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I/IV B.Tech (Supplementary) DEGREE EXAMINATION

November, 2019

Common to all Branches

First/Second Semester

Basic Electrical and Electronics Engineering

Time: Three Hours

Maximum: 60 Marks

Answer Question No.1 compulsorily.

(1X12 = 12 Marks)

Answer ONE question from each unit.

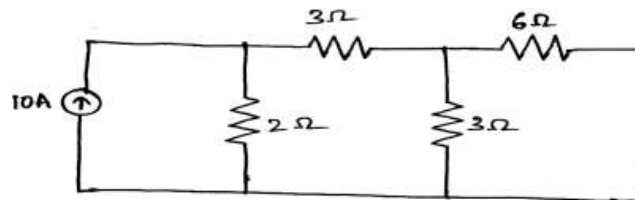
(4X12=48 Marks)

(1X12=12 Marks)

1. Answer all questions
 - a) Define Kirchhoff's voltage law.
 - b) Define voltage division rule.
 - c) Write the expression for energy stored in capacitor.
 - d) What is instantaneous value?
 - e) Define form factor.
 - f) Write EMF equation of transformer.
 - g) What is intrinsic semiconductor?
 - h) Draw ideal V-I characteristics of PN diode.
 - i) What is Rectifier?
 - j) Convert $(100)_{10}$ to binary number.
 - k) What is combinational circuit?
 - l) What is binary circuit?

UNIT I

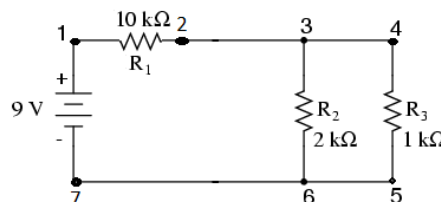
2. a) Obtain coefficient of coupling K between two coils of inductances connected in series. 6M
- b) Determine the current through 6Ω resistor in the below figure.



6M

(OR)

3. a) Find the voltage drop across R_1 , R_2 and R_3 shown in figure below.



6M

- b) The energy stored in the magnetic field of an inductor is 80 J when the current flowing in the inductor is 2 A. Calculate the inductance of the coil. 6M

UNIT II

4. a) Explain the process of generating Alternating voltage. 6M
- b) Derive the EMF equation of Transformer. 6M

(OR)

5. a) Explain the following for sinusoidal wave form: 6M
 - i) Alternating Quantity
 - ii) R.M.S. Value
 - iii) Average value
- b) Obtain the rms value, average value and form factor for a voltage of symmetrical square shape whose amplitude is 10V and time period is 40secs. 6M

P.T.O.

UNIT III

6. a) Explain V-I characteristics of a PN diode. 6M
b) Explain about Full wave rectifier with neat waveforms. 6M

(OR)

7. a) Explain how zener diode acts as voltage regulator. 6M
b) Compare Half wave and full wave rectifiers. 6M

UNIT IV

8. a) Find the 1's 6M

complement of the following expressions

(i) $AB + A(B+C) + B'(B+D)$

(ii) $A + B'C(A+B+C')$

- b) Explain fabrication process of Hybrid IC's 6M

(OR)

9. a) Reduce the following Boolean expression to two literals 6M

$$F = A B' C + B + B D' + A B D' + A' C$$

- b) Explain fabrication process of Monolithic IC's 6M



14EE104/14EE204

I/IV B.Tech (Regular) Degree Examination, I Semester
Basic Electrical and Electronics Engineering
(Common to all branches)

Time: 3 hours

Answer Question No.1 Compulsorily

Answer ONE question from each unit

Max Marks:60

(1X12=12 Marks)

(4X12=48 Marks)

