DELD (EC- 207) MID-SEM Examination October - 2020

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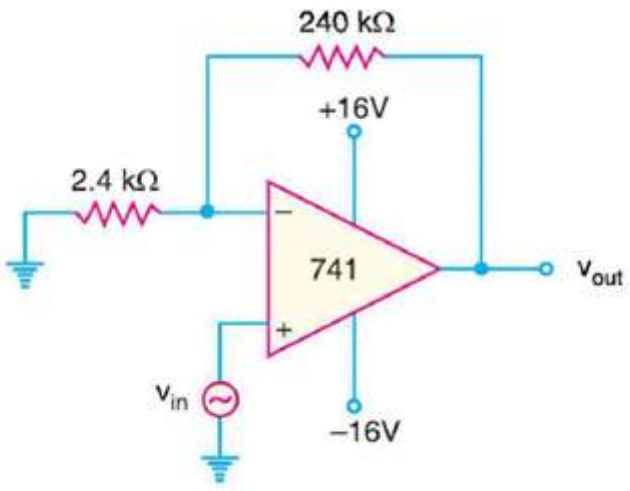
Technical Section

If Vin is a sine wave with peak amplitude of 0.2 volt, then the maximum positive peak at the output of the given circuit will be _____ volts. (Ref Image - 23)

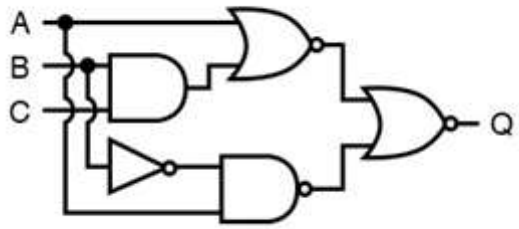


- 20
- -2
- 16
- -20
- 2

- -16

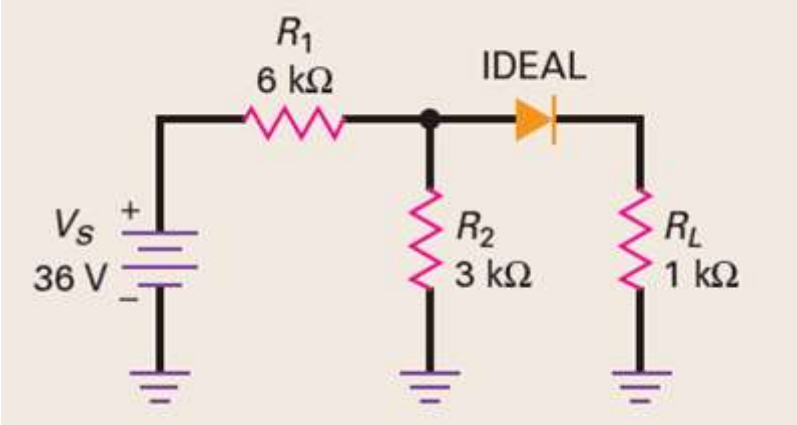
Clear selection

The Simplified Expression for Q is _____. (Ref Image - 35)



- (A+B)'
- AB+C
- BC'
- AC'
- AB'

The load voltage across Load Resistor in the given circuit for a practical germanium diode will be _____. (Ref Image - 1)



- ○ 11.3 Volts
- ○ 23.3 Volts
- ○ 11.7 Volts
- ◉ 23.7 Volts

Clear selection

An npn transistor with emitter open, 0.2 micro ampere current flows between collector-base circuit. For the same transistor with base open, the current in the collector-emitter circuit is found to be 20 micro amperes. The value of alpha, Emitter Current and the Base currents is _____, _____ and _____ respectively. (2 Marks)

- ○ 0.99, 1.01 mA and 10 micro A
- ○ 0.95, 1.01 mA and 10 micro A
- ○ None of These

None of These

0.99, 1.01 micro A and 10 micro A

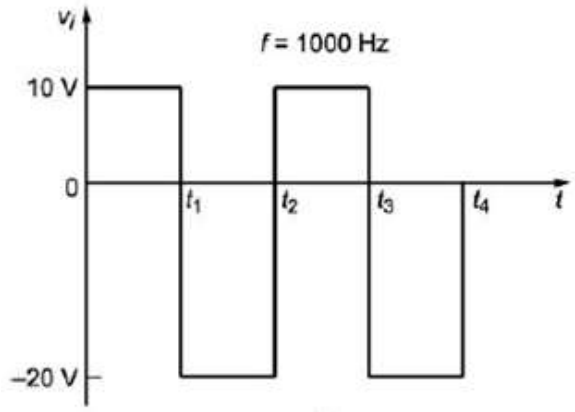
0.9, 1.01 mA and 10 micro A

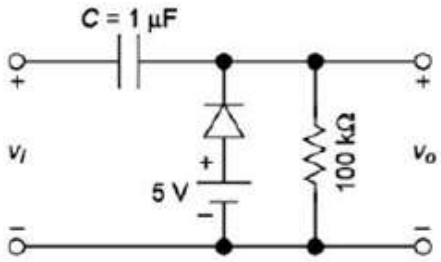
Following Message has been coded using even Parity Hamming Code and transmitted through a noisy channel. Decode the message assuming that at most single error has occurred in each word code 1110110. Corrected code word is _____. (2 Marks)

