

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-III(New) EXAMINATION – SUMMER 2016

Subject Code:2131006

Date:31/05/2016

Subject Name:Electronic Devices and Circuits

Time:10:30 AM to 01:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	Short Questions	14
	1 Mention the widely used semiconductor materials with their difference in electrical behavior.	
	2 Mention 3 applications of PN Junction Diode.	
	3 Draw VI characteristics for Zener Diode.	
	4 What is the need of DC Biasing?	
	5 Write down nyquist and barkhausen criteria for oscillators.	
	6 Differentiate class A, class B, class AB and class C power amplifiers operating cycle point of view.	
	7 In which applications the common collector configuration can be used?	
	8 What is Q-point?	
	9 Draw the transfer characteristics for N-channel JFET.	
	10 Give 3 applications of transistors.	
	11 What is voltage gain?	
	12 Define clippers	
	13 What are limiters?	
	14 What is regulator?	
Q.2	(a) What is doping in semiconductor material?	03
	(b) Explain AC and DC Resistances for Diode.	04
	(c) Explain capacitive filter with Ripple Factor.	07
	OR	
	(c) Derive efficiency for full wave rectifier.	07
Q.3	(a) Explain the voltage doublers circuit.	03
	(b) Explain zener diode as regulator.	04
	(c) Draw and explain base curve for BJT.	07
	OR	
Q.3	(a) Explain transistor as a switch.	03
	(b) Draw the two supply emitter bias network for BJT.	04
	(c) Derive Q-point for Voltage Divider Biasing.	07
Q.4	(a) What is Alpha and Beta for transistors?	03
	(b) Prove that darlington pair has high current gain.	04
	(c) Draw and explain class B push-pull amplifier.	07
	OR	
Q.4	(a) Derive efficiency for class A power amplifier.	03
	(b) Justify the name of Depletion type MOSFET.	04
	(c) Explain the input and transfer curve for JFET using Shockley's equation	07
Q.5	(a) Summarize All four negative feedback amplifier with input	03

output resistance output resistance and voltage gain.

- (b) Explain difference between AC and DC load line. **04**
- (c) Write down steps for identifying the type of negative feedback amplifier. **07**

OR

- Q.5**
- (a) What will be the major effects on amplifier by applying negative feedback? **03**
 - (b) Compare FET with BJT. **04**
 - (c) Explain the enhancement type MOSFET with channel creation. **07**
