



For More Visit VUStudents.pk

CS302 Midterm Solved McQs Papers By Waqar Sidhu (File 1)

Question No 1

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

Select Correct Option

- +7 to -8.....(For More Visit VUStudents.pk)
- +8 to -7
- +9 to -8
- 9 to +8

Question NO 2

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

Select Correct Option

- 11101
- 11011
- 10111.....(For More Visit VUStudents.pk)
- 11110

Question NO 3

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

Select Correct Option

- AND
- OR.....(For More Visit VUStudents.pk)
- NAND
- XOR

Question NO 4

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

Select Correct Option

- 2-wire
- 4-wire.....(For More Visit VUStudents.pk)
- 8-wire
- 16-wire

Question NO 5

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

Select Correct Option

- 2
- 3
- 4.....(For More Visit VUStudents.pk)
- 5



For More Visit VUStudents.pk



Question NO 6

S-R latch can be implemented by using _____ gates.

Select Correct Option

- ✓ **AND, OR**.....(For More Visit VUStudents.pk)
- ✓ NAND, NOR
- ✓ NAND, XOR
- ✓ NOT, XOR

Question NO 7

A product term is 0 when _____.

Select 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**.....(For More Visit VUStudents.pk)

Question NO 8

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

Select Correct Option

- ✓ **Zero**.....(For More Visit VUStudents.pk)
- ✓ One
- ✓ Undefined
- ✓ No output, as input is invalid

Question NO 9

_____ is not a valid hexadecimal number.

Select Correct Option

- ✓ 1234
- ✓ ABCD
- ✓ 1001
- ✓ **DEHF**.....(For More Visit VUStudents.pk)

Question NO 10

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

Select Correct Option

- ✓ **Adding 1 to 1's complement**.....(For More Visit VUStudents.pk)
- ✓ Subtracting 1 from 1's complement
- ✓ Calculating 1's complement and inverting Most significant bit
- ✓ Adding 1's complement twice





Question NO 11

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

Select Correct Option

- ✓ 3, 7
- ✓ **4, 7**.....(For More Visit VUStudents.pk)
- ✓ 7, 3
- ✓ 7, 4

Question NO 12

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

Select Correct Option

- ✓ Boolean Algebra and rules
- ✓ Karnaugh Map
- ✓ **Quine-McCluskey**.....(For More Visit VUStudents.pk)
- ✓ Demorgan's Theorem

Question NO 13

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

Select Correct Option

- ✓ A
- ✓ B
- ✓ **C**.....(For More Visit VUStudents.pk)
- ✓ D

Question NO 14

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

Select Correct Option

- ✓ $\sum_4 \sum_3 \sum_2 \sum_1 = 0111, C_{out} = 0$
- ✓ $\sum_4 \sum_3 \sum_2 \sum_1 = 1111, C_{out} = 1$
- ✓ $\sum_4 \sum_3 \sum_2 \sum_1 = 1011, C_{out} = 1$
- ✓ $\sum_4 \sum_3 \sum_2 \sum_1 = 1100, C_{out} = 1$

Question NO 15

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

Select Correct Option

- ✓ 3, 1
- ✓ 3, 2
- ✓ 2, 1
- ✓ **2, 2**.....(For More Visit VUStudents.pk)





Question NO 16

TTL based devices work with a DC supply of _____ Volts.

Select Correct Option

- ✓ +10
- ✓ **+5**.....(For More Visit VUStudents.pk)
- ✓ +3
- ✓ 3.3

Question NO 17

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

Select Correct Option

- ✓ **3.5 to 5**.....(For More Visit VUStudents.pk)
- ✓ 4.5 to 5
- ✓ 0 to 5
- ✓ 0 to 3.5

Question NO 18

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

Select Correct Option

- ✓ Single, single
- ✓ Single, multiple
- ✓ Multiple, single
- ✓ **Multiple, multiple**.....(For More Visit VUStudents.pk)

Question NO 19

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

Select Correct Option

- ✓ **1110 + 0110 + 0001**.....(For More Visit VUStudents.pk)
- ✓ 1011 + 1111 + 1011
- ✓ 0001 + 1001 + 1110
- ✓ 1010 + 1110 + 0101

Question NO 20

Determine the binary values of the variables for the following standard POS expression.