- (●) 1100110
- ( ) 1110110
- ( ) 1101110
- ( ) 1100111
- ( ) None of These

Clear selection

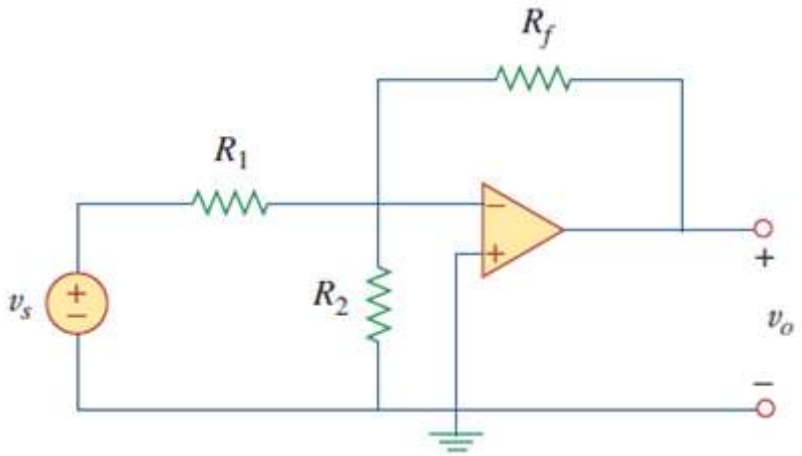
In the given circuit, the output voltage will swing between _____ and _____ volts respectively. (Ref Image -3)





- None of These
- 15 and -15 Volts
- 5 and 35 Volts
- -5 and 25 Volts
- 0 and -30 Volts
- 30 and 0 Volts

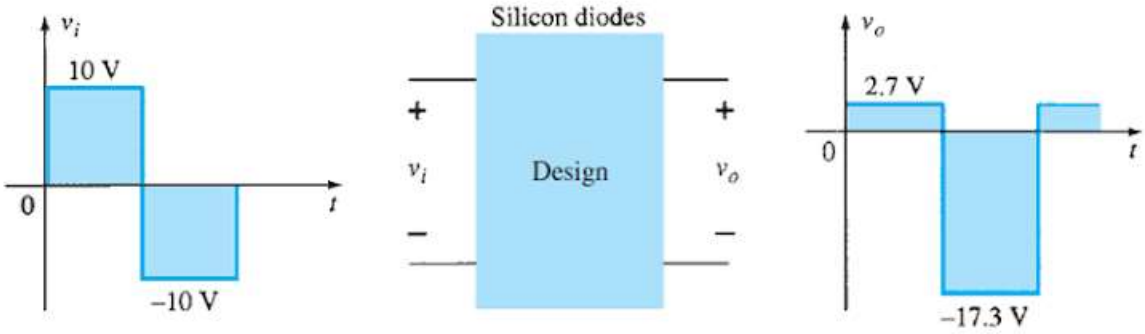
The gain expression for the following circuit is given by_____. Note '||' indicates parallel connection. (Ref Image - 19)



- -Rf/(R1 || R2)
- (1+Rf/R1)
- None of These
- (-Rf/R1)
- (1+(Rf/(R1 || R2))

Clear selection

To produce the output as shown in figure, the required circuit is _____. (Ref Image - 13)



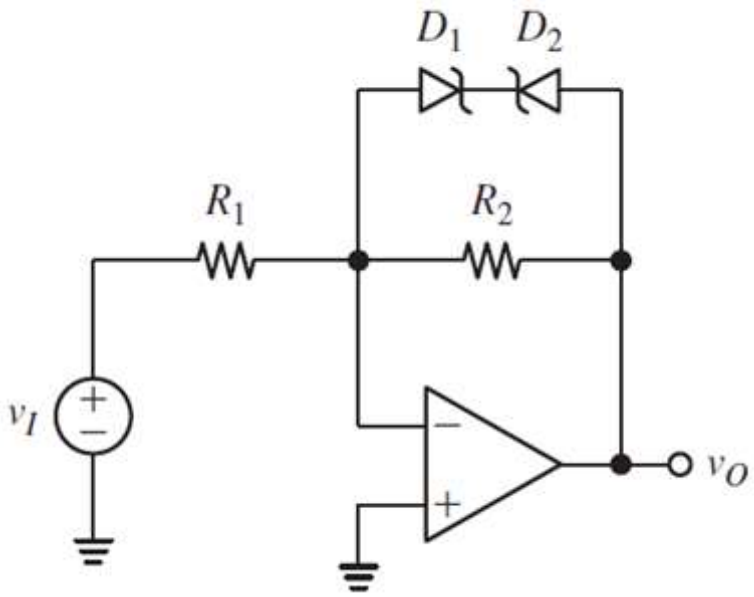
- None of These
- Clipper, Parallel branch has diode pointing downwards and 2 volt battery in series
- Clipper, Parallel branch has diode pointing upwards and 2 volt battery in series
- Clamper, Parallel branch has diode pointing downwards and 2 volt battery in series
- Clamper, Parallel branch has diode pointing upwards and 2 volt battery in series

A(B+C) = AB+AC represents which law of Boolean Algebra?

- None of These
- Commutative Law
- Law of Complements
- Associative Law
- Law of Inversion

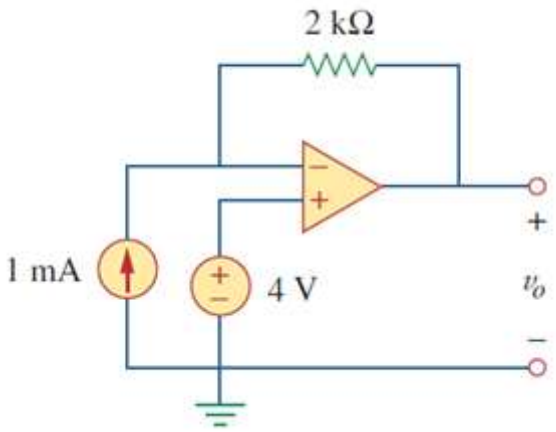
Clear selection

The positive and negative peaks at the output of the given circuit will lie at _____ and _____ volts respectively. (Ref Image - 29)



- None of These
- (VZ1+VD2on) and -(VD1on+VZ2)
- (VD1on+VZ2) and -(VZ1+VD2on)
- (VZ1+VZ2) and -(VD1on+VD2on)

The output voltage in the circuit below is _____ volts. (Ref Image - 22)



- Cannot be predicted. The circuit does not obey the KVL
- -2
- 2
- 4

Clear selection

The simplified expression for the function represented by F (A,B,C)= ∑ (1,3,4,6) is _____.

