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I/IV B. Tech (Regular / Supplementary) DEGREE EXAMINATION

November, 2020

Second Semester

Computer Science Engineering

Basic Electrical and Electronics Engineering

Time: Three Hours

Maximum : 50 Marks

*Answer ALL Questions from PART-A.* (1X10 = 10 Marks)

*Answer ANY FOUR questions from PART-B.* (4X10=40 Marks)

## Part - A

1. Answer all questions (1X10=10 Marks)

a) Draw the AC power traingle.

b) Write the relation between 'ω' and 'f' in a periodic waveform.

c) State Norton's Theorem.

d) Write the formula for regulation in a transformer.

e) Draw the Torque-slip Characteristics of an induction motor.

f) Draw the symbol of a Enhancement type MOSFET.

g) Define cut-in voltage in a diode.

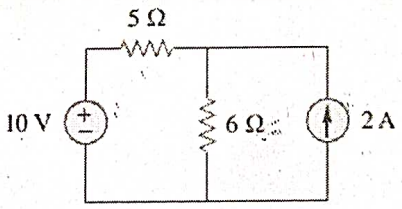
h) Define Clamper and draw the basic Clamper circuit.

i) Define pinch off voltage.

j) Define CMRR in an Op-amp.

## Part - B

2.a State Superposition theorem, and for the below circuit determine the current in the 6Ω resistor using superposition theorem. (5M)




2.b Explain the relationship between the voltages and currents in series RL and RC elements for AC supply with the help of phasor diagrams. (5M)

3.a What is Delta connection, and derive the relationship between line currents and phase currents in a balanced Delta-connection with the help of Phasor diagram. (5M)

3.b Define Resonance, and derive the condition for resonance in a series RLC circuit. (5M)

4.a Draw the exact equivalent circuit of a transformer referred to primary and derive the expression for overall impedance of the transformer referred to primary. (5M)

4.b State the principle on which a DC generator works, Draw the constructional diagram of a DC generator and explain about various parts in it. (5M)

5.a What is BH-curve and Explain the significance of the BH-curve in AC machines. (5M)

5.b Explain the construction and working of Synchronous generator with a neat sketch. (5M)

P.T.O.

6.a What is a full-wave rectifier? Explain the working of a full-wave rectifier and derive an expression for the RMS value of the output voltage for a sinusoidal wave input. (5M)

6.b What is a Zener diode and Explain the operation of the Zener-diode as a voltage regulator. (5M)

7.a Explain the operation of a transistor in CE configuration and draw its input and output characteristics. (5M)

7.b Explain different modes of operations of a PN junction diode with the help of its VI characteristics. (5M)

8.a Explain the construction of JFET and draw the input and output characteristics of a JFET in common drain Configuration. (5M)

8.b Draw the symbol of an ideal Op-amp and write the characteristics of an ideal Op-amp. (5M)

9.a Derive the expression for the voltage gain of an Op-amp in inverting mode of Operation. (5M)

9.b Explain with a neat circuit how an Op-amp can be used as an Integrator. (5M)