$$(A + \bar{B}) + C)(\bar{A} + B + \bar{C})$$

Select Correct Option

- ✓ **(1 + 0 + 1)(0 + 1 + 0)**(For More Visit VUStudents.pk)
- ✓ (0 + 1 + 0)(1 + 0 + 1)
- ✓ (1 + 0 + 0)(0 + 0 + 1)
- ✓ (0 + 1 + 0)(1 + 1 + 0)





(File 2)

Question No 1

The first Least Significant digit in decimal number system has

Select Correct Option

- ✓ **Position 0 and weight equal to 1**.....(For More Visit VUStudents.pk)
- ✓ Position 1 and weight equal to 0
- ✓ Position 1 and weight equal to 10
- ✓ Position 0 and weight equal to 10

Question NO 2

Consider the binary number “110101”, its 2’s complement will be _____.

Select Correct Option

- ✓ 100110
- ✓ **011011**.....(For More Visit VUStudents.pk)
- ✓ 100111
- ✓ 011010

Question NO 3

$A + \bar{A}.B =$ _____.

Select Correct Option

- ✓ A
- ✓ B
- ✓ A.B
- ✓ A+B

Question NO 4

According to Demorgan’s theorem:

$\overline{A+B+C} =$ _____

Select Correct Option

- ✓ A.B.C
- ✓ $A + \overline{B+C}$
- ✓ **$\bar{A}.\bar{B}.\bar{C}$**(For More Visit VUStudents.pk)
- ✓ $\overline{A+B} + C$

Question NO 5

The Extended ASCII Code (American Standard Code for Information Interchange) represents _____ unique codes.

Select Correct Option

- ✓ **256**.....(For More Visit VUStudents.pk)
- ✓ 255
- ✓ 128
- ✓ 127





Question NO 6

The three fundamental gates are _____.

Select Correct Option

- ✓ AND, NAND, XOR
- ✓ OR, AND, NAND
- ✓ NOT, NOR, XOR
- ✓ **NOT, OR, AND**.....(For More Visit VUStudents.pk)

Question NO 7

For standard SOP expression, a _____ is placed in the cell corresponding to the product term (Minterm) present in the expression.

Select Correct Option

- ✓ 0
- ✓ **1**.....(For More Visit VUStudents.pk)
- ✓ X (don't care condition)
- ✓ Any of given option depending on SOP term

Question NO 8

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

Select Correct Option

- ✓ A=10, B=01
- ✓ A=11, B=01
- ✓ A=01, B=01
- ✓ **A=01, B=10**.....(For More Visit VUStudents.pk)

Question NO 9

An alternate method of implementing Comparator which allow the Comparators to be easily cascaded without the need for extra logic gates is _____.

Select Correct Option

- ✓ Using a single comparator
- ✓ **Using iterative circuit based comparator**.....(For More Visit VUStudents.pk)
- ✓ Connecting comparator in vertical hierarchy
- ✓ Extra logic gates are always required

Question NO 10

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

Select Correct Option

- ✓ **2=input, 8-bit**.....(For More Visit VUStudents.pk)
- ✓ 2=input, 4-bit
- ✓ 4=input, 8-bit
- ✓ 4=input, 16-bit





Question NO 11

$A.(B.C) = (A.B).C$ is an expression of _____.

Select Correct Option

- ✓ Demorgan's Law
- ✓ Distributive Law
- ✓ Commutative Law
- ✓ **Associative Law**.....(For More Visit VUStudents.pk)

Question NO 12

$(A + B)(A + \bar{B} + C)(\bar{A} + C)$ is an example of _____.

Select Correct Option

- ✓ **Product of sum form**.....(For More Visit VUStudents.pk)
- ✓ Sum of product form
- ✓ Demorgans law
- ✓ Associative law

Question NO 13

The expression $F=A+B+C$ describes the operation of 3-bit _____ gate.

Select Correct Option

- ✓ **OR**.....(For More Visit VUStudents.pk)
- ✓ AND
- ✓ NOT
- ✓ NAND

Question NO 14

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

Select Correct Option

- ✓ A
- ✓ B
- ✓ **C**.....(For More Visit VUStudents.pk)
- ✓ D

Question NO 15

A particular Full Adder has _____ inputs and _____ output(s)

Select Correct Option

- ✓ 2, 3
- ✓ 2, 2
- ✓ **3, 2**.....(For More Visit VUStudents.pk)
- ✓ 3, 3





Question NO 16

Which of the following is a symbol of OR operation in ABEL?

