

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

Unit 1.1 Number Systems

MARKS SCHEME

Unit 1.1 Number Systems

ANSWER 1 (a)

Any two from: <ul style="list-style-type: none"> • Computer consist of transistors / logic circuits • ... that can only store/process data in two states / as high-low / on-off / 1 and 0 	2
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ANSWER 1 (b)

1 mark per each correct 8-bit binary value:	2						
<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">Denary Value</th> <th style="padding: 5px;">8-bit binary register</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">129</td> <td style="text-align: center; padding: 5px;">1000001</td> </tr> <tr> <td style="text-align: center; padding: 5px;">56</td> <td style="text-align: center; padding: 5px;">00111000</td> </tr> </tbody> </table>	Denary Value	8-bit binary register	129	1000001	56	00111000	
Denary Value	8-bit binary register						
129	1000001						
56	00111000						

ANSWER 1 (c)

1 mark per each correct conversion:	3																																				
<table style="margin: auto;"> <tr> <td style="border: 1px solid black; padding: 5px; text-align: center;">0</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">1</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">0</td> <td style="border: 1px solid black; padding: 5px; text-align: center;">1</td> </tr> <tr> <td colspan="3" style="text-align: center;">└──────────┘</td> <td colspan="3" style="text-align: center;">└──────────┘</td> <td colspan="3" style="text-align: center;">└──────────┘</td> <td colspan="3"></td> </tr> <tr> <td colspan="3" style="text-align: center;">1 mark</td> <td colspan="3" style="text-align: center;">1 mark</td> <td colspan="3" style="text-align: center;">1 mark</td> <td colspan="3"></td> </tr> </table>	0	0	1	1	1	0	1	0	1	0	0	1	└──────────┘			└──────────┘			└──────────┘						1 mark			1 mark			1 mark						
0	0	1	1	1	0	1	0	1	0	0	1																										
└──────────┘			└──────────┘			└──────────┘																															
1 mark			1 mark			1 mark																															

ANSWER 1 (d)

Any two from: <ul style="list-style-type: none"> • Represent colours in HTML // HTML colour codes • MAC address • Assembly Language • Error messages • IP address • ASCII values • URL • Memory dump • Memory locations 	2
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ANSWER 2 (a)

1 mark each	2																													
<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">Denary Value</th> <th colspan="8" style="padding: 5px;">8-bit binary</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">46</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">0</td> </tr> <tr> <td style="text-align: center; padding: 5px;">171</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">0</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">1</td> <td style="text-align: center; padding: 5px;">1</td> </tr> </tbody> </table>	Denary Value	8-bit binary								46	0	0	1	0	1	1	1	1	0	171	1	0	1	0	1	0	1	1	1	
Denary Value	8-bit binary																													
46	0	0	1	0	1	1	1	1	0																					
171	1	0	1	0	1	0	1	1	1																					

ANSWER 2(b) 255

1

ANSWER 2(c) 11

1

ANSWER 3(a)

<ul style="list-style-type: none"> • Computer consist of transistors / logic circuits/gates ... • ... that can only store/process data in two states / high-low / on-off / 1 and 0 	2
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ANSWER 3(b)

Unit 1.1 Number Systems

ANSWER 3(b)

<ul style="list-style-type: none"> • 01000000 • 01100101 • 11110010 	3
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ANSWER 3(c)

<ul style="list-style-type: none"> • 0100 (1 mark) 0010 (1 mark) • 1100 (1 mark) 1110 (1 mark) 	4
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ANSWER 4 (a) **85**

1

ANSWER 4 (b) **C0**

1

ANSWER 4 (c) **26**

1

ANSWER 4 (d) **16**

1

ANSWER 5 (a)

3

- **21**
- **258**
- **169**

ANSWER 5 (b)

4

- **50**
- **3D**

ANSWER 6

<p>One mark per each correct register.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 20px;">1</td> <td style="text-align: center; width: 20px;">0</td> <td style="text-align: center; width: 20px;">1</td> <td style="text-align: center; width: 20px;">0</td> <td style="text-align: center; width: 20px;">0</td> <td style="text-align: center; width: 20px;">1</td> <td style="text-align: center; width: 20px;">1</td> <td style="text-align: center; width: 20px;">1</td> </tr> </table> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 20px;">1</td> <td style="text-align: center; width: 20px;">1</td> <td style="text-align: center; width: 20px;">0</td> <td style="text-align: center; width: 20px;">1</td> <td style="text-align: center; width: 20px;">0</td> <td style="text-align: center; width: 20px;">1</td> <td style="text-align: center; width: 20px;">1</td> <td style="text-align: center; width: 20px;">0</td> </tr> </table>	1	0	1	0	0	1	1	1	1	1	0	1	0	1	1	0	2
1	0	1	0	0	1	1	1										
1	1	0	1	0	1	1	0										