- AC+A'C'
- AB'+A'B
- AB+C'
- None of These

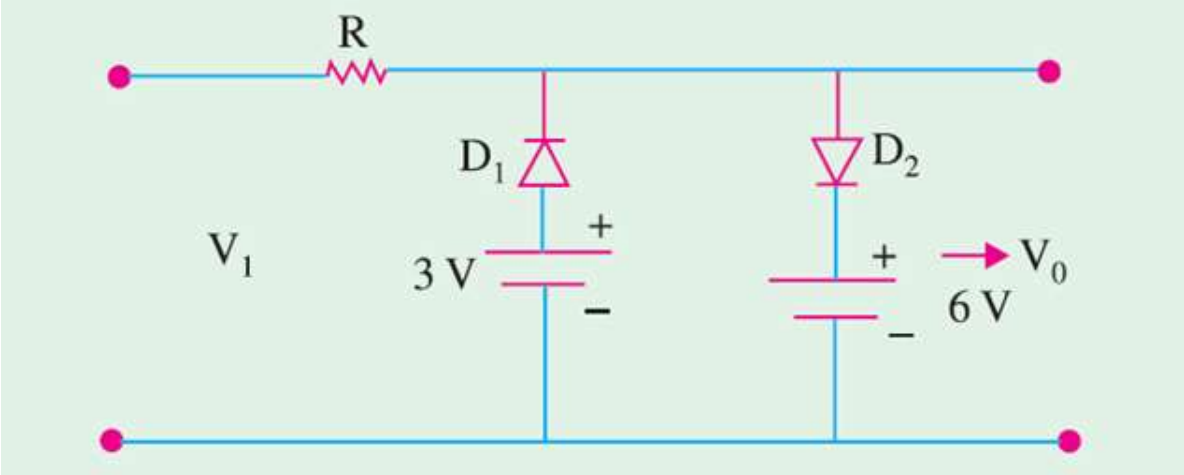
AC′ + A′C

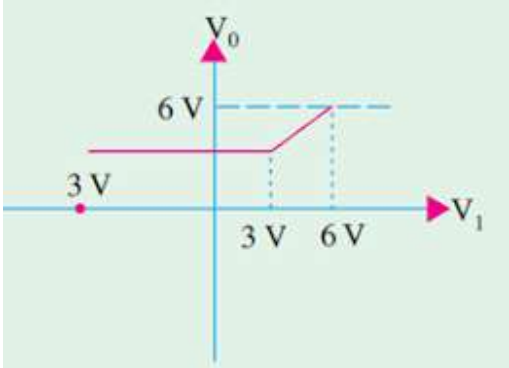
Clear selection

The min-terms present in F=ABCD+A'BC+B'C' are _____.

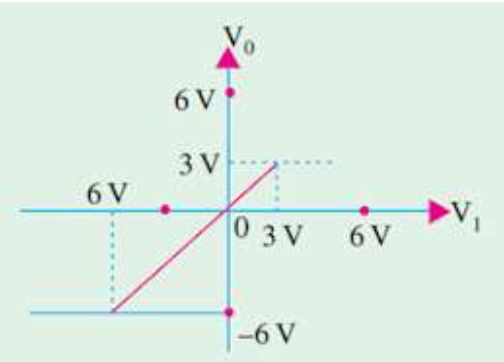
- 0,1,6,7,8,9,14
- 0,1,6,7,8,10,15
- 0,1,6,7,8,9,15
- 0,2,6,7,8,9,15

The correct Transfer Characteristics for the given circuit is. (Ref Image -7 and a,b,c,d)

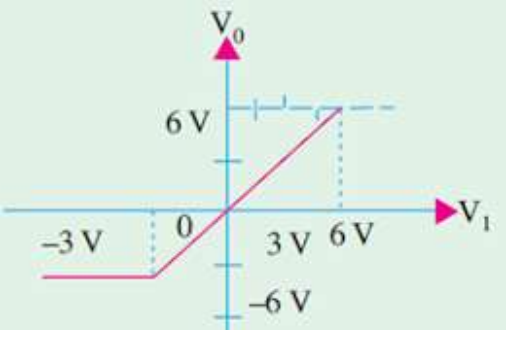




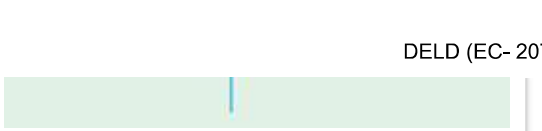
Option 2



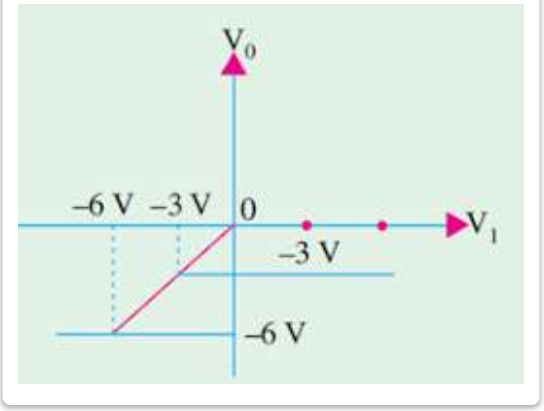
Option 3



None of These



Option 1



Option 4

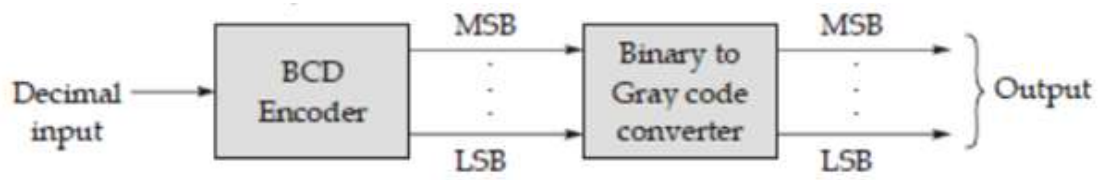
Clear selection

The min-terms present in the function f(x,y,z) = [(x+y') + (y+z')']' + yz are_____.

