

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-I & II (NEW) EXAMINATION – SUMMER-2019**

**Subject Code: 3110016**

**Date: 07/06/2019**

**Subject Name: Basic Electronics**

**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.

		<b>Marks</b>
<b>Q.1</b>	(a) Differentiate between insulator, conductor and semiconductor	<b>03</b>
	(b) Explain forward bias PN junction diode with diagram	<b>04</b>
	(c) Explain full wave bridge rectifier with neat diagram	<b>07</b>
<b>Q.2</b>	(a) Explain LED diode	<b>03</b>
	(b) State different types of diodes. Describe process of testing diode with multi meter.	<b>04</b>
	(c) What is break down diode?? Explain working of zener break down and avalanche break down	<b>07</b>
	<b>OR</b>	
	(c) Why biasing is important in transistor? Explain voltage divider bias with diagram.	<b>07</b>
<b>Q.3</b>	(a) What is use of coupling and bypass capacitor?	<b>03</b>
	(b) Explain PIN photo diode	<b>04</b>
	(c) Draw the circuit of transistor in CE configuration. Sketch the output characteristics and explain active, saturation and cutoff regions	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) What is varactor diode? How capacitance of a diode varies with reverse voltage?	<b>03</b>
	(b) Explain AC loadline with respect to BJT	<b>04</b>
	(c) Compare CE, CB and CC configuration with respect to different transistor characteristics	<b>07</b>
<b>Q.4</b>	(a) What is FET? State important features of FET.	<b>03</b>
	(b) Compare BJT and FET	<b>04</b>
	(c) Write short note on MOSFET.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Explain clipping circuit	<b>03</b>
	(b) Explain (i) Unipolar device (ii) Transconductance	<b>04</b>
	(c) Write shortnote on JFET	<b>07</b>
<b>Q.5</b>	(a) Draw the symbol of NPN and PNP transistor. What is use of transistor?	<b>03</b>
	(b) Among TTL and CMOS digital logic family which one is better and why?	<b>04</b>
	(c) Draw symbol and explain truth table of all basic logic gates	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) State advantage of transistor	<b>03</b>
	(b) Explain (i) universal gate (ii) EX-OR logic gate	<b>04</b>
	(c) Give comparison between different types of digital logic families	<b>07</b>

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