

JK Lakshmipat University Jaipur
INSTITUTE OF ENGINEERING AND TECHNOLOGY

Backlog End Examination,

B. Tech. in Electronics and Communication Engineering,

May 2019

Semester III

Roll No.....

Course Code : ECE 301 Electronic Devices and Circuits.

Time: 2 hours

Max. Marks: 50

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.
4. Attempt any 5 questions

Q1	Draw energy band diagram of n and p semiconductor. What happens to Fermi level when pn junction is formed and is at equilibrium?	5
Q2	What is built in potential of pn junction and on what parameters does it depend?	5
Q3	Draw the band diagram of Zener diode. What is difference between Zener and Avalanche breakdown mechanism?	5
Q4	Draw the schematic diagram of npn BJT and explain the current components under reverse bias condition. What happens in base region when we increase the reverse bias?	5
Q5	Explain amplification of sinusoidal signal using load line on output characteristics of Common Emitter BJT	5
Q6	Draw the output characteristics of N channel MOSFET and explain different regions of operation.	5
Q7	Design biasing circuit for npn BJT in Common emitter mode so as to achieve $V_{CE} = 2\text{Volts}$ and $I_C = 2\text{ mA}$	5