- 0,2,4,6
- 3,2,7
- None of These
- 1,3,5,7
- 0,5,7

Clear selection

If the decimal input is 49, then the decimal equivalent of output is _____. (Ref Image - 40)



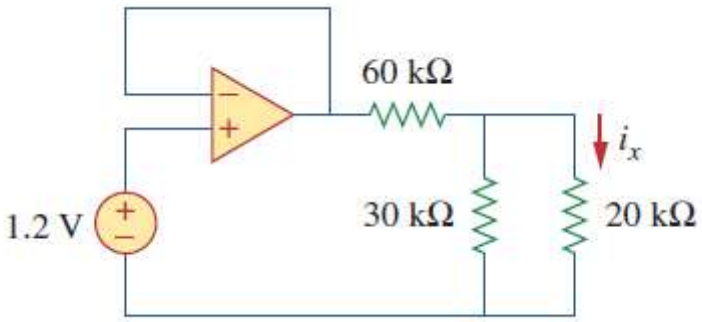
- None of These
- 109
- 79
- 49
- 209

Clear selection

The Simplified Expression for [(AB' + ABC)' +A (B+AB')]' is _____.

- 0
- 1
- BC'
- AB'
- (A+B)'

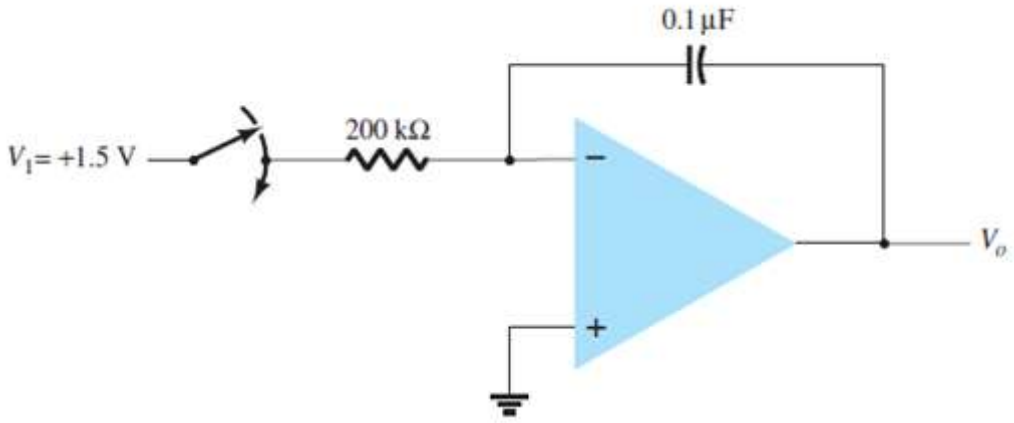
For the given circuit, the current Ix, and the power dissipated across the 20 K ohm resistor are _____, and _____ respectively. (Ref Image - 18) (2 Marks)



- 10 milli A and 2 milli Watts
- None of These
- 10 micro A and 2 milli Watts
- 10 milli A and 2 micro Watts
- 10 micro A and 2 micro Watts

Clear selection

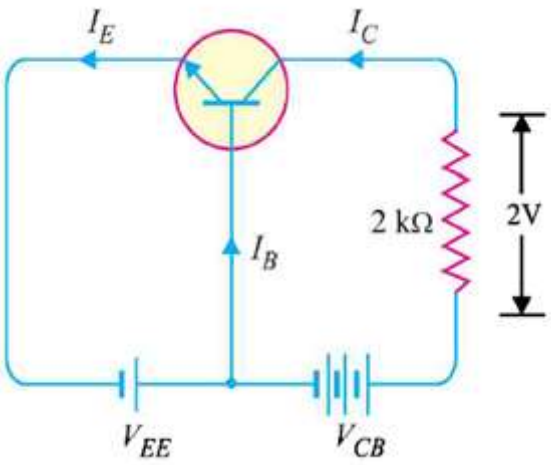
The given circuit represents _____, and the output will have a slope of _____. (Ref Image - 15) (2 Marks)



- ○ Differentiator, -75
- ○ Integrator, -50
- ○ Differentiator, -50
- ◉ Integrator, -75
- ○ None of These

Clear selection

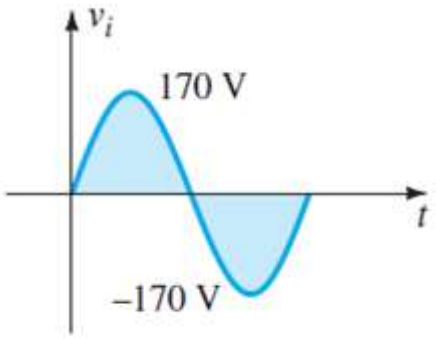
If alpha = 0.95, then the base current in the given circuit will be _____. (Ref Image - 28)

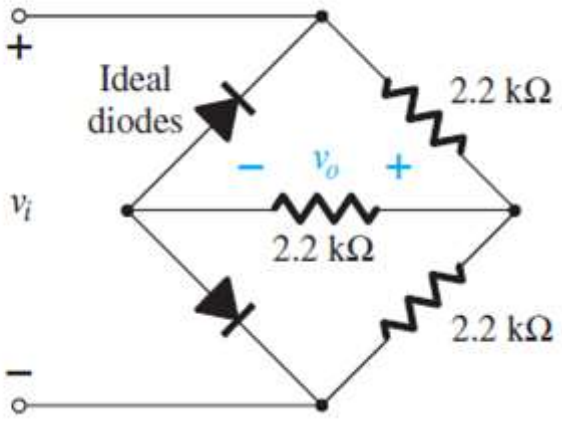


- (●) 0.05 micro A
- ( ) 0.5 micro A
- ( ) 1.05 mA
- ( ) 1 mA
- ( ) 0.05 mA

Clear selection

Assuming both diodes as ideal, for the positive and the negative half cycles, peak output voltage Vo is _____ volts and _____ volts respectively. (Ref Image - 12) (2 Marks)