Select Correct Option

- #.....(For More Visit VUStudents.pk)
- \$
- !
- &

Question NO 17

A latch has _____ stable state(s).

Select Correct Option

- One
- Two.....(For More Visit VUStudents.pk)
- Three
- Four

Question NO 18

A latch retains its stats unless _____.

Select Correct Option

- Power is turned off
- Input is changed.....(For More Visit VUStudents.pk)
- Output is changed
- Clock pulse is changed

Question NO 19

At $S = 0$ and $R = 1$, an active-HIGH SR latch is in _____ condition.

Select Correct Option

- SET
- RESET.....(For More Visit VUStudents.pk)
- Invalid
- No change

Question NO 20

What are the sum (Σ) and the carry (C_{out}) for full adder circuit when $A = 1$, $B = 1$ and $C_{in} = 0$?

Select Correct Option

- $\Sigma = 0, C_{out} = 1$(For More Visit VUStudents.pk)
- $\Sigma = 1, C_{out} = 0$
- $\Sigma = 1, C_{out} = 1$
- $\Sigma = 0, C_{out} = 0$





(File 3)

Question No 1

Consider the binary number “110101”, its 2’s complement will be _____.

Select Correct Option

- ✓ 100110
- ✓ **011011**.....(For More Visit VUStudents.pk)
- ✓ 100111
- ✓ 011010

Question NO 2

The values that exceed the specified range can not be correctly represented and are considered as _____.

Select Correct Option

- ✓ **Overflow**.....(For More Visit VUStudents.pk)
- ✓ Carry
- ✓ Parity
- ✓ Sign value

Question NO 3

According to Demorgan’s theorem:

$A+B+C =$ _____

Select Correct Option

- ✓ A.B.C
- ✓ $A + \overline{B+C}$
- ✓ **$\overline{A.B.C}$**(For More Visit VUStudents.pk)
- ✓ $A+B + C$

Question NO 4

If two numbers in BCD representation generate an invalid an BCD number then the binary _____ is added to the result.

Select Correct Option

- ✓ 1001
- ✓ 0110
- ✓ 1111
- ✓ 1100

Question NO 5

The output of an AND gate is one when _____.

Select Correct Option

- ✓ **All of the inputs are one**.....(For More Visit VUStudents.pk)
- ✓ Any of the input is one
- ✓ Any of the input is zero
- ✓ All the inputs are zero





Question NO 6

A standard SOP form has _____ terms that have all the variables in the domain of the expression.

Select Correct Option

- ✓ Sum
- ✓ **Product**
- ✓ Mac
- ✓ Composite

Question NO 7

A comparator circuit has multiple inputs and _____ outputs.

Select Correct Option

- ✓ 2
- ✓ **3.....(For More Visit VUStudents.pk)**
- ✓ 4
- ✓ 7

Question NO 8

An alternate method of implementing Comparator which allow the Comparators to be easily cascaded without the need for extra logic gates is _____.

Select Correct Option

- ✓ Using a single comparator
- ✓ **Using iterative circuit based comparator.....(For More Visit VUStudents.pk)**
- ✓ Connecting comparator in vertical hierarchy
- ✓ Extra logic gates are always required

Question NO 9

The active high and active low inputs of 3-to-8 Decoder are as follows:

Select Correct Option

- ✓ **One active-high and the remaining two are active-low**
- ✓ Two active-high and the remaining one is active-low
- ✓ All active high
- ✓ All active low

Question NO 10

OLMC consists of a _____.

Select Correct Option

- ✓ Encoder
- ✓ Decoder
- ✓ Logic Gate
- ✓ **Flip-Flop.....(For More Visit VUStudents.pk)**





Question NO 11

The Quad Multiplexer has _____ inputs.

Select Correct Option

- ✓ 4
- ✓ 8
- ✓ 12
- ✓ **16**.....(For More Visit VUStudents.pk)

Question NO 12

The carry propagation can be expressed as _____.

Select Correct Option

- ✓ $C_p = AB$
- ✓ $C_p = A+B$
- ✓ $C_p = A \oplus B$
- ✓ $C_p = A+\bar{B}$

Question NO 13

In the binary number “1100.111”, the first bit at the right of decimal point has the weight.

