0478 and 0984(9-1)
COMPUTER SCIENCE
TOPIC MARK SCHEMES SET-8
SMART EXAM RESOURCES
Unit 1.1 Number Systems
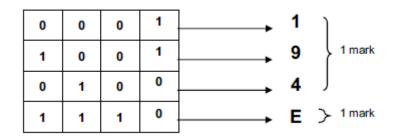
MARKS SCHEME

ANSWER 1(a)

1 mark for each correct binary value

3	0	0	1	1

5	0	1	0	1

ANSWER 1(b)

0	0	0	1	→ **1**	⎫
1	0	0	1	→ **9**	⎬ 1 mark
0	1	0	0	→ **4**	⎭
1	1	1	0	→ **E**	⎬ 1 mark

ANSWER 2(a)

1 mark for each nibble

0100 1010 1111   [3]

ANSWER 2(b)(i)

0 1 1 0 1 0 0 1	105 hours	1 mark
0 0 0 1 1 1 1 1	31 minutes	1 mark
0 0 1 1 0 0 1 0	50 seconds	1 mark	[3]

ANSWER 2(b)(ii)   1F   1

ANSWER 3(a)(i)

2 marks for 3 correct binary conversions, 1 mark for 2 correct binary conversions

0	0	0	1	1	0	1	0	1	1	1	1

ANSWER 3(a)(ii)

1 mark for each correct hex value converted

1 A F   [3]

ANSWER 3(b)

2 marks for working + 1 mark for correct answer

Working
- 1200 × 8 = 9600 (bytes)
- 9600/1024 or 9600/1000

Answer
- 9.4 or 9.6 kilobytes [3]

ANSWER 4(a) 112 1

ANSWER 4(b) 56 1

ANSWER 4(c)

divided by 2 // value 112 was halved // multiplied by 0.5 [1]

ANSWER 4(d) (i)

0	0	0	0	1	1	1	0

[1]

ANSWER 4(d) (ii) 14 1

ANSWER 4(e)

Any **two** from:

- run out of places to the right of register / at the end of register
- right-most 1 would be lost
- number would become 3 instead of 3.5
- loss of precision

[2]

ANSWER 5

1 mark per nibble

0010 1010 1111

[3]