



CBCS SCHEME

18EC33

Third Semester B.E. Degree Examination, Aug./Sept.2020 Electronic Devices

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain different types of bonding in solids with the help of neat diagram. (10 Marks)
- b. With a neat diagram explain direct and indirect semiconductor. (10 Marks)

OR

- 2 a. Explain Electron-Hole pair concept with the help of neat diagram and equations. (10 Marks)
- b. What is Hall-effect? With suitable diagram and equation explain how does Hall-effect works? (10 Marks)

Module-2

- 3 a. What is tunneling? Explain voltage current characteristic of a tunnel diode with the help of energy band diagram. (10 Marks)
- b. Mention the differences between Zener effect and Avalanche effect. (03 Marks)
- c. Explain light emitting diode with a neat sketch. (07 Marks)

OR

- 4 a. Explain qualitative description of current flow at forward and reverse bias junction of a diode. (10 Marks)
- b. How does photodiode works as a photovoltaic cell explain with the help of diagram? (10 Marks)

Module-3

- 5 a. Explain how BJT acts as a amplifier with the help of equation. (10 Marks)
- b. Draw the Ebers – Moll model for a PNP transistor and explain its significance. (10 Marks)

OR

- 6 a. Explain how BJT acts as a switch with necessary equations and diagram. (10 Marks)
- b. Explain specification for switching transistor BJT with suitable diagram. (04 Marks)
- c. Explain the effect of base narrowing with neat diagram. (06 Marks)

Module-4

- 7 a. Explain the construction and operation of n-JFET with neat diagram and equations. (06 Marks)
- b. Explain small signal equivalent circuit of JFET with neat diagram. (06 Marks)
- c. Explain the principle of operation n-channel enhancement mode MOSFET with neat diagram and equations. (08 Marks)

OR

- 8 a. Explain two-terminal MOS structure using energy band diagram. (10 Marks)
- b. Explain the principle of operation of p-channel enhancement mode MOSFET with neat diagram and equations. (10 Marks)

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Module-5

- 9 a. Explain thermal oxidation process with neat diagram. (10 Marks)
b. What is metallization process explain with neat diagram by showing all the steps in the fabrication of p-n junctions. (10 Marks)

OR

- 10 a. Explain integration of other circuit elements with suitable diagrams. (10 Marks)
b. Explain CMOS process of integration with the help of neat diagram. (10 Marks)

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