

MID TERM

CS302- Digital Logic Design

Question No: 1 (Marks: 1) - Please choose one

A SOP expression is equal to 1 _____

- ▶ All the variables in domain of expression are present
- ▶ At least one variable in domain of expression is present.
- ▶ When one or more product terms in the expression are equal to 0.
- ▶ **When one or more product terms in the expression are equal to 1. (Page 86)**

Question No: 2 (Marks: 1) - Please choose one

The output $A < B$ is set to 1 when the input combinations is _____

- ▶ A=10, B=01
- ▶ A=11, B=01
- ▶ A=01, B=01
- ▶ **A=01, B=10 (Page 109)**

Question No: 3 (Marks: 1) - Please choose one

Two 2-bit comparator circuits can be connected to form single 4-bit comparator

- ▶ **True (Page 154)**
- ▶ False

Question No: 4 (Marks: 1) - Please choose one

High level Noise Margins (VNH) of CMOS 5 volt series circuits is _____

- ▶ 0.3 V
- ▶ 0.5 V
- ▶ **0.9 V (Page 65)**
- ▶ 3.3 V

Question No: 5 (Marks: 1) - Please choose one

If we multiply "723" and "34" by representing them in floating point notation i.e. by first, converting them in floating point representation and then multiplying them, the value of mantissa of result will be _____

- ▶ **24.582 (But not sure)**
- ▶ 2.4582
- ▶ 24582
- ▶ 0.24582

Question No: 6 (Marks: 1) - Please choose one

The output of the expression $F = A + B + C$ will be Logic _____ when $A=0$, $B=1$, $C=1$. the symbol "+" here represents OR Gate.

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- Undefined
- **One**
- Zero
- 10 (binary)

Question No: 7 (Marks: 1) - Please choose one

If an active-HIGH S-R latch has a 0 on the S input and a 1 on the R input and then the R input goes to 0, the latch will be_____.

▸ **SET (page 220)**

- RESET
- Clear
- Invalid

Question No: 8 (Marks: 1) - Please choose one

3.3 v CMOS series is characterized by _____ and _____ as compared to the 5 v CMOS series.

- Low switching speeds, high power dissipation
- Fast switching speeds, high power dissipation
- **Fast switching speeds, very low power dissipation (page61)**
- Low switching speeds, very low power dissipation

Question No: 9 (Marks: 1) - Please choose one

The binary value "1010110" is equivalent to decimal _____

▸ **86 (According to Formula)**

- 87
- 88
- 89

Question No: 10 (Marks: 1) - Please choose one

The _____ Encoder is used as a keypad encoder.

- 2-to-8 encoder
- 4-to-16 encoder
- BCD-to-Decimal
- **Decimal-to-BCD Priority (Page 166)**

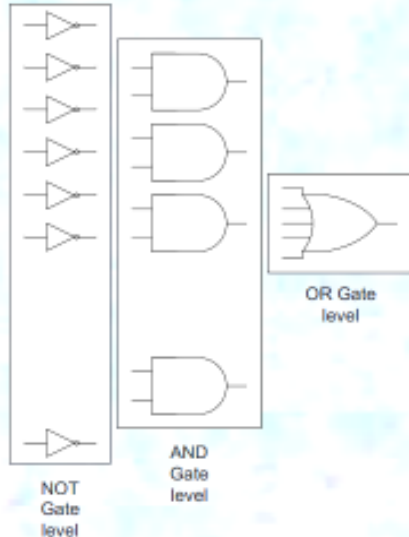
Question No: 11 (Marks: 1) - Please choose one

How many data select lines are required for selecting eight inputs?

- 1
- 2
- **3 click here for detail**
- 4

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Question No: 12 (Marks: 1) - Please choose one



the diagram above shows the general implementation of _____ form

- boolean
- arbitrary
- POS
- **SOP**

Question No: 13 (Marks: 1) - Please choose one

The Quad Multiplexer has _____ outputs

- **4 (Page 217)**
- 8
- 12
- 16

Question No: 14 (Marks: 1) - Please choose one

Demultiplexer has

- Single input and single outputs.
- Multiple inputs and multiple outputs.
- **Single input and multiple outputs. (Page 178)**
- Multiple inputs and single output.

Question No: 15 (Marks: 1) - Please choose one

The expression _____ is an example of Commutative Law for Multiplication.

- $AB+C = A+BC$
- $A(B+C) = B(A+C)$
- **$AB=BA$ (Page 72)**
- $A+B=B+A$

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Question No: 16 (Marks: 1) - Please choose one

"Sum-of-Weights" method is used _____

► to convert from one number system to other (Page 14)

- to encode data
- to decode data
- to convert from serial to parallel data

Question No: 17 (Marks: 2)

Define a decoder.

Question No: 18 (Marks: 2)

Name the four OLMC configurations.

Question No: 19 (Marks: 3)

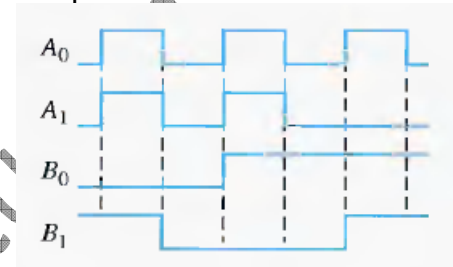
For a two bit comparator circuit, specify all the inputs for which the output $A = B$ is set to 1.

Question No: 20 (Marks: 3)

Draw the circuit diagram of NAND based S-R Latch.

Question No: 21 (Marks: 5)

The following waveforms are applied as input to the "two bit comparator circuit". Determine the output waveform for $A = B$.



Question No: 22 (Marks: 5)

Draw the function table of 8-to-3 Encoder.