

D 90024

(Pages : 2)

Name.....

Reg. No.....

**THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE [14 SCHEME]
EXAMINATION, NOVEMBER 2015**

EC 14 304—SOLID STATE DEVICES

Time : Three Hours

Maximum : 100 Marks

Part A

Answer any eight questions.

Each question carries 5 marks.

1. Explain the energy band diagram of semiconductors.
2. Explain intrinsic and extrinsic semiconductors.
3. Explain the diode equation.
4. Write notes on Schottky diodes.
5. Write notes on GaAs isotope diodes.
6. Explain the frequency limitations of transistor.
7. Explain the coupled diode model of a transistor.
8. Explain the terms : Pinch off voltage, Threshold voltage and transconductance.
9. Write notes on Insulated Gate Bipolar transistor.
10. Differentiate a junction diode and a power diode.

(8 × 5 = 40 marks)

Part B

Answer all questions.

Each question carries 15 marks.

11. Explain the following :—
 - (a) Direct and indirect band gap semiconductors.
 - (b) Continuity equation.

Or

12. Explain the following :
 - (a) Diffusion and drift carriers.
 - (b) Conductivity and mobility of carriers.

Turn over

13. Explain the working of :

- (i) Tunnel diode.
- (ii) Varactor diode.

Or

14. Explain an application each for Zener diode and junction diode.

15. Explain a BJT as a switch.

Or

16. (a) Explain the characteristics of common emitter configuration of transistor.

(b) Write notes on Kirk effect.

17. Explain the working of a SCR with its characteristics.

Or

18. Explain the working of a MOSFET. Draw its VI characteristics.

(4 × 15 = 60 marks)