

B.E/B.TECH DEGREE EXAMINATIONS: NOV/ DEC 2010

Second Semester

EEE231: ELECTRICAL AND ELECTRONICS CIRCUITS

(Common to Computer Science and Engineering & Information Technology)

Time: Three Hours**Maximum Marks: 100****Answer All Questions:-****PART A (10 x 1 = 10 Marks)**

- Kirchoff's first law state that around a closed path or closed loop in an electric circuit
 - $\sum E = 0$
 - $\sum I = 0$
 - $\sum V = 0$
 - $\sum E + \sum V = 0$
- The effective resistance when two equal resistance are connected in series is
 - 2R
 - $\frac{1}{2} R$
 - 1R
 - 0.5R
- The RMS value of sinusoidal alternating current is
 - $I_m/2$
 - $0.637I_m$
 - $2I_m\sqrt{2}$
 - $I_m/2$
- The series resonant frequency is
 - $\frac{1}{2\pi\sqrt{LC}}$
 - $\frac{1}{\sqrt{LC}}$
 - $\frac{1}{2\pi\sqrt{\frac{L}{C}}}$
 - $\frac{1}{\sqrt{\frac{L}{C}}}$
- The number of valence electrons in pentavalent impurity is
 - 3
 - 2
 - 5
 - 4
- In full wave rectifier the diodes conduct for
 - One full-cycle
 - One half-cycle
 - Alternate cycle
 - None of these
- The arrow in a transistor symbol indicates the direction of current in
 - Base
 - Collector
 - Emitter
 - None of the above
- The input resistance of C-B amplifier in
 - Very low
 - Very high
 - The same as a CE amplifier
 - Same as in CC amplifier
- An integrated op amp has
 - Two inputs and one output
 - One input and one output
 - Two inputs and two outputs
 - None of the above
- The ideal CMRR value is
 - Unity
 - infinity
 - Zero
 - None

PART B (10 x 2 = 20 Marks)

- State Kirchoff's laws
- What is the current division rule in a parallel circuit having two resistances R_1 , R_2 in parallel?
- Define RMS voltage.
- What is Q-factor?
- Define dynamic resistance of the diode.
- What is a voltage regulator?

17. Define stability factor
18. Write down the different types of MOSFET.
19. What are the advantages of negative feedback amplifier?
20. What is Non-inverting amplifier?

PART C (5 x 14 = 70 Marks)

21. (a) Explain the following terms

- (i) Specific resistance (ii) Conductance
- (iii) Power (iv) Energy (v) Temperature coefficient of resistance

(OR)

(b) Derive the total resistance, total current and current through each resistor using current division technique for the circuit in which 3 resistors are connected in parallel.

22. (a) Derive the expression for RMS, average value and form factor and peak factor for a Sinusoidal waveform.

(OR)

(b) Find the expression for resonant frequency, Q-factor and total voltage in series resonant circuit. Also draw the resonant curve.

23. (a) Explain the diode V-I characteristics with neat diagrams and graphs.

(OR)

(b) Discuss about different types of power supply filters.

24. (a) Draw the circuit of a common emitter amplifier and explain its operation.

(OR)

(b) Explain the working of SCR and draw its characteristics.

25. (a) Draw the circuit of a RC phase shift oscillator and explain its operation.

(OR)

(b) Explain about summing amplifier using op-amp.