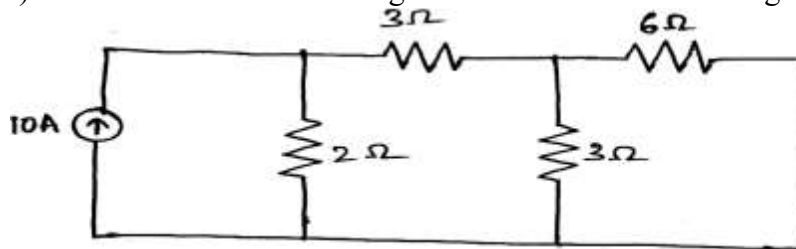
1. Answer all questions

- Define Kirchhoff's voltage law.
- Define voltage division rule.
- Write the expression for energy stored in capacitor.
- What is instantaneous value.
- Define form factor.
- Write EMF equation.
- What is intrinsic semiconductor.
- Draw ideal V-I characteristics of PN diode.
- What is Rectifier.
- Convert $(100)_{10}$ to Hexadecimal number.
- What is combinational circuit.
- What is Monolithic IC.

UNIT-I

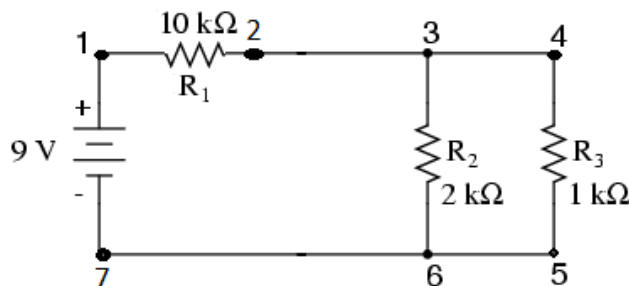
2. a) Obtain coefficient of coupling K between two coils of inductances connected in series. 6M

b) Determine the current through 6Ω resistor in the below figure 6M



(OR)

3. a) Find the voltage drop across R_1 , R_2 and R_3 shown in figure below. 6M



b) The energy stored in the magnetic field of an inductor is 80 J when the current flowing in the inductor is 2 A. Calculate the inductance of the coil. 6M

4. a) Explain the process of generating Alternating voltage. 8M
 b) Derive the EMF equation of Transformer. 4M
 (OR)
5. a) Explain the following:
 i) Alternating Quantity ii) R.M.S. Value iii) Average value 4M
 b) Obtain the rms value, average value and form factor for a voltage of symmetrical square shape whose amplitude is 10V and time period is 40secs. 8M
6. a) Explain V-I characteristics of a PN diode. 6M
 b) Explain about Full wave rectifier with neat waveforms. 6M
 (OR)
7. a) Explain how zener diode acts as voltage regulator. 6M
 b) Compare Half wave and full wave rectifiers. 6M
8. a) Find the compliment of the following expressions 6M
 (i) $AB + A(B+C) + B'(B+D)$
 (ii) $A + B' C(A+B + C')$
 b) Explain fabrication process of Hybrid IC's 6M
 (OR)
- 9.a) Reduce the following Boolean expression to two literals 6M
 $F = A B' C + B + B D' + AB D' + A'C$
 b) Explain fabrication process of Monolithic IC's 6M

SCHEME VALUATION FOR SET-1

1. a) definition -1M
 b) definition -1M
 c) expression -1M
 d) definition -1M
 e) definition -1M
 f) expression -1M
 g) definition -1M
 h) diagram -1M
 i) definition -1M
 j) answer -1M
 k) definition -1M
 l) definition -1M

2. a) derivation -4M, final expression -2M
b) procedure-4M, answer-2M
3. a) procedure-4M, answer-2M
b) procedure-4M, answer-2M
4. a) explanation -6M, diagram-2M
b) derivation -3M, answer-1M
5. a) i)2M ii)1M iii)1M
b) rms value-3M, average value-3M, form factor-2M
6. a) explanation -3M, diagram-3M
b) explanation-3M, diagram-3M
7. a) explanation-3M, diagram-3M
b) any 4 differences-6M
8. a) procedure-4M, answer-2M
b) explanation-4M, diagram-2M
9. a) procedure-4M, answer-2M
b) explanation-4M, diagram-2M