Reg. No. : [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Question Paper Code : 57016

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2014.

Second Semester

Electronics and Communication Engineering

EC 6201 — ELECTRONIC DEVICES

(Regulation 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define mass action Law.

2. What is the principle operation of a PN Junction diode in reverse bias condition?

3. What is the need for biasing in the transistor?

4. Draw the h parameter model for CE transistor.

5. In which region JFET acts as a resistor and why?

6. Differentiate between JFET and BJT.

7. Draw the energy band diagram of metal and semiconductor before and after conduction is made.

8. List out the applications of tunnel diode.

9. Draw the basic structure of TRIAC and its symbol.

10. Write down the significance of Opto coupler.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the theory of PN junction diode and derive its diode current equation.   (16)

Or

(b) Explain and derive current components and switching characteristics of diode.   (16)

12. (a) Explain the characteristics of BJT in CC, CE, CB configurations and compare the performance of a transistor in different configurations. (16)

Or

(b) Draw a voltage divider bias circuit and derive an expression for its stability factor. (16)

13. (a) (i) Discuss about FINFET and Dual Gate MOSFET. (8)

(ii) Explain the four distinct regions of the output characteristics of the JFET. (8)

Or

(b) (i) With the help of suitable diagrams explain the working of different types of MOSFET. (10)

(ii) Briefly describe some applications of JFET. (6)

14. (a) (i) Draw the VI characteristics of zener diode and explain its operation. (8)

(ii) Write short notes on Schottky diode. (8)

Or

(b) (i) Explain the principle behind the varactor diode and list out its application. (8)

(ii) Give the details about the Laser diode. (8)

15. (a) Explain the operation, characteristics and applications of SCR. (16)

Or

(b) Write short notes on :

(i) Solar cell (8)

(ii) CCD. (8)

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