Started on	Friday, 18 February 2022, 2:31 PM
State	Finished
Completed on	Friday, 18 February 2022, 3:40 PM
Time taken	1 hour 9 mins
Grade	**41.00** out of 50.00 (**82**%)

Question **1**

Correct

Mark 2.00 out of 2.00

What is the minimum number of 2-input NOR gates required to implemen function function expressed in sum-of-minterms form as

f = Σ(0, 2, 5, 7, 8, 10, 13, 15)?

Assume that all the inputs and their complements are available.

Select one:

- a. 4
- b. 5
- c. 3 ✔
- d. 2

Your answer is correct.

The correct answer is: 3

Question **2**

Incorrect

Mark 0.00 out of 1.00

How much input and output needed for demultiplexer?

Select one:

- a. Many outputs to one input ✖
- b. None of these
- c. One input one output
- d. One input many outputs

The correct answer is: One input many outputs

Question **3**

Correct

Mark 1.00 out of 1.00

Let the representation of a number in base 3 be 210. What is the hexadecimal rep number?

Select one:

- a. 528
- b. 15 ✔
- c. D2
- d. 21

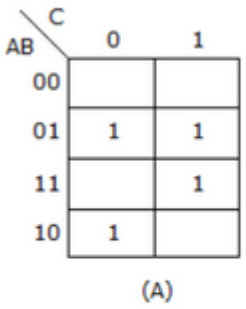
The correct answer is: 15

Question **4**

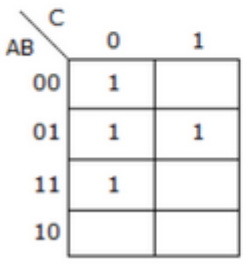
Correct

Mark 2.00 out of 2.00

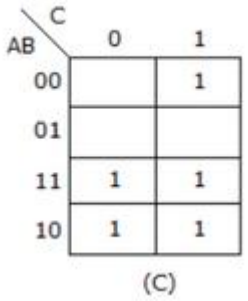
. Mapping the SOP expression $\overline{A}\,\overline{B}\,\overline{C} + \overline{A}\,B\,\overline{C} + \overline{A}\,B\,C + A\,B\,\overline{C}$, we get _____



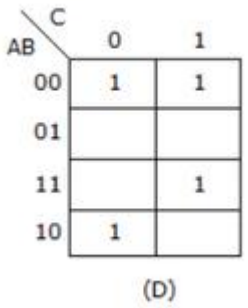
(A)



(B)



(C)



(D)

Select one:

- a. A
- b. D
- c. B ✔
- d. C

Your answer is correct.

The correct answer is: B

Question **5**

Correct

Mark 1.00 out of 1.00

A digital circuit that can store only one bit is a

Select one:

- a. Flip-flop ✔
- b. NOR gate
- c. Register
- d. XOR gate

The correct answer is: Flip-flop

Question **6**

Correct

Mark 1.00 out of 1.00

In the toggle mode, a JK flip-flop has

Select one:

- a. J = 0, K = 1
- b. J = 1, K = 1 ✔
- c. J = 0, K = 0
- d. J = 1, K = 0

The correct answer is: J = 1, K = 1

Question **7**

Correct

Mark 1.00 out of 1.00

The following hexadecimal number (1E.43) Base 16 is equivalent to

Select one:

- a. (36.206)8 ✔
- b. (35.506)8
- c. (36.506)8
- d. (35.206)8

The correct answer is: (36.206)8

Question **8**

Incorrect

Mark 0.00 out of 1.00

Simplify Y = AB' + (A' + B)C

Select one:

- a. A'B + AC' ✖
- b. AB + A
- c. AB + AC
- d. AB' + C

The correct answer is: AB' + C

Question **9**

Correct

Mark 2.00 out of 2.00

For the given Boolean function, which one of the following is the complete set o prime implicants?

$$F(w,x,y,z) = wy + xy + \bar{w}xyz + \bar{w}\bar{x}y + xz + \bar{x}\bar{y}\bar{z}.$$

Select one:

- a. $y, xz, \bar{x}\bar{z}$ ✔
- b. w, y, xz
- c. $y, \bar{x}\bar{y}\bar{z}$
- d. $w, y, xz, \bar{x}\bar{z}$

Your answer is correct.

