AQA Computer Science A-Level

4.5.2 Number bases

Past Paper Mark Schemes

Additional Specimen AS Paper 2

02	**1**		**All marks AO2 (apply)** (0)1100110;	1

02	**2**		**All marks AO2 (apply)** 87 to binary: 01010111 binary to hex: 57 1 mark for working: conversion of 87 to binary or use of 5 * 16 being 80; 1 mark for answer: 57	2

02	**3**		**All marks AO2 (apply)** Examples: (MAX 1) Use of hexadecimal to represent colour codes Use of hexadecimal for memory dumps Use of hexadecimal to represent MAC addresses [or any other suitable example] Hexadecimal is used as it provides a shorter representation of a number than binary;	2

Additional Specimen Paper 2

02	**1**	**All marks AO2 (apply)** Correct representation of 78: 01001110; Correct representation of -23:11101001; Correct result 55: 00110111;	3

03	**4**	**Mark is for AO2 (apply)** B1;	1

03	5	**Mark is for AO1 (understanding)** Easier for people to read/understand/remember; **R.** If implication is it easier for a computer to read/understand/remember Can be displayed using fewer digits; More compact when printed/displayed; **NE.** Takes up less space	1
		NE. More compact **MAX 1**	

January 2012 Comp 2

1	a		Third (generation) // 3; **R** High Level Language	1	Do not reject high level language if answer also contains '3rd generation' – refer upwards for anything else.
1	b	i	Hexadecimal // base 16; **A** Hex	1	Hex used in textbook
1	b	ii	Take up less space when printing/viewing; **NE** takes up less space Less likely to make errors; Op-codes are easier to recognize; Easier to understand; Less time taken when coding as more concise // quicker to program;		
			NE – easier to read **NE** – quick to write	**MAX 1**	
1	b	iii	Lowest address : 00 Highest address : FF BOTH correct to gain one mark; Accept 0 for lowest address Accept 255 for highest address	1	Accept notation in front of hex &, $

June 2010 Comp 2

7	**(c)**		Can be <u>displayed</u> in less space; **R** takes up less space NE Easier to remember/learn/read/understand; Less error prone; **MAX 1**	1

June 2016 AS Paper 2

02	1	**Mark is for AO2 (apply)** 39; **A.** #39	1
02	2	**Mark is for AO1 (understanding)** More compact when displayed; Easier (for people) to understand/remember; **A.** read Lower likelihood of an error when typing in data; Saves (the programmer) time writing/typing in data; **NE** takes up less space **R.** if answer states that hexadecimal uses less memory/storage **Max 1**	1

June 2011 Comp 1

01	0111 1011;	**1**

03	7;B;	**2**

04	Easier for <u>people</u> to read/understand; (Can be displayed using) fewer digits; More compact when printed/displayed; **NE.** Takes up less space **NE.** More compact	**Max 1**

June 2013 Comp 1

01	167;;
	
	If final answer is incorrect **MAX 1** can be awarded for some correct working out being shown by the candidate:
	
	1010 0111;
	10 * 16 // 160 // A * 16;
	A = 10;
	Multiplying a value by 16 and adding on 7;
		2

Specimen AS Paper 2

02	**1**		**All marks AO2 (apply)** **1 mark for working:** conversion of D to 13 or multiplication of a number (even if not 13) by 16 and adding 6 to the result; **1 mark for answer:** 214;	2