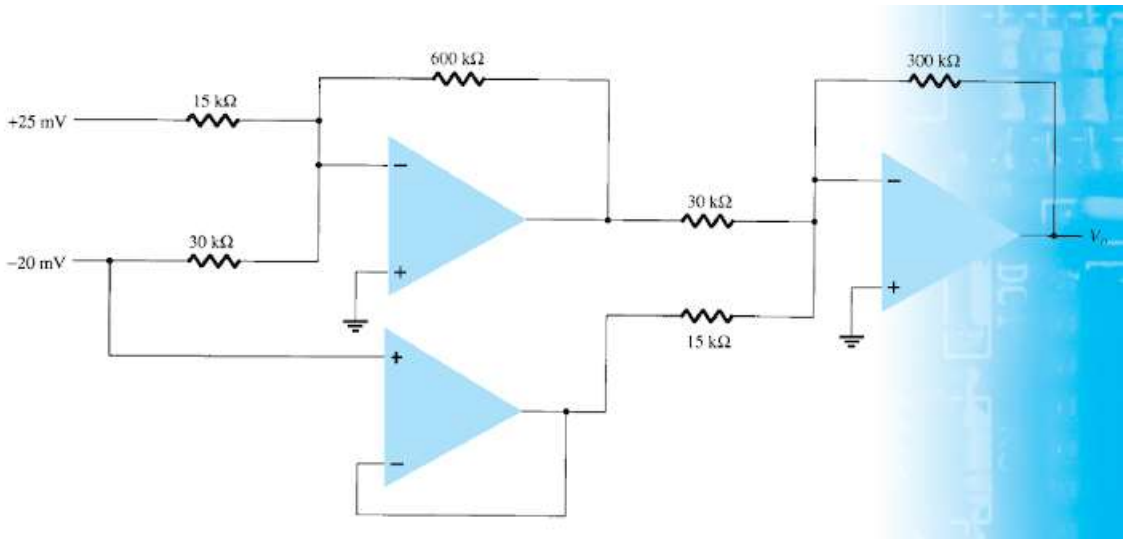




- ○ 84.3, 84.3
- ○ 56.67, 0
- ◉ 85, 85
- ○ 56.67, 56.67
- ○ None of These
- ○ 85, 0

Clear selection

The output voltage for the given circuit is _____ volts. (Ref Image - 25) (2 Marks)



- (●) 6.4
- ( ) -6.4
- ( ) -6
- ( ) 6
- ( ) None of These

Clear selection

The Simplified Expression for (A+B+C).(A+B'+C').(A+B+C').(A+B'+C)

- ( ) (A+B)
- ( ) None of These
- ( ) AB'

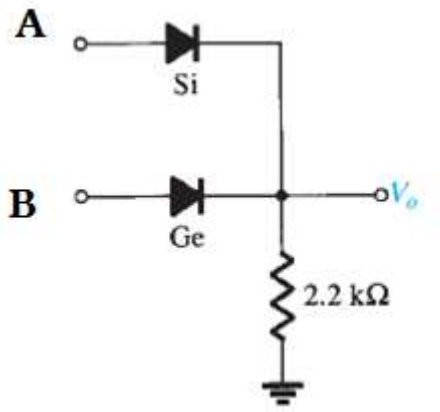
AB

B+C

A

Clear selection

If for the given circuit, at input side logic high and logic low are represented by '0.5 volt' and '0 volt', and at the output side logic high and logic low are represented by '0.2 volt' and '0 volt' respectively. Then the output expression is _____. Assume A as MSB. (Ref Image - 11) (2 Marks)



None of These

B'

A'

A

B

A'B

The Gray Code for the binary number 1011001101 is _____.

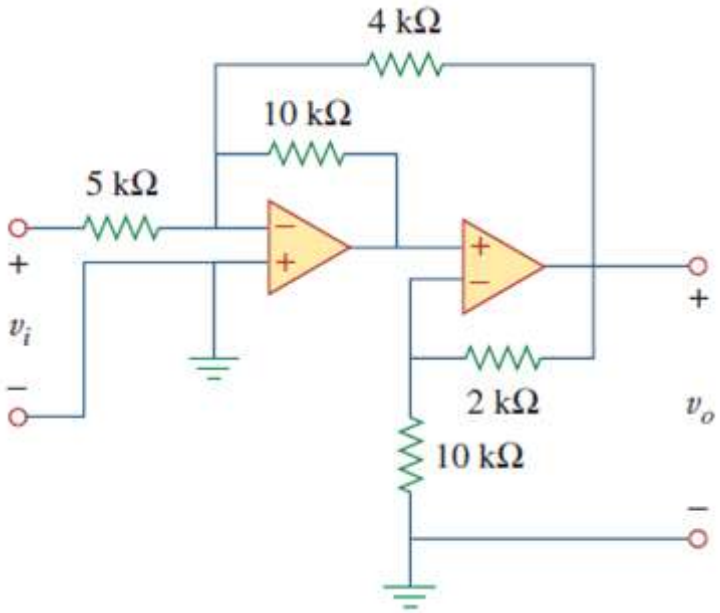
101011001

None of These

- 0100110010
- 0100110011
- 1110101011

Clear selection

For the given circuit, the gain (Vo/Vi) is equal to _____. (Ref Image - 16) (2 Marks)