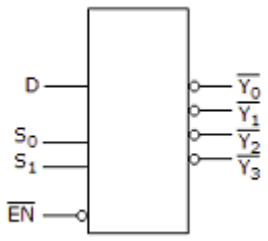
The correct answer is: $y, xz, \bar{x}\bar{z}$

Question **10**

Correct

Mark 2.00 out of 2.00

The device shown here is most likely a _____



Select one:

- a. Demultiplexer ✔
- b. Comparator
- c. Multiplexer
- d. Inverter

Your answer is correct.

The correct answer is: Demultiplexer

Question **11**

Incorrect

Mark 0.00 out of 1.00

If (1011) BASE 3 = (111) BASE x then what is the value of x ?

Select one:

- a. 4
- b. 5
- c. 2 ✖
- d. 3

The correct answer is: 5

Question **12**

Correct

Mark 2.00 out of 2.00

Simplified expression/s for following Boolean function F(A, B, D) = ∑ (0, 1, 2, 3, 6, 12, 13, 14, 15) is/are
(A) A'B' + AB + A'C'D'
(B) A'B' + AB + A'CD'
(C) A'B' + AB + BC'D'
(D) A'B' + AB + BCD'
Choose the correct answer from the options given below:

Select one:

- a. B only
- b. A and B only
- c. A only
- d. B and D only ✔

Your answer is correct.

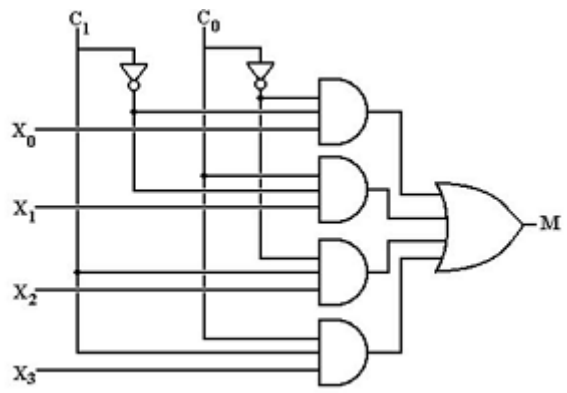
The correct answer is: B and D only

Question **13**

Correct

Mark 2.00 out of 2.00

In the given 4-to-1 multiplexer, if c1 = 0 and c0 = 1 then the output M is _____



Select one:

- a. X2
- b. X3
- c. X0
- d. X1 ✔

Your answer is correct.

The correct answer is: X1

Question **14**

Correct

Mark 2.00 out of 2.00

The Boolean expression for the truth table

A	B	C	f
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	0

Select one:

- a. $\overline{B}(A+\overline{C})(\overline{A}+C)$
- b. $B(A+\overline{C})(\overline{A}+C)$
- c. $B(A+C)(\overline{A}+\overline{C})$ ✔
- d. $\overline{B}(A+C)(\overline{A}+\overline{C})$

Your answer is correct.

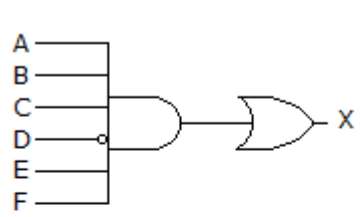
The correct answer is: $B(A+C)(\overline{A}+\overline{C})$

Question **15**

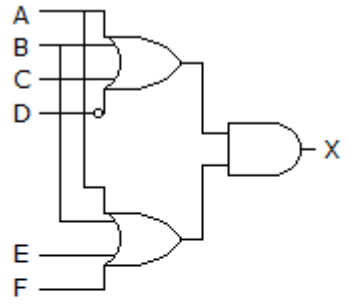
Correct

Mark 2.00 out of 2.00

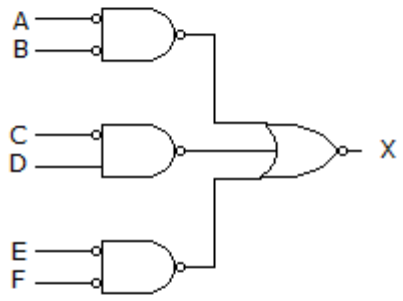
Which of the circuits in figure (a to d) is the sum-of-products implementatic



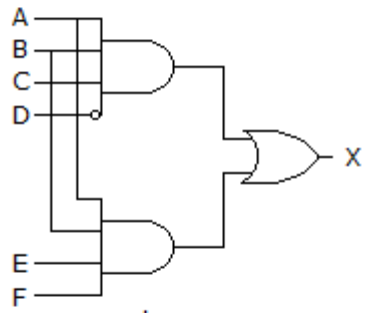
a.



b.



c.



d.

e.