Select Correct Option

- ✓ $\frac{1}{2}$ (1 divided by 2)
- ✓ $\frac{1}{4}$ (1 divided by 4)
- ✓ 0
- ✓ 1

Question NO 14

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

Select Correct Option

- ✓ A
- ✓ B
- ✓ **C**.....(For More Visit VUStudents.pk)
- ✓ D

Question NO 15

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

Select Correct Option

- ✓ **3.5 to 5**.....(For More Visit VUStudents.pk)
- ✓ 4.5 to 5
- ✓ 0 to 5
- ✓ 0 to 3.5





Question NO 16

Programmable Array Logic (PAL) has _____input(s) and _____ output(s).

Select Correct Option

- ✓ Single, multiple
- ✓ Multiple, single
- ✓ Single, single
- ✓ **Multiple, multiple**.....(For More Visit VUStudents.pk)

Question NO 17

An equivalent ABEL notation of Boolean expression $A+B$ is _____.

Select Correct Option

- ✓ A & B
- ✓ A ! B
- ✓ **A # B**.....(For More Visit VUStudents.pk)
- ✓ A \$ B

Question NO 18

Which circuit has the following Sum and CarryOut expressions?

Sum = $A \oplus B \oplus C$

CarryOut = $C(A \oplus B) + AB$

Select Correct Option

- ✓ Half Adder
- ✓ **Full Adder**.....(For More Visit VUStudents.pk)
- ✓ 3.bit parallel adder
- ✓ MSI adder circuit

Question NO 19

From the truth table below, determine the standard SOP expression.

Inputs			Output
A	B	C	X
0	0	0	0
0	0	1	1
0	1	0	0

Select Correct Option

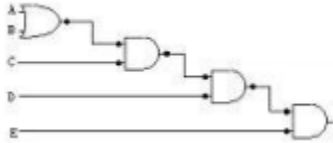
- ✓ $\bar{A}\bar{B}C + \bar{A}BC\bar{C} + A\bar{B}\bar{C}$
- ✓ **$A\bar{B}\bar{C} + A\bar{B}C + \bar{A}\bar{B}C$**(For More Visit VUStudents.pk)
- ✓ $(A+B+\bar{C})(A+\bar{B}+\bar{C})(\bar{A}+\bar{B}+C)$
- ✓ $(\bar{A}+\bar{B}+C)(\bar{A}+B+C)(A+B+\bar{C})$





Question NO 20

The Boolean expression for the logic circuit is_____.



Select Correct Option

- ✓ AB+CDE
- ✓ **(A+B)CDE**.....(For More Visit VUStudents.pk)
- ✓ (A+B)+(CDE)
- ✓ (A+B)(CD+E)

(File 4)

Question No 1

$(A+B).(A+C) =$ _____

Select Correct Option

- ✓ B+C
- ✓ **A+BC**.....(For More Visit VUStudents.pk)
- ✓ AB+C
- ✓ AC+B

Question NO 2

Excess=8 code assigns _____ to “-8”

Select Correct Option

- ✓ 1110
- ✓ 1100
- ✓ 1000
- ✓ **0000**.....(For More Visit VUStudents.pk)

Question NO 3

The output of the expression $F=A.B.C$ will be Logic _____ when $A=1, B=0, C=1$.

Select Correct Option

- ✓ Undefined
- ✓ One
- ✓ **Zero**.....(For More Visit VUStudents.pk)
- ✓ No Output as input is invalid





Question NO 4

The cell marked 6 in 4-variable K-Map represent minterm 6 or the maxterm 6 having the following binary value of variables A, B, C and D.

Select Correct Option

- ✓ A=1, B=1, C=0, D=0
- ✓ **A=0, B=1, C=1, D=0**.....(For More Visit VUStudents.pk)
- ✓ A=0, B=0, C=1, D=1
- ✓ A=1, B=0, C=0, D=1

Question NO 5

A comparator circuit has multiple inputs and _____ outputs.

Select Correct Option

- ✓ 2
- ✓ **3**.....(For More Visit VUStudents.pk)
- ✓ 4
- ✓ 7

Question NO 6

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

Select Correct Option

- ✓ A=10, B=01
- ✓ A=11, B=01
- ✓ A=01, B=01
- ✓ **A=01, B=10**.....(For More Visit VUStudents.pk)

Question NO 7

The _____ Encoder is used as a keypad encoder.