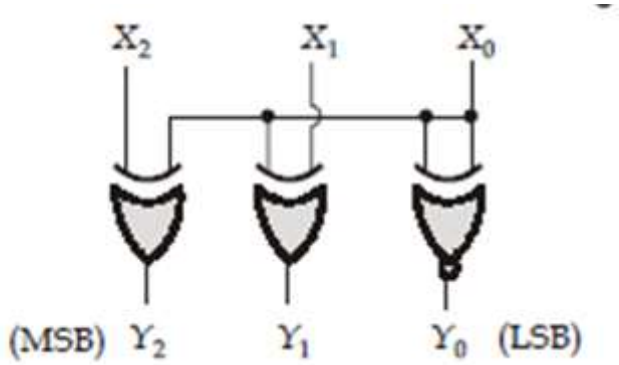
- -6
- 0.6
- -1.67
- -0.6
- None of These

Given a diode current of 6 mA, VT = 26 mV, n=1, and Is = 1 nano A. The applied voltage Vd across the diode is _____ volts. (2 Marks)

- -0.41
- 0.41

- 4.1
- 0.7
- None of These

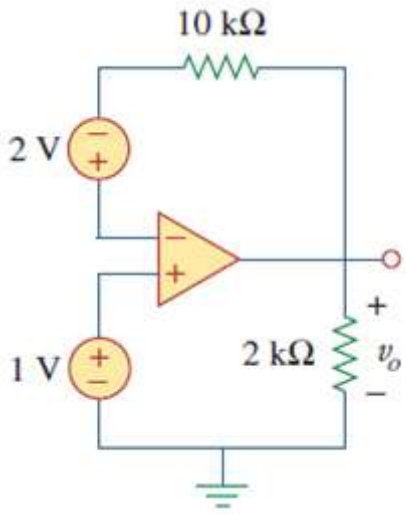
If input to the circuit is X2X1X0=101, then the decimal equivalent of the corresponding output Y2Y1Y0 will be _____. (Ref Image - 32)



- 2
- 7
- 5
- 3
- None of These
- 0011

Clear selection

The output voltage in the circuit below is _____ volts. (Ref Image - 21)



- -1
- -2
- Cannot be predicted. The circuit does not obey the KVL
- 3
- 1
- 2

The Simplified Expression for (((ABC)'+(A'B))'+(BC))'

- B'+C
- B'+C'
- B+C

B+C'

Clear selection

A _____ amplifier configuration is also called as grounded emitter circuit and the _____ configuration provides the highest power gain.

CB, CC

CE, CB

None of These

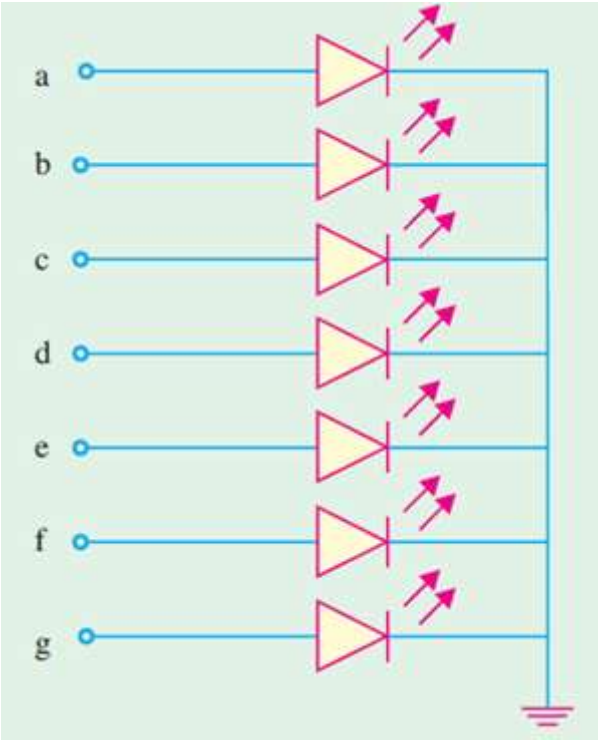
CB, CE

CC, CE

CE, CE

Clear selection

For a seven segment configuration given below, to display '3', segments f and e should be provided _____ volts and others should be provided _____ volts respectively. (Ref Image - 8)



- ○ 5, 0
- ◉ 0, 5
- ○ 5, 5
- ○ 0, 0
- ○ None of These

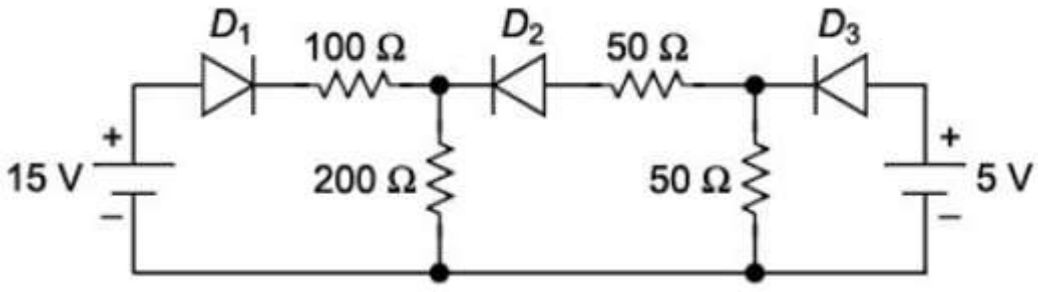
Clear selection

Given A.B = 0 and (A.C)' = 0. Then the simplified value of F(A,B,C) = A'BC + A'B'+B'+C reduces to _____.

