MODULE C DATA REPRESENTATION · C4

Converting binary and hexadecimal

Original practice questions · 20 marks · ~25 minutes · OCR J277 spec 1.2.4

Name _____ Date _____

Instructions. Answer all questions in the spaces provided. No calculator. All binary numbers are 8 bits and all hexadecimal numbers are 2 digits. The marks for each part are shown in brackets [ ]. The total for this worksheet is **20 marks**.

1

Total: 5 marks

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

(b) Convert the binary number 1001 1101 into hexadecimal. Show your working. **[2]**

Answer: .....

(c) Convert the binary number 0111 0000 into hexadecimal. **[2]**

Answer: .....

2

Total: 4 marks

(a) Convert the hexadecimal number 4C into 8-bit binary. Show your working. **[2]**

Answer: .....

(b) Convert the hexadecimal number F3 into 8-bit binary. **[2]**

Answer: .....

3 **Total: 4 marks**

(a) Complete the table by writing the missing 8-bit binary or 2-digit hexadecimal value in each gap. **[4]**

8-bit binary	Hexadecimal
0010 1011	
	E8
1111 1111	
	06

4 **Total: 2 marks**

A heating engineer reads a fault code from a boiler control board. The board shows the code as the binary number 1010 0001. The engineer converts it and writes the hexadecimal code as **101**.

(a) Identify the mistake the engineer has made. **[1]**

(b) Write the correct hexadecimal code. **[1]**

Answer: .....

5 **Total: 3 marks**

(a) Describe how to convert an 8-bit binary number into hexadecimal. Use your own example in your answer. **[3]**

6 **Total: 2 marks**

(a) Tick (✓) **one** box to show the hexadecimal value of the binary number 1100 0111. **[1]**

Hexadecimal	Tick (✓) one
7C	
C7	
127	
CF	

(b) State the largest hexadecimal value that can be stored in 8 bits. **[1]**

Total for this worksheet: 20 marks