S 7231

1701E1158

Candidate's Seat No :_____

IMSC IT IMS Sem.-1 Examination

MDC-IMS-114T

Basic of Electronics

January-2024

Time : 1-00 Hour] **[Max. Marks : 25**

Q.1 Answer the questions by selecting appropriate option from the given choices. **(10 Marks)**

1-10^4 means the same thing as

A. 10000
B. 10 x 4
C. 10 X 10 X 10 x10
D. Both 1 & 3

2-How would you write 0.093 in scientific notation?

A. 1 x 10-0.093
B. 0.093 x 10 power 1
C. 9.3 x 10 power -2
D. 9.3 x 10 power 2

3-10^0 equals

A. 0
B. 10
C. 1
D. none

4- Positive powers of 10

A. indicate numbers less than 1
B. are not used with engineering notation
C. Indicate numbers greater than 1.
D. are used only with scientific notation.

5- What is scientific notation?

A. A long way to write really short numbers
B. I don't know...
C. A short way to write really long numbers
D. None of the above

6- Which is typically the longest: bit, byte, nibble, word?

A. Bit
B. Byte
C. Nibble
D. Word

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7- How many binary digits are required to count to 100(Decimal)

A. 7
B. 2
C. 3
D. 100

8-Hexadecimal letters A through F are used for decimal equivalent values from:

A. 1 through 6
B. 9 through 14
C. 10 through 15
D. 11 through 17

9-In which of the following base systems is 123 not a valid number?

A. Base 10
B. Base 16
C. Base8
D. Base 3

10-The number of bits in a nibble is

A. 16
B. 5
C. 4
D. 8

Q.2 Answer the following questions. (Any Ten) (10 Marks)

1-Convert the following binary numbers into hexadecimal numbers:

(i) 1111001010111111
(ii) 1010101101010101

2-Convert the following hexadecimal numbers into binary numbers:

(i) A 1 4 B
(ii) F 9 A 9

3-Convert the following hexadecimal numbers into Octal numbers:

(i) 4 A 2 F
(ii) 2 D F 5

4-Convert the following denary numbers into octal numbers:

(i) 6 9 1 0
(ii) 1 5 1 2 0

5-Express the following numbers in scientific notation:

(a) 3600

(b) 0.0000057.

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6- Make the following conversions: (a) convert 25 mA to μA (b) convert 2700 kΩ to MΩ.

7-CONVERTING BETWEEN METRIC PREFIXES

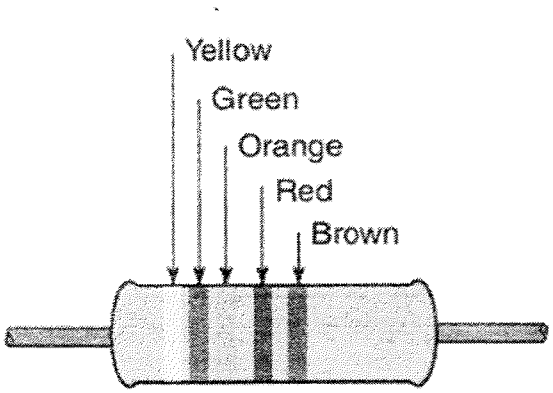
1500 μH = _____ mH

1.5 MΩ = _____ kΩ

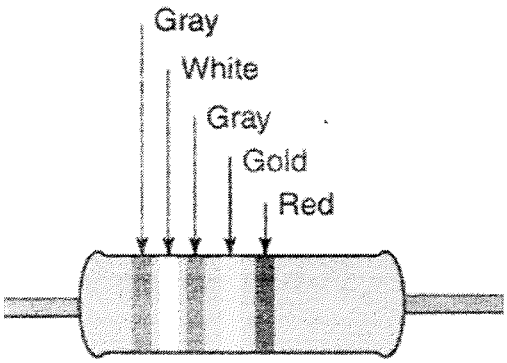
2.2 GHz = _____ MHz

0.039 MΩ = _____ kΩ

8- What is the resistance indicated by the five-band color code in Fig? Also, what ohmic range is permissible for the specified tolerance



9- Indicate the resistance for each chip resistor shown in Fig.



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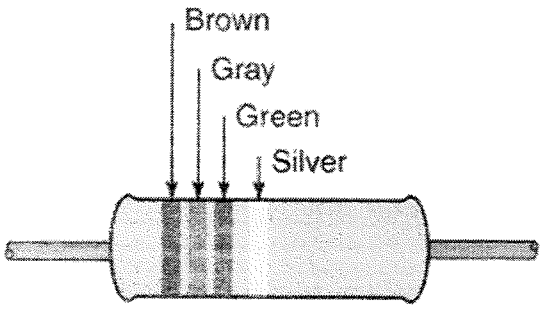


10 -How much current is needed for a 700-W, 140-V toaster?

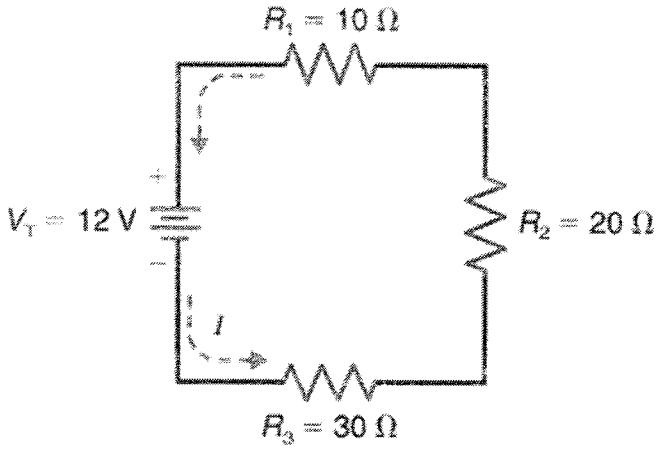
11- State the three forms of Ohm's law relating V, I, and R

12- Give three formulas for electric power.

13-

Two resistances R_1 and R_2 of 5 Ω each and R_3 of 10 Ω are in series. How much is R_T?

14- In Fig, solve for R(Total), I, and the individual resistor voltage drops.



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A voltage source produces an *IR* drop of 40 V across a 20-Ω R_1, 60 V across a 30-Ω R_2, and 180 V across a 90-Ω R_3, all in series. According to Kirchhoff's voltage law, how much is the applied voltage V_T?

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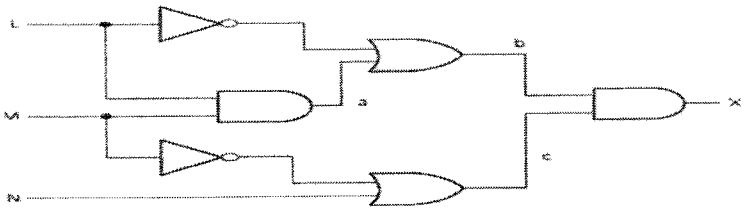
Q-3 Answer the following Questions (Any one) **(5 marks)**

1- Producing the truth table for



2-Producing the logic circuit for

K = ((NOT P AND NOT Q) AND R) OR (NOT Q OR R)

Boolean expression: $((\overline{p} \cdot \overline{q}) \cdot r) + (\overline{q} + r)$

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