

**0478 and 0984(9-1)  
COMPUTER SCIENCE  
TOPIC MARK SCHEMES SET-4  
SMART EXAM RESOURCES**

Unit 1.1 Number Systems

**MARKS SCHEME**

**ANSWER 1(a)**

One mark per each correct row:				<b>4</b>
Denary	Binary Conversion	Correct (✓)	Incorrect (✓)	
145	10010001	✓		
179	10110101		✓	
11	00010011		✓	
100	01100010		✓	

**ANSWER 1(b)**

**3**

- **C**
- **4**
- **0**

**ANSWER 2 (i)**

- $\underbrace{000000}_{1 \text{ mark}} \underbrace{100111}_{1 \text{ mark}}$	<b>2</b>
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**ANSWER 2 (ii)**

- $\underbrace{000101011110}_{1 \text{ mark}}$	<b>2</b>
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**ANSWER 2 (iii)**

1 mark for working, 1 mark for correct answer - $1024 + 512 + 128 + 64 + 4 + 2 + 1$ - 1735	<b>2</b>
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**ANSWER 3 (a)**

<p>97</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px 10px;">1</td> <td style="border: 1px solid black; padding: 2px 10px;">0</td> <td style="border: 1px solid black; padding: 2px 10px;">0</td> <td style="border: 1px solid black; padding: 2px 10px;">1</td> <td style="border: 1px solid black; padding: 2px 10px;">0</td> <td style="border: 1px solid black; padding: 2px 10px;">1</td> <td style="border: 1px solid black; padding: 2px 10px;">1</td> <td style="border: 1px solid black; padding: 2px 10px;">1</td> </tr> </table> <p style="text-align: center; margin-top: 10px;">1 mark                      1 mark</p>	1	0	0	1	0	1	1	1	<b>6</b>
1	0	0	1	0	1	1	1		
<p>5C</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px 10px;">0</td> <td style="border: 1px solid black; padding: 2px 10px;">1</td> <td style="border: 1px solid black; padding: 2px 10px;">0</td> <td style="border: 1px solid black; padding: 2px 10px;">1</td> <td style="border: 1px solid black; padding: 2px 10px;">1</td> <td style="border: 1px solid black; padding: 2px 10px;">1</td> <td style="border: 1px solid black; padding: 2px 10px;">0</td> <td style="border: 1px solid black; padding: 2px 10px;">0</td> </tr> </table> <p style="text-align: center; margin-top: 10px;">1 mark                      1 mark</p>	0	1	0	1	1	1	0	0	
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<p>E1</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px 10px;">1</td> <td style="border: 1px solid black; padding: 2px 10px;">1</td> <td style="border: 1px solid black; padding: 2px 10px;">1</td> <td style="border: 1px solid black; padding: 2px 10px;">0</td> <td style="border: 1px solid black; padding: 2px 10px;">0</td> <td style="border: 1px solid black; padding: 2px 10px;">0</td> <td style="border: 1px solid black; padding: 2px 10px;">0</td> <td style="border: 1px solid black; padding: 2px 10px;">1</td> </tr> </table> <p style="text-align: center; margin-top: 10px;">1 mark                      1 mark</p>	1	1	1	0	0	0	0	1	
1	1	1	0	0	0	0	1		

## Unit 1.1 Number Systems

### ANSWER 3 (b)

<p><b>Two from e.g.:</b></p> <ul style="list-style-type: none"> <li>• Colour <b>codes</b> // Colour in <b>HTML / CSS</b></li> <li>• Error messages</li> <li>• Locations in memory</li> <li>• Memory dump // debugging</li> <li>• IP address</li> <li>• ASCII // Unicode</li> <li>• Assembly language</li> <li>• URL</li> </ul>	<b>2</b>
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### ANSWER 4

<table style="margin: auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">0</td> </tr> <tr> <td colspan="4" style="text-align: center;">└──────────┘</td><td colspan="4" style="text-align: center;">└──────────┘</td><td colspan="4" style="text-align: center;">└──────────┘</td> </tr> <tr> <td colspan="4" style="text-align: center;">1 mark</td><td colspan="4" style="text-align: center;">1 mark</td><td colspan="4" style="text-align: center;">1 mark</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">1</td> </tr> <tr> <td colspan="4" style="text-align: center;">└──────────┘</td><td colspan="4" style="text-align: center;">└──────────┘</td><td colspan="4" style="text-align: center;">└──────────┘</td> </tr> <tr> <td colspan="4" style="text-align: center;">1 mark</td><td colspan="4" style="text-align: center;">1 mark</td><td colspan="4" style="text-align: center;">1 mark</td> </tr> </table>	1	1	0	1	0	0	1	0	1	1	1	0	└──────────┘				└──────────┘				└──────────┘				1 mark				1 mark				1 mark				0	0	1	1	1	1	1	1	0	1	0	1	└──────────┘				└──────────┘				└──────────┘				1 mark				1 mark				1 mark				<b>6</b>
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### ANSWER 5 (a)

<b>One mark for each correct denary value</b>		<b>3</b>
<b>Binary</b>	<b>Denary</b>	
0001001110	78	
0110110111	439	
1000000001	513	

### ANSWER 5 (b)

<p><b>Two from:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Uses fewer characters // shorter</li> <li><input type="checkbox"/> Easier to read / write / understand</li> <li><input type="checkbox"/> Less likely to make mistakes // less error prone</li> <li><input type="checkbox"/> Easier to debug</li> </ul>	<b>2</b>
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### ANSWER 5 (c)

<b>One mark for each correct hexadecimal value in correct order</b>	<b>3</b>
2    B    5	

### ANSWER 6 (a)

52

1

### ANSWER 6 (b)

<table style="margin: auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">1</td><td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">0</td><td style="border: 1px solid black; padding: 2px 5px;">0</td> </tr> </table>	1	1	0	1	0	0	0	0	<b>1</b>
1	1	0	1	0	0	0	0		

### ANSWER 6 (c)

It is multiplied by 4

1