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**B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2017**  
**SECOND SEMESTER**

**EC16201 – ELECTRONIC DEVICES**  
*(Electronics and Communication Engineering)*

**(Regulation 2016)**

**Q. Code: 999429**

**Time: Three hours**

**Maximum : 100 marks**

Answer **ALL** questions

**PART A - (10 X 2 = 20 Marks)**

1. Define barrier potential.
2. What is meant by recovery time? Mention the types of recovery time.
3. Define Early Effect.
4. Define current amplification factor.
5. Distinguish between FET and BJT.
6. Draw the V-I characteristics curve of MOSFET.
7. What is meant by avalanche break down?
8. What is tunneling phenomenon?
9. What is intrinsic stand-off ratio of an UJT?
10. Distinguish between LEDs and LCDs.

**PART B - (5 X16 = 80 Marks)**

11. (a) (i) Explain the forward and reverse bias characteristics of PN junction diode. (8)
- (ii) Derive the equations for Diode current under forward and reverse bias. (8)

**(OR)**

- (b) (i) Explain different current components of diode. (8)
- (ii) With a neat sketch, explain the switching characteristics of a diode. (8)

12. (a) (i) Discuss in detail, the characteristics of BJT in CB configurations. (8)  
(ii) Derive the relationship between  $\alpha, \beta, \gamma$  of a transistor. (8)  
(OR)
- (b) (i) Explain briefly about the Gummel Poon model. (8)  
(ii) Explain the Ebers-Moll model of a BJT. (8)
13. (a) (i) Explain the construction and operation of JFET with a neat diagram. (8)  
(ii) Discuss in detail, the drain and transfer characteristics of JFET. (8)  
(OR)
- (b) (i) With neat diagram, explain the operation of MOSFET in Enhancement mode. (8)  
(ii) Derive the current equation for MOSFET in enhancement mode. (8)
14. (a) (i) Explain the operation of zener diode and how it is used as a voltage regulator. (8)  
(ii) Explain the operation of tunnel diode and draw its equivalent circuit. (8)  
(OR)
- (b) (i) With neat diagram, give the working principle of LASER diode. (8)  
(ii) Explain the operation of varactor diode. (8)
15. (a) (i) Explain the construction, operation, V-I characteristics and application of SCR. (8)  
(ii) Explain the operation of two transistor model of SCR. (8)  
(OR)
- (b) (i) Explain the operation of Photo transistor. (8)  
(ii) With a neat diagram, explain the operation of Solar cell. (8)