MODULE C DATA REPRESENTATION · C3

Hexadecimal and why we use it

Original practice questions · 20 marks · ~25 minutes · Cambridge 0478 syllabus 1.1.2(b)(ii), 1.1.3

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. No calculator. Hexadecimal numbers on this worksheet have up to **4 digits**. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**.

1

Total: 2 marks

(a) State the base of the hexadecimal number system. **[1]**

(b) Tick (✓) **one** box to show which of these is a valid hexadecimal number. **[1]**

Number	Tick (✓) one
1G4	
3AF	
2.5	
H12	

2

Total: 5 marks

A warehouse robot stores the number of the shelf it is going to as a positive integer. Engineers see the shelf number in hexadecimal.

(a) Convert the denary number 92 into hexadecimal. **[1]**

Answer: .....

(b) Convert the denary number 400 into hexadecimal. Show your working. **[2]**

Working:

Answer: .....

(c) Convert the denary number 2750 into hexadecimal. Show your working. **[2]**

Working:

Answer: .....

3 **Total: 5 marks**

(a) Convert the hexadecimal number 7F into denary. **[1]**

Answer: .....

(b) Convert the hexadecimal number 1A0 into denary. Show your working. **[2]**

Working:

Answer: .....

(c) Convert the hexadecimal number 3C2D into denary. Show your working. **[2]**

Working:

Answer: .....

4 **Total: 3 marks**

A design company builds web pages. One colour is written as the code #00C8FF, which gives the red, green and blue values as two hexadecimal digits each.

(a) State the denary value of the green part of the colour, C8. **[1]**

Answer: .....

(b) Identify **two other** uses of hexadecimal in computer science. **[2]**

1

2

5 **Total: 2 marks**

A network interface card has a MAC address made of 48 bits. It is written as 12 hexadecimal digits.

(a) State how many bits are shown by **one** hexadecimal digit. **[1]**

(b) State the largest denary value that can be written using 4 hexadecimal digits. **[1]**

6 **Total: 3 marks**

(a) Explain why computer scientists use hexadecimal instead of binary to represent data. **[3]**

Total for this worksheet: 20 marks