- 0
- A
- 1
- None of These
- BC

Clear selection

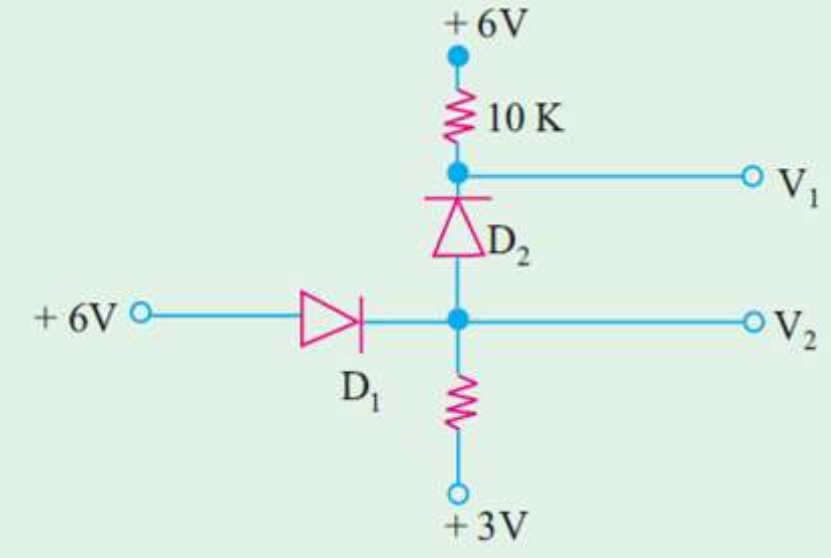
Predict the status (ON/OFF) of diodes D1, D2 and D3 in the given circuit. They are _____, _____ and _____ respectively. (Ref Image - 2)



- ON, OFF, ON
- OFF, ON, OFF
- ON, ON, ON
- None of These
- ON, ON, OFF

ON, ON, OFF

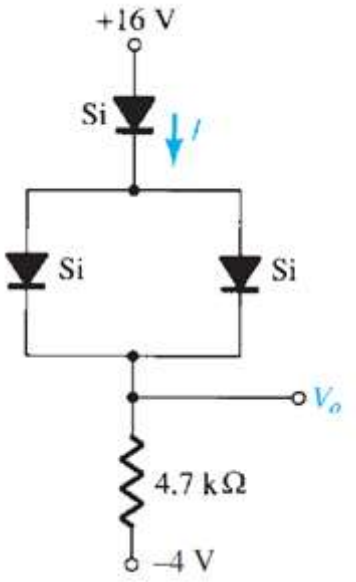
Assuming non-ideal silicon diodes, the voltages V1 and V2 are _____ volts and _____ volts respectively. (Ref Image -6)



- 6 and 5.7
- 6 and 5.3
- None of These
- 0 and 5.7
- 0 and 5.3

Clear selection

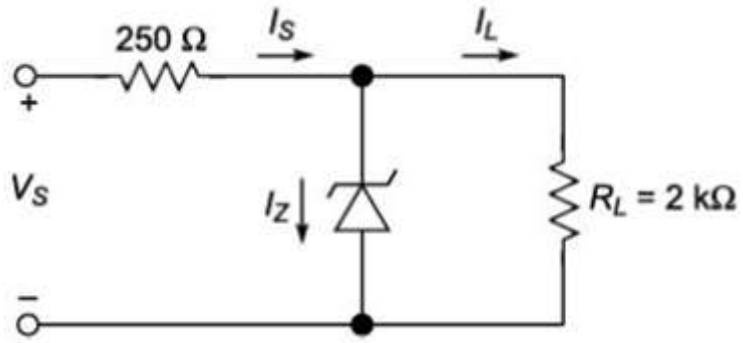
In the given figure, Current I and Voltage Vo are _____ mA and _____ volts respectively. (Ref Image - 10)



- None of These
- 39.6 W
- 3.11, 15
- 3.96, 14.6
- 3.11, 14.6

Clear selection

For the Zener Regulator circuit, determine the range of input voltage for diode to remain on. Given that the breakdown voltage of diode is 20 volts and the maximum zener current is 50 mA. (Ref Image - 4) (2 Marks)



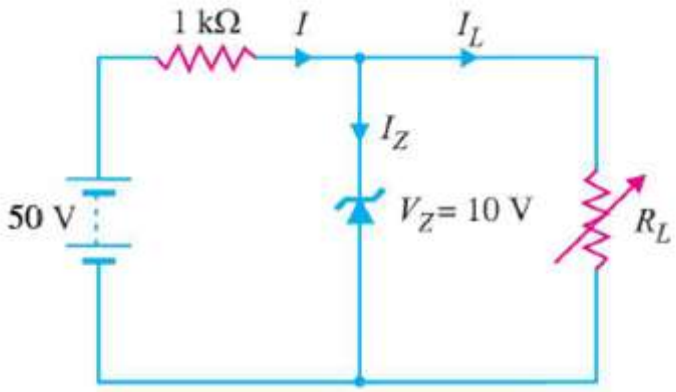
- 22.5 to 50 Volts
- None of These
- 20 to 35 Volts
- 22.5 to 35 Volts
- 20 to Any voltage greater than 20

The ratio of output impedance to input impedance of for CB, CE and CC configurations is _____, _____ and _____ respectively.

- None of These
- Very Low, Very High, Moderate
- Moderate, Very High, Very Low
- Very High, Moderate, Very Low
- Very Low, Moderate, Very High

Very Low, Moderate, Very High

The minimum value of load resistance 'RL' needed for zener diode to enter breakdown region is _____ ohms. (Ref Image - 30)



- 1000
- 50
- 250
- 500
- 100

Clear selection

If common emitter current gain of a transistor is 100 and the emitter current is 8 mA. Then the value of collector and base currents are _____ and _____ respectively. (2 Marks)

