

Reg. No.

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B.E. / B.TECH. DEGREE EXAMINATIONS, DEC 2019

Third Semester

EE18301 – Electron Devices and Circuits*(Electrical and Electronics Engineering)***(Regulation 2018)****Time: Three Hours****Maximum : 100 Marks**

Answer ALL questions

PART A - (10 X 2 = 20 Marks)

	CO	RBT
1. Write the current equation of a forward biased pn junction diode.	1	R
2. State few applications of Zener diode.	1	R
3. Calculate β of transistor if $\alpha = 0.98$.	2	AN
4. Draw the h parameter equivalent circuit of a CE BJT.	3	R
5. Draw the drain characteristics of FET and indicate important operating regions.	2	U
6. Describe the operation of CMOS.	2	R
7. CMRR of an amplifier is 100 dB, calculate common mode gain, if the differential gain is 1000.	4	AN
8. Write the equation for input and output impedance of a voltage series feedback circuit.	4	R
9. State Barkhausen criteria for sustained oscillations.	4	R
10. Explain the operation of solar cell.	4	U

PART B - (5 X16 = 80 Marks)

11. (a) Explain the operation of single phase half wave rectifier and derive its parameters. (16) 1 U

(OR)

- (b) (i) Explain the operation of a Zener diode and discuss its V-I characteristics. (8) 1 U
- (ii) Draw the circuit diagram of series positive and series negative clipper circuits and explain its operation. (8) 1 U

12. (a) (i) Sketch the typical input and output characteristics of a common base BJT configuration and explain. (8) 2 U
(ii) Compare CB, CE and CC configurations of BJT. (8) 2 AN
(OR)
- (b) Draw the small signal model of a BJT-CE amplifier and derive the equations for voltage gain, current gain, input impedance and output impedance. (16) 3 AN
13. (a) With a help of suitable diagram, explain the working of Enhancement MOSFET and Depletion MOSFET. (16) 2 U
(OR)
- (b) Explain the common drain JFET amplifier and derive its input, output impedance and voltage gain. (16) 2 U
14. (a) Explain the common mode and differential mode analysis of differential amplifier and derive its CMRR. (16) 4 U
(OR)
- (b) Briefly explain the voltage series and voltage shunt feedback amplifiers with the neat diagram and derive an expression for input and output resistance. (16) 4 U
15. (a) Explain the operation of Wein bridge and Colpitts oscillator with a neat diagram. Also derive the expression for the frequency of oscillation and the condition for maintenance of oscillation. (16) 4 U
(OR)
- (b) (i) Explain the Construction, Operation and Characteristics of LED (8) 4 U
(ii) Explain the construction, Operation and Characteristics of photo transistor. (8) 4 U