

VIRTUAL UNIVERSITY OF PAKISTAN

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CORRECT ANSWER SOLVED BY HADI
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TEAM HADI(VU LAHORE)

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WARNING: Team HADI is not responsible for any mistake or wrong answer. All students reading and using this document may check and confirm the answers at their own.



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Best of luck!



Question No : 1 of 26

Marks: 1 (Budgeted Time 1 Min)

The range of Excess-8 code is from _____ to _____.

Answer (Please select your correct option)

☐ +7 to -8

correct

☐ +8 to -7

☐ +9 to -8

☐ -9 to +8

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Question No : 2 of 26

Marks: 1 (Budgeted Time 1 Min)

The decimal "17" in BCD will be represented as _____

Answer (Please select your correct option)

☐ 11101

☐ 11011

☐ 10111

correct

☐ 11110

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Question No : 3 of 26

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

☐ AND

☐ OR

correct

☐ NAND

☐ XOR

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Question No : 4 of 26

Marks: 1 (Budgeted Time 1 Min)

A standard interface for programming the In-System PLD consists of _____.

Answer (Please select your correct option)

☐ 2-wire

☐ 4-wire

correct

☐ 8-wire

☐ 16-wire

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Question No : 5 of 26

Marks: 1 (Budgeted Time 1 Min)

_____ Dual, 4-input multiplexer can be connected to form a 16-input multiplexer.

Answer (Please select your correct option)

☐ 2

☐ 3

☒ 4

correct

☐ 5

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Question No : 6 of 26

Marks: 1 (Budgeted Time 1 Min)

S-R latch can be implemented by using _____ gates

Answer (Please select your correct option)

☐ AND, OR

correct

☐ NAND, NOR

☐ NAND, XOR

☐ NOT, XOR

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Question No : 7 of 26

Marks: 1 (Budgeted Time 1 Min)

A product term is 0 when _____.

Answer (Please select your correct option)

☐ Any of the literals is 1

☐ At least two literals are 1

☐ All the literals are 1

☐ Any of the literal is 0

correct

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Question No : 8 of 26

Marks: 1 (Budgeted Time 1 Min)

What will be the output of a 3-input NAND gate for the input values: A=1, B=0, C=1

Answer (Please select your correct option)

- ☐ Zero
- ☐ One
- ☐ Undefined
- ☐ No output, as input is invalid

correct

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Question No : 9 of 26

Marks: 1 (Budgeted Time 1 Min)



_____ is not a valid hexadecimal number.

Answer (Please select your correct option)

☐ 1234

☐ ABCD

☐ 1001

☐ DEHF

correct

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Question No : 10 of 26

Marks: 1 (Budgeted Time 1 Min)

2's complement of any binary number can be calculated by

Answer (Please select your correct option)

- ☒ adding 1 to 1's complement
- ☐ subtracting 1 from 1's complement.
- ☐ calculating 1's complement and inverting Most significant bit
- ☐ adding 1's complement twice

correct

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Question No : 11 of 26

Marks: 1 (Budgeted Time 1 Min)

A BCD to 7-Segment decoder has _____ inputs and _____ outputs.

Answer (Please select your correct option)

☐ 3, 7

☐ 4, 7

correct

☐ 7, 3

☐ 7, 4

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Question No : 12 of 26

Marks: 1 (Budgeted Time 1 Min)

Which of the following simplification method is intended to be used for Boolean expressions having more than four variables?

Answer (Please select your correct option)

☐ Boolean Algebra and rules

☐ Karnaugh Map

☐ Quine-McCluskey

correct

☐ Demorgan's Theorem

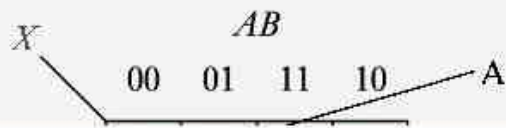
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Question No : 13 of 26

Marks: 1 (Budgeted Time 1 Min)

In the following Karnaugh map, which group has "legal grouping" ?



Answer (Please select your correct option)

A

☐

B

☐

C

☒

correct

D

☐

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Question No : 13 of 26

Marks: 1 (Budgeted Time 1 Min)

00	1	1	1	0	
01	1	0	0	1	
11	0	1	1	1	

CD

B

C

D

Answer (Please select your correct option)

A

☐

B

☐

C

☐

D

☐

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Question No : 13 of 26

Marks: 1 (Budgeted Time 1 Min)

11	0	1	1	1
10	0	1	1	0

D

Answer (Please select your correct option)

A

☐

B

☐

C

☐

D

☐

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What are the values of sum and carry out when two 4-bit binary numbers (1011 and 1111) are applied to a 4-bit parallel adder and carry input is 1.

