

**0478 and 0984(9-1)**  
**COMPUTER SCIENCE**  
**TOPIC MARK SCHEMES SET-2**  
**SMART EXAM RESOURCES**

**Unit 1.1 Number Systems**

**MARKS SCHEME**

Unit 1.1 Number Systems

ANSWER 1 (a)

One mark per each correct binary value. One mark per each correct hex value.			<b>6</b>
<b>Denary</b>	<b>Hexadecimal</b>	<b>8-bit binary</b>	
49	31	00110001	
123	7B	01111011	
200	C8	11001000	

ANSWER 1 (b)

Any <b>two</b> from: – Easier/quicker to read/write/understand – Easier/quicker to identify errors/debug – Takes up less <b>screen/display</b> space – Less chance of making an error	<b>2</b>
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ANSWER 1 (c)

Any <b>three</b> from: – MAC address – URL – Assembly language – Error codes // error messages – IP addresses – Locations in memory – Memory dumps	<b>3</b>
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## Unit 1.1 Number Systems

### ANSWER 2 (a)

<p><b>One mark for each correct line</b></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%; text-align: center; padding: 5px;"><b>Denary</b></th> <th style="width: 10%;"></th> <th style="width: 60%; text-align: center; padding: 5px;"><b>8-bit binary</b></th> </tr> </thead> <tbody> <tr> <td style="border: 1px solid black; text-align: center; padding: 5px;">41</td> <td style="border: none; padding: 0 10px;"> </td> <td style="border: 1px solid black; text-align: center; padding: 5px;">00100001</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none; padding: 0 10px;"> </td> <td style="border: 1px solid black; text-align: center; padding: 5px;">10100110</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; padding: 5px;">174</td> <td style="border: none; padding: 0 10px;"> </td> <td style="border: 1px solid black; text-align: center; padding: 5px;">00101001</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none; padding: 0 10px;"> </td> <td style="border: 1px solid black; text-align: center; padding: 5px;">10000110</td> </tr> <tr> <td style="border: 1px solid black; text-align: center; padding: 5px;">86</td> <td style="border: none; padding: 0 10px;"> </td> <td style="border: 1px solid black; text-align: center; padding: 5px;">10101110</td> </tr> <tr> <td style="border: none;"></td> <td style="border: none; padding: 0 10px;"> </td> <td style="border: 1px solid black; text-align: center; padding: 5px;">01010110</td> </tr> </tbody> </table>	<b>Denary</b>		<b>8-bit binary</b>	41		00100001			10100110	174		00101001			10000110	86		10101110			01010110	<b>3</b>
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### ANSWER 2 (b)

<p><b>One mark for correct working, one mark for correct answer</b></p> <p>Working e.g.</p> <ul style="list-style-type: none"> <li>• <math>256 + 64 + 16 + 4 + 2 + 1</math></li> </ul> <p>Answer:</p> <ul style="list-style-type: none"> <li>• 343</li> </ul>	<b>2</b>
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### ANSWER 3 (a)

<p><b>Two marks each correct conversion (one mark for the first four bits, one mark for the second four bits)</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; padding: 5px;">2F</td> <td style="border: 1px solid black; padding: 5px;">0</td> <td style="border: 1px solid black; padding: 5px;">0</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">0</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">1</td> </tr> <tr> <td style="padding: 5px;">15</td> <td style="border: 1px solid black; padding: 5px;">0</td> <td style="border: 1px solid black; padding: 5px;">0</td> <td style="border: 1px solid black; padding: 5px;">0</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">0</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">0</td> <td style="border: 1px solid black; padding: 5px;">1</td> </tr> <tr> <td style="padding: 5px;">D6</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">0</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">0</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">0</td> </tr> </table>	2F	0	0	1	0	1	1	1	1	15	0	0	0	1	0	1	0	1	D6	1	1	0	1	0	1	1	0	<b>6</b>
2F	0	0	1	0	1	1	1	1																				
15	0	0	0	1	0	1	0	1																				
D6	1	1	0	1	0	1	1	0																				

### ANSWER 3(b)

<p>Any <b>two</b> from:</p> <ul style="list-style-type: none"> <li>• IP address</li> <li>• Error messages/codes</li> <li>• Assembly language // low-level language</li> <li>• URL // web address</li> <li>• Memory dumps</li> <li>• Locations in memory</li> </ul>	<b>2</b>
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## Unit 1.1 Number Systems

### ANSWER 4

Per each binary conversion, <b>one</b> mark for 2 correct character conversions, <b>two</b> marks for three correct character conversions	<b>6</b>
<ul style="list-style-type: none"><li>• 0000 0101 1010</li><li>• 0001 1000 1100</li><li>• 0010 1001 1111</li></ul>	

### ANSWER 5

Per each hex conversion, <b>one</b> mark for 2 correct character conversions, <b>two</b> marks for three correct character conversions	<b>4</b>
<ul style="list-style-type: none"><li>• 40D</li><li>• 07E</li></ul>	

### ANSWER 6

One mark per each correct binary value.	<b>3</b>
<ul style="list-style-type: none"><li>– 00010100</li><li>– 10100000</li><li>– 11001001</li></ul>	