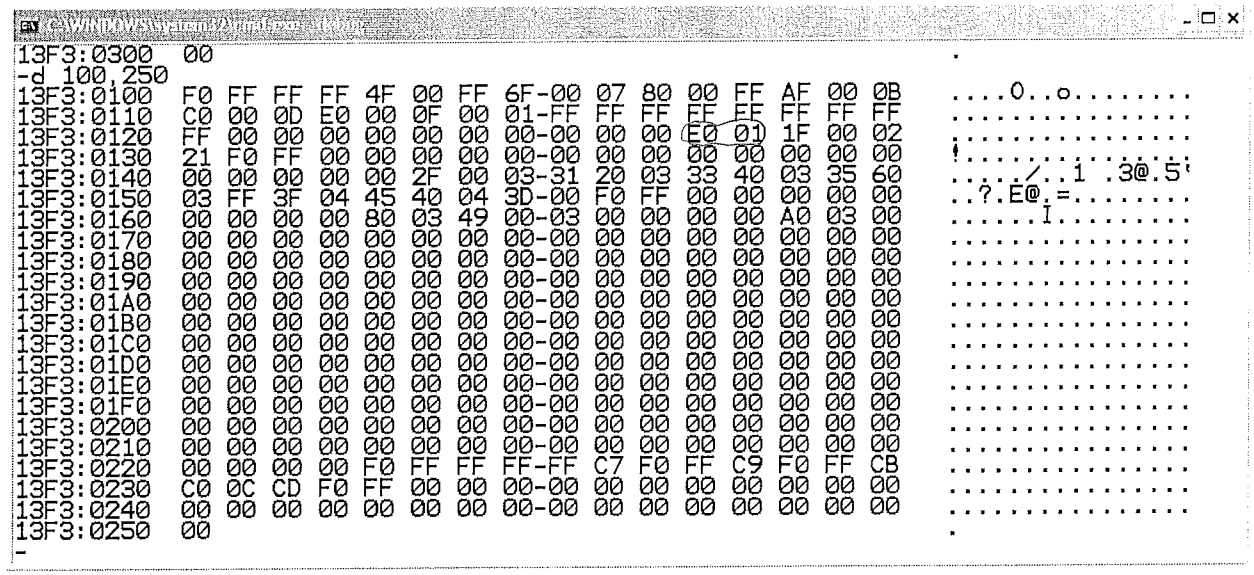
i) Assuming that there is one sector per cluster, how many clusters are there in this file?

4 r 11
512 | 2123
2048

5 clusters

j) Given the dump of FAT1 below, determine all of the clusters for this file.

10


C:\WINDOWS\system32\cmd.exe - debug
13F3:0300 00
-d 100,250
13F3:0100 F0 FF FF FF 4F 00 FF 6F-00 07 80 00 FF AF 00 0B ....O..o........
13F3:0110 C0 00 0D E0 00 0F 00 01-FF FF FF FF FF FF FF FF ....
13F3:0120 FF 00 00 00 00 00 00 00-00 00 00 E0 01 1F 00 02 ....
13F3:0130 21 F0 FF 00 00 00 00 00-00 00 00 00 00 00 00 00 !...............
13F3:0140 00 00 00 00 00 2F 00 03-31 20 03 33 40 03 35 60 ...../..1 .3@.5`
13F3:0150 03 FF 3F 04 45 40 04 3D-00 F0 FF 00 00 00 00 00 ..?.E@.=........
13F3:0160 00 00 00 00 80 03 49 00-03 00 00 00 00 A0 03 00 ......I.........
13F3:0170 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:0180 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:0190 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:01A0 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:01B0 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:01C0 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:01D0 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:01E0 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:01F0 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:0200 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:0210 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:0220 00 00 00 00 F0 FF FF FF-FF C7 F0 FF C9 F0 FF CB ....
13F3:0230 C0 0C CD F0 FF 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:0240 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 ....
13F3:0250 00 .
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