Select one:

- a. c
- b. d ✔
- c. b
- d. a

Your answer is correct.

The correct answer is: d

Question **16**

Correct

Mark 2.00 out of 2.00

There are _____ cells in a 4-variable K-map.

Select one:

- a. 4
- b. 16 ✔
- c. 8
- d. 32

Your answer is correct.

The correct answer is: 16

Question **17**

Correct

Mark 1.00 out of 1.00

Convert the binary number (01011.1011)2 into decimal.

Select one:

- a. (10.9876)10
- b. (11.6875)10 ✔
- c. (11.5874)10
- d. (10.7893)10

The correct answer is: (11.6875)10

Question **18**

Correct

Mark 1.00 out of 1.00

Complement of the expression A'B + CD' is

Select one:

- a. (A' + B)(C' + D)
- b. (A + B')(C' + D) ✔
- c. (A + B')(C + D')
- d. (A' + B)(C' + D)

The correct answer is: (A + B')(C' + D)

Question **19**

Correct

Mark 1.00 out of 1.00

The mod-10 counter is also referred to as a _____ counter.

Select one:

- a. BCD
- b. ring
- c. decade ✔
- d. strobing

The correct answer is: decade

Question **20**

Incorrect

Mark 0.00 out of 1.00

A comparison between ring and johnson counters indicates that:

Select one:

- a. a johnson counter has more flip-flops but less decoding circuitry
- b. a ring counter has fewer flip-flops but requires more decoding circuitry
- c. a johnson counter has an inverted feedback path
- d. a ring counter has an inverted feedback path ✖

The correct answer is: a johnson counter has an inverted feedback path

Question **21**

Correct

Mark 2.00 out of 2.00

Which of the following circuit can be used as parallel to serial converter?

Select one:

- a. Decoder
- b. Multiplexer ✔
- c. Digital counter
- d. Demultiplexer

Your answer is correct.

The correct answer is: Multiplexer

Question **22**

Correct

Mark 1.00 out of 1.00

How many AND gates are required to realize Y = CD + EF + G?

Select one:

- a. 4
- b. 5
- c. 2 ✔
- d. 3

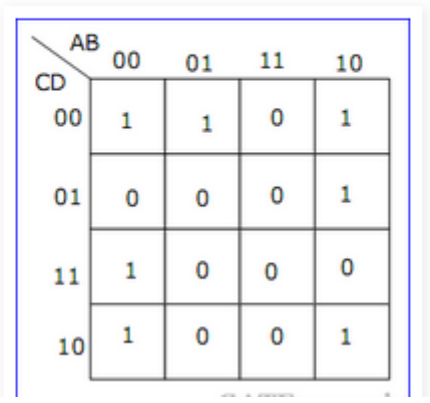
The correct answer is: 2

Question **23**

Incorrect

Mark 0.00 out of 2.00

The K – map for a Boolean function is shown in the figure. The number of essen implicants for this function is



Select one:

- a. 5
- b. 3 ✖
- c. 6
- d. 4

Your answer is incorrect.

The correct answer is: 4

Question **24**

Correct

Mark 1.00 out of 1.00

How many two input AND gates and two input OR gates are required to realize Y

Select one:

- a. 3,2 ✔
- b. 2,3
- c. 4,2
- d. 1,1

The correct answer is: 3,2

Question **25**

Correct

Mark 1.00 out of 1.00

What is meant by parallel-loading the register?

Select one:

- a. Loading data in two of the flip-flops
- b. Loading data in all four flip-flops at the same time ✔
- c. Momentarily disabling the synchronous SET and RESET inputs
- d. Shifting the data in all flip-flops simultaneously

The correct answer is: Loading data in all four flip-flops at the same time

Question **26**

Correct

Mark 1.00 out of 1.00

The only function of NOT gate is to ……..