- 79.21 mA, 792.1 micro A
- 7.921 micro A, 79.21 micro A
- 7.921 mA, 79.21 mA

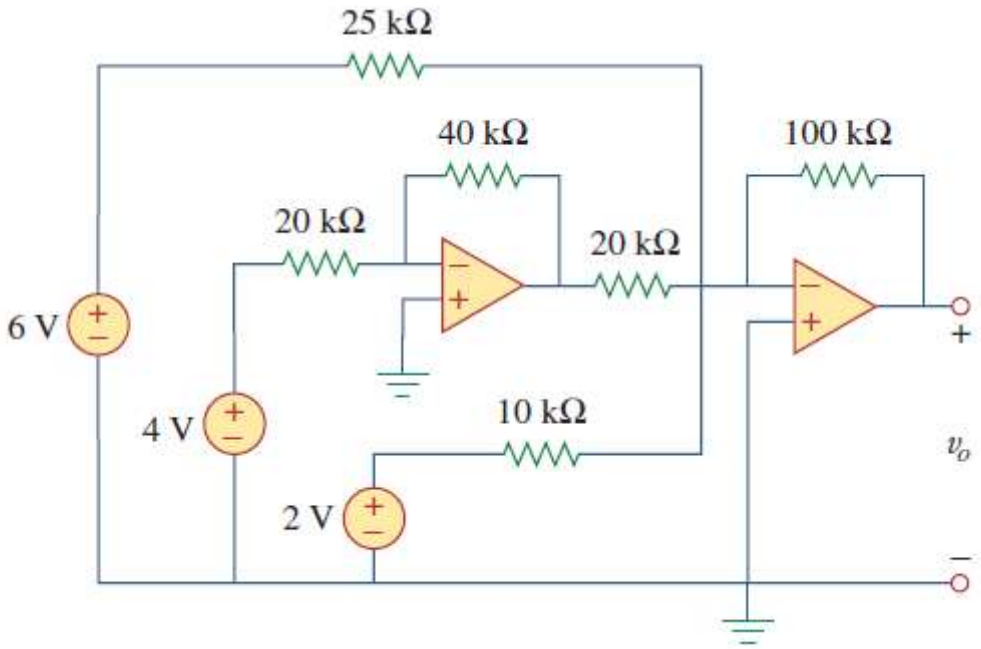
7.921 mA, 79.21 mA

7.921 mA, 79.21 micro A

None of These

Clear selection

For the given circuit, the output voltage is _____ volts. (Ref Image - 17) (2 Marks)



-4

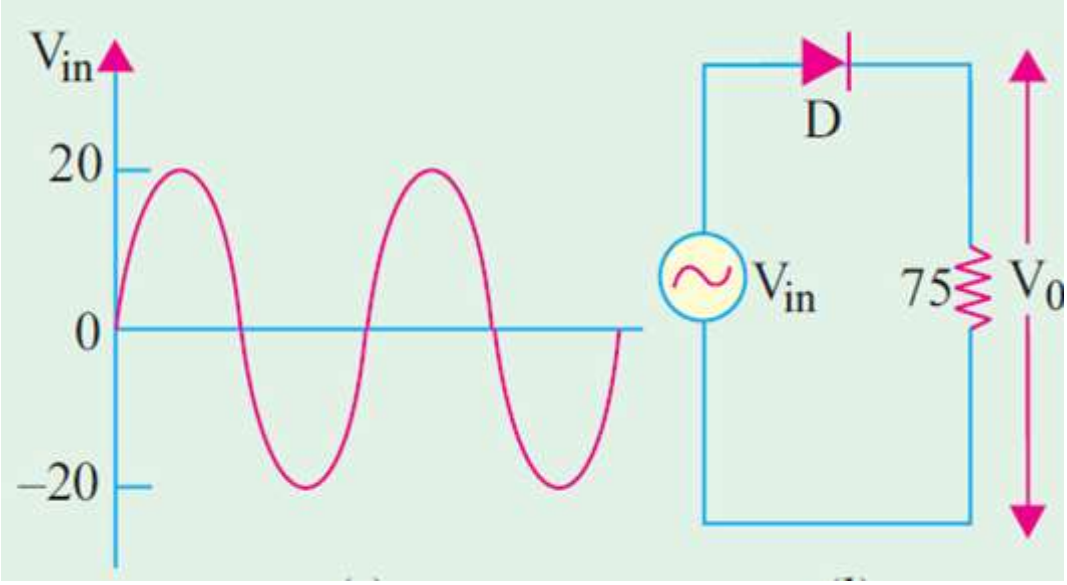
None of These

4

16

20

For a germanium diode, if the forward resistance of the diode is 25 ohms, then the peak value of the output voltage will be _____ volts. (Ref Image - 5) (2 Marks)



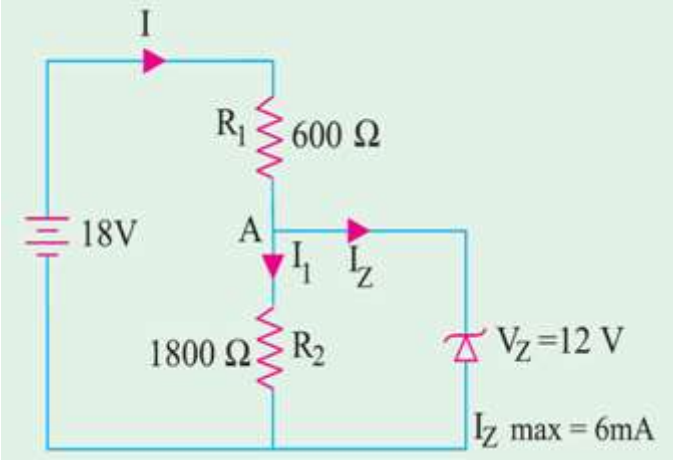
- 14.77
- 19.7
- None of These
- 19.3
- 14.47

The seven-bit error correcting code to represent the decimal digit 8 by augmenting the Excess-3 code and by using odd parity check is _____. (2 Marks)

- ○ None of These
- ○ 1010110
- ◉ 1011110
- ○ 1011100
- ○ 1100110

Clear selection

Power dissipated by the Zener diode in the following circuit is _____. (Ref Image - 9) (2 Marks)



- 39.6 mW
- 0 W
- None of These
- 39.6 W
- 72 W
- 72 mW

The Dual of the Function F(A,B,C,D,E) = (A+B+C) (D'E) is _____.

- A'B'C' +D+E'
- ABC +D'+E'
- None of These

ABC +D'+E

ABC+D+E

Clear selection

Back Submit