Answer (Please select your correct option)

☐ $\Sigma_4 \Sigma_3 \Sigma_2 \Sigma_1 = 0111, C_{out} = 0$

☐ $\Sigma_4 \Sigma_3 \Sigma_2 \Sigma_1 = 1111, C_{out} = 1$

☐ $\Sigma_4 \Sigma_3 \Sigma_2 \Sigma_1 = 1011, C_{out} = 1$

☐ $\Sigma_4 \Sigma_3 \Sigma_2 \Sigma_1 = 1100, C_{out} = 1$

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Question No : 15 of 26

Marks: 1 (Budgeted Time 1 Min)

A particular half-adder has _____ inputs and _____ output(s).

Answer (Please select your correct option)

☐ 3, 1

☐ 3, 2

☐ 2, 1

☒ 2, 2

correct

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Question No : 16 of 26

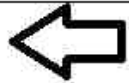
Marks: 1 (Budgeted Time 1 Min)

TTL based devices work with a DC supply of ____ Volts

Answer (Please select your correct option)

☐ +10

☒ +5



correct

☐ +3

☐ 3.3

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Question No : 17 of 26

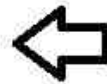
Marks: 1 (Budgeted Time 1 Min)

In CMOS 5 Volt series, Input voltage for Logic high signal (V_{IH}) is in the range of _____ volts.

Answer (Please select your correct option)

☐ 3.5 to 5

correct



☐ 4.5 to 5

☐ 0 to 5

☐ 0 to 3.5

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Question No : 18 of 26

Marks: 1 (Budgeted Time 1 Min)

A multiplexer circuit has _____ input(s) and _____ output(s).

Answer (Please select your correct option)

☐ Single, single

☐ Single, multiple

☐ Multiple, single

☒ Multiple, multiple



correct

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Question No : 19 of 26

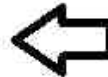
Marks: 1 (Budgeted Time 1 Min)

The binary values for the standard SOP expression, $AB\bar{C}\bar{D} + \bar{A}BC\bar{D} + \bar{A}\bar{B}\bar{C}D$ are _____

Answer (Please select your correct option)

☐ 1110 + 0110 + 0001

correct



☐ 1011 + 1111 + 1011

☐ 0001 + 1001 + 1110

☐ 1010 + 1110 + 0101

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Question No : 20 of 26

Marks: 1 (Budgeted Time 1 Min)

Determine the binary values of the variables for the following standard POS expression.
 $(A + \bar{B} + C)(\bar{A} + B + \bar{C})$

Answer (Please select your correct option)

☐ (1 + 0 + 1)(0 + 1 + 0)

correct



☐ (0 + 1 + 0)(1 + 0 + 1)

☐ (1 + 0 + 0)(0 + 0 + 1)

☐ (0 + 1 + 0)(1 + 1 + 0)

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Question No : 21 of 26

Marks: 2 (Budgeted Time 4 Min)

How many possible outputs does a decoder of 3 inputs contain?

Answer (Please [click here](#) to Add Answer)



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Question No : 22 of 26

Marks: 2 (Budgeted Time 4 Min)

How can we use 3-to-8 decoder to implement SOP expressions?

Answer (Please [click here](#) to Add Answer)



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Question No : 23 of 26

Marks: 3 (Budgeted Time 6 Min)

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

Answer ([Please click here to Add Answer](#))



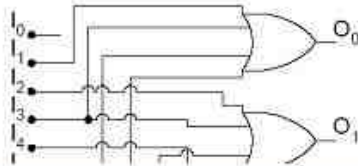
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Question No : 24 of 26

Marks: 3 (Budgeted Time 6 Min)

Identify the following circuit that is which combinational circuit is being represented by this diagram?



Answer (Please [click here](#) to Add Answer)

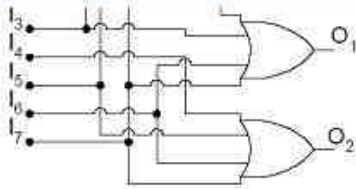


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Question No : 24 of 26

Marks: 3 (Budgeted Time 6 Min)



Answer ([Please click here to Add Answer](#))



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Question No : 25 of 26

Marks: 5 (Budgeted Time 10 Min)

Consider a logical circuit for 4-bit binary number. The circuit gives output 0 for adjacent 0s in a binary number. Draw the karnaugh map of such circuit and derive simplified POS expression.

Answer ([Please click here to Add Answer](#))



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Question No : 26 of 26

Marks: 5 (Budgeted Time 10 Min)

Multiplexers can be used as a "Logic Function Generator". Draw only circuit diagram and function table based on three variables.

Answer ([Please click here to Add Answer](#))



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