

**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.

**Marks**

<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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