

MIDTERM EXAMINATION
Spring 2009
CS302- Digital Logic Design (Session - 2)

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

The first Least Significant digit in decimal number system has

- ▶ position 0 and weight equal to 1
- ▶ position 1 and weight equal to 0
- ▶ position 1 and weight equal to 10
- ▶ position 0 and weight equal to 10

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

The decimal equivalent of the binary number "10011" is

- ▶ 19
- ▶ 99
- ▶ 29
- ▶ None of given options

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

The ANSI/IEEE Standard 754 defines a _____ Single-Precision Floating Point format for binary numbers.

- ▶ 8-bit
- ▶ 16-bit
- ▶ 32-bit
- ▶ 64-bit

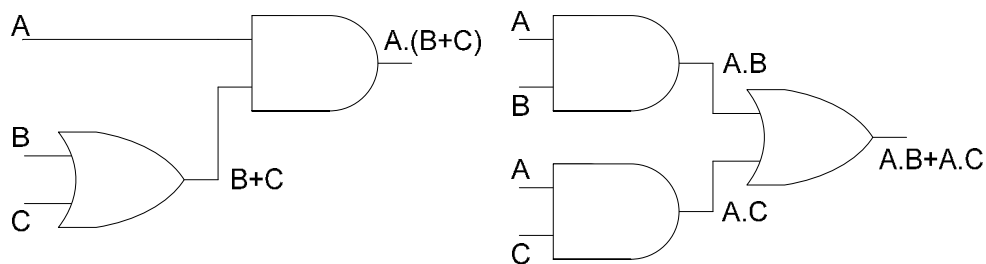
Question No: 4 (Marks: 1) - Please choose one

The binary value "11011" is equivalent to _____

- ▶ 1B
- ▶ 1C
- ▶ 1D
- ▶ 1E

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

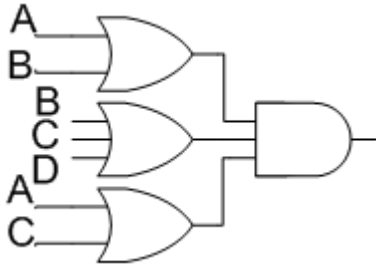
The circuit diagram given below explains _____



- ▶ Demorgan's Law
- ▶ Commutative Law
- ▶ Associative Law
- ▶ Distributive Law

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

The diagram given below represents _____



- ▶ Demorgans law
- ▶ Associative law
- ▶ Product of sum form
- ▶ Sum of product form

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

NOR gate is formed by connecting _____

- ▶ OR Gate and then NOT Gate
- ▶ NOT Gate and then OR Gate
- ▶ AND Gate and then OR Gate
- ▶ OR Gate and then AND Gate

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

“74ALS” stands for _____

- ▶ Advanced Low-frequency Schottky TTL
- ▶ Advanced Low-dissipation Schottky TTL
- ▶ Advanced Low-Power Schottky TTL
- ▶ Advanced Low-propagation Schottky TTL

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

An adder circuit can be used to perform subtraction operation

- ▶ True
- ▶ False

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

For a 3-to-8 decoder how many 2-to-4 decoders will be required?

- ▶ 2
- ▶ 3
- ▶ 4
- ▶ 1

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

3-to-8 decoder can be used to implement Standard SOP and POS Boolean expressions

- ▶ True
- ▶ False

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

Two 2-input, 4-bit multiplexers 74X157 can be connected to implement a ____ multiplexer.

- ▶ 2-input, 4-bit
- ▶ 4-input, 8-bit

- ▶ 4-input, 16-bit
- ▶ 2-input, 8-bit

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

The four outputs of two 4-input multiplexers, connected to form a 16-input multiplexer, are connected together through a 4-input _____ gate

- ▶ AND
- ▶ OR
- ▶ NAND
- ▶ XOR

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

The Programmable Array Logic (PAL) has _____ AND array and a _____ OR array

- ▶ Fixed, programmable
- ▶ Programmable, fixed
- ▶ Fixed, fixed
- ▶ Programmable, programmable

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

Sequential circuits have storage elements

- ▶ True
- ▶ False

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

Demultiplexer has

- ▶ Single input and single outputs.
- ▶ Multiple inputs and multiple outputs.
- ▶ Single input and multiple outputs.
- ▶ Multiple inputs and single output.

Question No: 17 (Marks: 1)

How standard Boolean expressions can be converted into truth table format.

Question No: 18 (Marks: 1)

$$(A + C).(C + D).(B + C + D)$$

State whether the above expression is SOP or POS?

Question No: 19 (Marks: 2)

Draw 3 variable K-map table of boolean expression given below
 $ABC+A'B'C$

Question No: 20 (Marks: 3)

Add -13 and +7 by converting them in binary system your result must be in binary.

Question No: 21 (Marks: 5)

Explain "OR" Gate and some of its uses

Question No: 22 (Marks: 10)

Explain NAND Gate, how it can be used to implement three basic gates