1. a

2.

|  |  |  |
| --- | --- | --- |
| x | y | X nand Y |
| 0 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

-(-(-(-(-x \* -z) \* -(w \* -y)))\*-(-z \* -w))))))

-( -(-x \* -z) \* -(w \* -y) \* -(-z \* -w) )

(-x \* -z) + (-y \* w) + (-z \* -w)

(x + z)\*(y + -w)\*(z + w)

B

3.b

4. c

5. d

6. b

7. a

8 a.

22­8 = 18 10 = 8

2210 = 22 10 = 10

22­16 = 34 10 = 16

9. a  
10. B

11. d

12.a

13. b

14.d.

15.

0xAAAE = 0b 1010 1010 1010 1110

0b 1010 1010 1010 1110 = aaae

0b 1010 1010 1011 1110 = aabe

0b 1011 1010 1010 1110 = baae

0b 1011 1010 1011 1110 = babe

D

16. c

17.

2Mb = 2\*2^20=21 bits

Block = 32 bytes = 2^5 = 5 bits

21-5-8=8

A

18. c

19. a

20. a

21. d

22. a

23. c

T\_new = t\_old \* (fs + fp/n)

8 = 24 \* (0.3 +0.7/n)

8/24 = 0.3 + 0.7/n

1/3 – 0.3 = 0.7/n

N = 0.7/(1/3-0.3)

0.7/(0.33333-0.3) = 0.7/0.033333 = 0.7/(1/30) = 0.7\*30=7\*30/10 = 7\*3=21

So d

25. b

(We guessed for the last few questions, take it with a grain of salt)