A **Reg. No. :** | | | | | | | | | | |

Question Paper Code:53305

B.E./B.Tech. DEGREE EXAMINATION, NOV 2018

Third Semester

Electrical and Electronics Engineering

15UEE305-SEMICONTUCTOR DEVICES AND CIRCUITS

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. What is the typical operating current of an LED? CO1- R

   (a) 50mA (b) 10mA (c) 20mA (d) 5mA

2. Zener diode can be primarily classified as CO1- R

   (a) Forward and reverse biased (b) Voltage regulation and voltage reference

   (c) Rectifying (d) Voltage biased

3. An LED and phototransistor is equivalent to a/an CO2- R

   (a) Thermocouple (b) FET (c) Optocoupler (d) Regulator

4. It is the current gain for the CE configuration CO2- R

   (a) α (b) β (c) τ (d) ω

5. FET configuration amplifier in which source is grounded terminal is CO3- R

   (a) Common Source (b) Common Emitter (c) Common Base (d) Common Gate

6. Which of the following has the highest input impedance CO3- R

   (a) FET (b) MOSFET (c) BJT (d) Crystal diode

7. Power amplifiers generally use transformer coupling because transformer permits_____ CO4- R

(a) Cooling of the circuit (b) Impedance matching

(c) Distortion less output (d) Good frequency response

8. A Wein bridge oscillator is a CO4- R

(a) Microwave (b) RF oscillator

(c)VHF oscillator (d) Audio frequency oscillator

9. Which of the choice below does not describe a clipper circuit? CO5- R

(a) Limiter (b) Amplitude selector

(c) Slicer (d) Baseline stabilizer

10. Clamper is also known as CO5- R

(a) DC restorer (b) Rectifier (c) Charger (d) Shunt clipper

PART – B (5 x 2= 10 Marks)

11. What are the advantage and limitations of LCD Displays? CO1- R

12. Name the operating modes of a transistor? CO2- R

13. Define pinch off voltage of a FET. CO3- R

14. What is the difference between Amplifier and oscillator? CO4- R

15. Define %tilt of RC circuit. CO5- R

PART – C (5 x 16= 80Marks)

16. (a) Discuss in detail about the operation of PN junction diode under both forward and reverse bias condition with its characteristics. CO1- App (16)

Or

(b) Explain the working of both HWR and FWR; also write the features and applications. CO1- App (16)

17. (a) Describe in detail about the BJT switching characteristics and driver applications. CO2- App (16)

Or

	(b)	Compare and contrast of common emitter, common collector and common base amplifiers in terms of voltage gain, power gain, input impedance and output impedance.	CO2- Ana	(16)
18.	(a)	Explain the functional operation of common source and common drain amplifiers in terms of voltage gain, input impedance and output impedance.	CO3- Ana	(16)
		Or		
	(b)	Discuss in detail about the Enhancement biasing and characteristics of MOSFET with suitable diagram.	CO3- Ana	(16)
19.	(a)	Explain in detail about the feedback amplifiers and also describe its types.	CO4- U	(16)
		Or		
	(b)	Discuss the operation of both wein bridge and crystal oscillators with suitable diagrams.	CO4- Ana	(16)
20.	(a)	With neat diagram, explain the calculations of upper and lower trip point of schmitt triggers.	CO5- U	(16)
		Or		
	(b)	Describe the various clamping circuits.	CO5- U	(16)

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