

**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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