

## Assignment-ECF142

Weightage: 10 Marks

Date of submission: 01.05.2022

1. Derive the expression of contact potential of PN junction diode.
2. Explain electrical breakdowns in PN junctions in details.
3. Explain the working of NPN transistor and draw its input as well as output characteristics.
4. Compare NPN and PNP transistors.
5. How MOSFETs are different from BJTs? Draw the characteristics of MOSFET.
6. Write a **LONG** note on the following: **(Draw the required diagram and also give necessary mathematical expressions)**
  - i. Fermi level
  - ii. Ideal diode
  - iii. Hall Effect
  - iv. Generation and Recombination of charge carriers
  - v. Energy band diagram for N-type and P-type semiconductor.
  - vi. Tunnel diode
  - vii. BJT vs FET