Select Correct Option

- ✓ 2-to-8 encoder
- ✓ 4-to-16 encoder
- ✓ BCD-to-Decimal
- ✓ **Decimal-to-BCD Priority**.....(For More Visit VUStudents.pk)

Question NO 8

Using multiplexer as parallel to serial converter requires _____ connected to the multiplexer.

Select Correct Option

- ✓ **A parallel to serial converter circuit**.....(For More Visit VUStudents.pk)
- ✓ A counter circuit
- ✓ A BCD to Decimal decoder
- ✓ A 2-to-8 bit decoder





Question NO 9

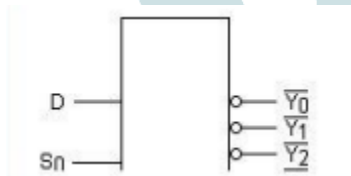
The four outputs of two multiplexers, connected to from a 16,input multiplexer are connected together through a 4-input _____ gate.

Select Correct Option

- ✓ AND
- ✓ **OR**.....(For More Visit VUStudents.pk)
- ✓ NAND
- ✓ XOR

Question NO 10

The device show here is most likely a _____.



Select Correct Option

- ✓ Comparator
- ✓ **Multiplexer**.....(For More Visit VUStudents.pk)
- ✓ Demultiplexer
- ✓ Parity generator

Question NO 11

GAL is an acronym for _____.

Select Correct Option

- ✓ Generic Analysis Logic
- ✓ Giant Array Logic
- ✓ General Array Logic
- ✓ **Generic Array Logic**.....(For More Visit VUStudents.pk)

Question NO 12

In the binary number “10011” the weight of the most significant digit is _____.

Select Correct Option

- ✓ **2⁴ (2 raise to power 4)**(For More Visit VUStudents.pk)
- ✓ 2³ (2 raise to power 3)
- ✓ 2⁰ (2 raise to power 0)
- ✓ 2¹ (2 raise to power 1)





Question NO 13

The output of the expression $F=A+B+C$ will be Logic _____ when $A=0, B=1, C=1$.

Select Correct Option

- ✓ Undefined
- ✓ One
- ✓ Zero
- ✓ **10 (binary)**(For More Visit VUStudents.pk)

Question NO 14

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

Select Correct Option

- ✓ Boolean Algebra and rules
- ✓ Karnaugh Map
- ✓ **Quine-McCluskey**.....(For More Visit VUStudents.pk)
- ✓ Demorgan's Theorem

Question NO 15

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

Select Correct Option

- ✓ 3, 1
- ✓ 3, 2
- ✓ 2, 1
- ✓ **2, 2**.....(For More Visit VUStudents.pk)

Question NO 16

A quantity having continues values is a/an _____ quantity.

Select Correct Option

- ✓ Digital
- ✓ Binary
- ✓ **Analog**.....(For More Visit VUStudents.pk)
- ✓ Natural

Question NO 17

Which one of the following expressions is an example of Commutative Law for Multiplication?

Select Correct Option

- ✓ $AB+C = A+BC$
- ✓ $A(B=C) = B(A+C)$
- ✓ **$AB=BA$**(For More Visit VUStudents.pk)
- ✓ $A+B=B+A$





Question NO 18

When four 1's are taken as a group on a Karnaugh map, the number of variables eliminated from the output expressions is/are _____.

Select Correct Option

- ✓ 1
- ✓ 2
- ✓ 3
- ✓ 4

Question NO 19

Identify the Boolean expression that is in standard POS form.

Select Correct Option

- ✓ $(A+B)(\bar{A}+B+\bar{C})$(For More Visit VUStudents.pk)
- ✓ $\bar{A}\bar{B}C+A\bar{B}C$
- ✓ $(A+\bar{B}+\bar{C})(A+B+C)$
- ✓ $(A+B)(A+C)$

Question NO 20

Simplifying POS (Product of sum) expression requires the grouping of _____.

Select Correct Option

- ✓ **0s**.....(For More Visit VUStudents.pk)
- ✓ 1s
- ✓ Don't care
- ✓ Both 0s and 1s

The END