Select one:

- a. Invert input signal ✔
- b. Stop signal
- c. Act as a universal gate
- d. None of the above

The correct answer is: Invert input signal

Question **27**

Incorrect

Mark 0.00 out of 2.00

The K-map given below represents the bit G_2 for a 4-bit Binary ($B_4B_3B_2B_1$) to Gray ($G_4G_3G_2G_1$) converter. What will be the expression of G_2?

B_4B_3 \ B_2B_1	00	01	11	10
00	0	0	1	1
01	1	1	0	0
11	1	1	0	0
10	0	0	1	1

Select one:

- a. $B_2 \oplus B_4$
- b. $B_3 \oplus B_1$ ✖
- c. $B_3 \oplus B_2$
- d. $B_3 \oplus B_4$

Your answer is incorrect.

The correct answer is: $B_3 \oplus B_2$

Question **28**

Correct

Mark 1.00 out of 1.00

What happens to the parallel output word in an asynchronous binary down cour pulse occurs?

Select one:

- a. The output word increases by 2.
- b. The output word increases by 1.
- c. The output word decreases by 1. ✔
- d. The output word decreases by 2.

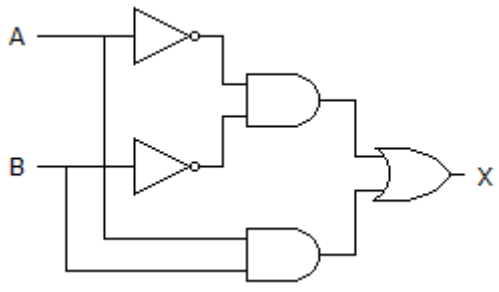
The correct answer is: The output word decreases by 1.

Question **29**

Correct

Mark 2.00 out of 2.00

What type of logic circuit is represented by the figure shown below?



Select one:

- a. AND
- b. NOR
- c. XNOR ✔
- d. XOR

Your answer is correct.

The correct answer is: XNOR

Question **30**

Correct

Mark 2.00 out of 2.00

A 32 to 1 multiplexer has the following terminals

Select one:

- a. 5 inputs 32 control signals and one output
- b. 32 outputs, one input and 5 control signals
- c. 32 inputs, one output and 5 control signals ✔
- d. 5 inputs, one control signal and 32 outputs

Your answer is correct.

The correct answer is: 32 inputs, one output and 5 control signals

Question **31**

Correct

Mark 1.00 out of 1.00

The code where all successive numbers differ from their preceding number by si

Select one:

- a. Alphanumeric Code
- b. Excess 3
- c. Gray ✔
- d. BCD

The correct answer is: Gray

Question **32**

Correct

Mark 1.00 out of 1.00

The primary difference between a counter and a register is

Select one:

- a. A counter has no particular sequence of states.
- b. A counter has the capability to store n bit of information whereas a register has one bit.
- c. A register has no specific sequence of states. ✔
- d. A register counts data.

The correct answer is: A register has no specific sequence of states.

Question **33**

Correct

Mark 1.00 out of 1.00

What is the addition of the binary number 101001+ 010011=?

Select one:

- a. 111100 ✔
- b. 010100
- c. 000111
- d. 101110

The correct answer is: 111100

Question **34**

Incorrect

Mark 0.00 out of 1.00

What is an ambiguous condition in a NAND based S' and R' latch?

Select one:

- a. S'=0, R'=0
- b. S'=0, R'=1 ✖
- c. S'=1, R'=1
- d. S'=1, R'=0

The correct answer is: S'=0, R'=0

Question **35**

Correct

Mark 2.00 out of 2.00

The four variable function f is given in terms of min-terms as f(A, B, C, D) = ∑m(2,3,8,10,11,12,14,15). Using the K-map minimize the function in the sum of form. Also, give the realization using only two input NAND gates.

The number of NAND Gates required are?

Select one:

- a. 5
- b. 6 ✔
- c. 7
- d. 4

Your answer is correct.

The correct answer is: 6

◄ Assignment Lab - 4 on Counters Design

Jump to...

RAM1 ►