دوائر رقمية
9:11
الثلاثاء 8/6/2021
أ.د. أسامة سيد محمد

Faculty of Computers & Information, Assiut University
1st Level
Final Exam
Duration: 2 hours

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* الإسم الرباعي (بالعربي فقط)

نرمين محب خير عوض الله

2

* رقم الجلوس

162020677

3

المستوي *

- الاول
- الثاني
- الثالث
- رابعة 2013
- رابعة 2014
- رابعة 2015
- رابعة 2016
- رابعة 2017

4

البرنامج *

- عام
- بايو
- هندسة

5

رقم المعمل *

- ج.
- د.

- اب
- اد
- اهـ
- أ٢
- ب٢
- ج٢
- د٢
- هـ٢
- أ٣
- ب٣
- ج٣
- د٣
- هـ٣
- أ٤
- ب٤

6

* رقم الكمبيوتر

19

7

* الكود (قد تمت مراجعة بيانات الطالب ورقم الجلوس)

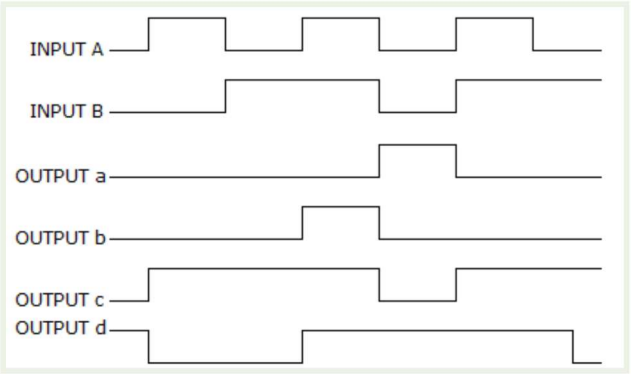
W35kYPk

8

If a Boolean expression has four variables, then the truth table has _____ values.
(4 Points)

- 4
- 8
- 16
- 2

9



For a two-input XNOR gate, with the input waveforms as shown below, which output waveform is correct?
(4 Points)

- d
- a
- c
- b

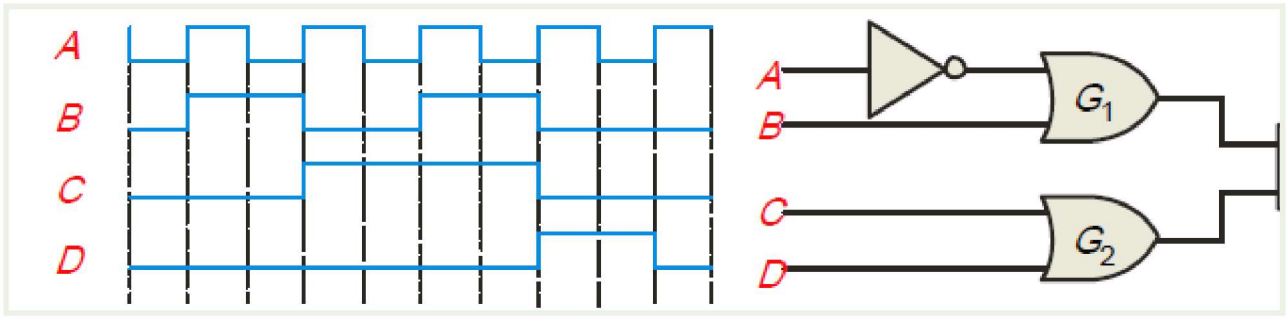
10

The number of full and half adders are required to add 16-bit number is _____
(4 Points)

- 8 half adders, 8 full adders
- 1 half adders, 15 full adders
- 16 half adders, 0 full adders
- 4 half adders, 12 full adders

11

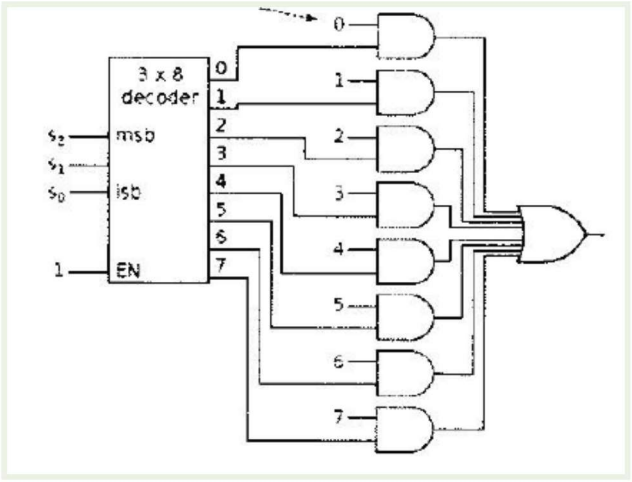
During the first three intervals for the pulsed circuit shown, the output of
(4 Points)



- G1 is LOW and G2 is LOW
- G1 is LOW and G2 is HIGH
- G1 is HIGH and G2 is LOW
- G1 is HIGH and G2 is KIGH

12

The logic circuit shown is the implementation of
(4 Points)



- 3x8 decoder with enable
- 3x8 decoder with enable and basic logic gates
- eight-input mux using a decoder and logic gates
- None of the previous

13

NAND and NOR gates are called
(4 Points)

- high level logic gates
- unilateral gates
- universal gates
- bidirectional gates

14

The four-variable K-map has _____ cells.
(4 Points)

- 4

- 8
- 16
- 2

15

To minimize a Boolean expression using K-maps, it has to be in _____ form.
(4 Points)

- binary
- decimal
- octal
- SOP

16

The gate allows the output to be high, low or offers high output impedance is
(4 Points)

- tri-state logic
- MUX
- NOR
- NAND

17

The maximum number of inputs of several similar logic gates that any one gate output can drive is called
(4 Points)

- fan-out
- noise margin
- noise immunity
- fan-in

18

All logic operations can be obtained by means of
(4 Points)

- AND and NAND operations
- OR and NOR operations
- OR and NOT operations
- NAND and NOR operations

19

What is the minimum number of two-input NAND gates used to perform the function of two input OR gate ?
(4 Points)

- 1
- 2
- 3
- 4

20

Simplifying the following expression will give
F = A.C.E + A·C·D' + A·C·E' + A·B·D'·E + B·C'·E
(4 Points)

- A.C + B'.C'.E + A.C.D'
- A.C + B.C'.E
- A.C.E + A·C·D'
- None of the previous

21

The multiplexer is an examp1e of what type of logic circuit
(4 Points)

- Sequential
- Combinational
- Moore machine
- Analog

22

A movement of data from right (least significant bit) to left (most significant bit) is what type of shift:
(4 Points)

- Right
- Lift
- Parallel

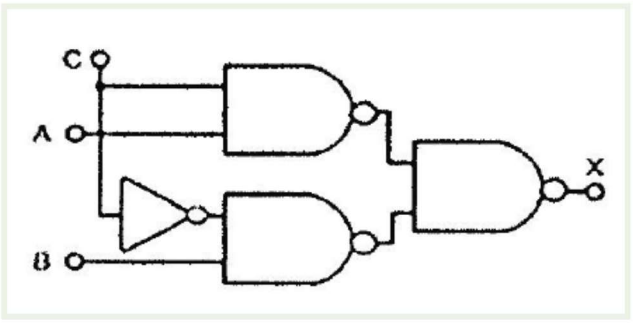
- Finite state machine

23

The time interval between the application of an input pulse to a logic gate and the occurrence of the resultant output pulse is called _____.
(4 Points)

- Delay time
- turn-on time
- transition time
- propagation delay

24



What type of a combinational circuit illustrated in the figure shown:
(4 Points)

- Full Adder
- Equality Comparator
- Multiplexer
- DeMultiplexer

25

De Morgan's second theorem states that the complement of a sum of variables is equal to the _____ of the complements of the variables.
(4 Points)

- complement
- complement sum
- product
- sum

26

The complement of the following function in the simplest form is:
F = AB'+C + (A' + B) C'+ (AB' + C) (A + B')C
(4 Points)

- 1
- 0
- AB' + C + A' + B
- None of the previous

27

Negative numbers cannot be represented in:
(4 Points)

- Sign Magnitude
- I's Complement
- Twos Complement

- None of the previous

28

If P is a logical or Boolean variable such that P can take values ‘0’ or ‘1’, then P + P is equal
(4 Points)

- 0
- 2P
- 1
- P

29

Simplifying the following expression will give
A' (A+B)+ (B+AA)(A+B')
(4 Points)

- A.B + A'·B'
- A' + B'
- A+B
- None of the previous

30

Simplifying the following expression will give
G= A·B·C·D + A'·E·F + B'·E·F + C·D·E·F
(4 Points)

- A.B.C.D + A'·E. F + B'·E·F

- A'·E·F + B'·E·F + C·D·E·F
- A·B·C·D + A'·E·F + B'·D·F
- None of the previous

31

A demultiplexer has
(4 Points)

- One data input and a number of selection inputs, and they have several outputs.
- One input and one output
- Several inputs and several outputs
- Several inputs and one output

32

A combinatiponal logic circuit which sends a single data source to two or more separate
(4 Points)

- Decoder
- Multiplexer
- Encoder
- Demultiplexer