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Question Paper Code : 20405

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

Second Semester

Electronics and Communication Engineering

EC 6201 — ELECTRONIC DEVICES

(Regulations 2013)

(Also common to PTEC 6201 – Electronic Devices – for B.E. (Part-Time) First Semester - Electronics and Communication Engineering – Regulations 2014)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Relate the force on a particle in terms of charge q and magnetic field B .
2. What is the use of Hall Effect?
3. What is meant by early effect?
4. What do you infer from multiple emitter transistor?
5. Write down the Drain current of FET in the active region.
6. What is a FinFET device?
7. Compare between MESFET and JFET.
8. What is a tunnel diode?
9. Draw the symbol of Diac and BJT.
10. What is TRIAC?

PART B — (5 × 16 = 80 marks)

11. (a) Discuss your understanding on the theory behind PN Junction diode. Give the current equation of diode and draw its V-I characteristics.

Or

- (b) Analyse the transition capacitance and diffusion capacitance of PN diode.

12. (a) Explain the modes of operation of a n-p-n transistor using Ebers Moll model.

Or

- (b) Discuss the behaviour of bipolar junction transistor in common base mode.

13. (a) Explain the operation of MOSFET. Give the current equation of n-channel MOSFET in saturation and non saturation region.

Or

- (b) With neat diagram, explain the principle of operation of n-channel JFET. Also draw its V-I characteristics.

14. (a) Enumerate the construction and operation of Gallium arsenide devices.

Or

- (b) With necessary diagrams, illustrate the working mechanism of a LASER diode.

15. (a) With neat structure, explain the working and characteristics of SCR along with its applications.

Or

- (b) Draw the structure, equivalent circuit and symbol of UJT and also explain the principle of operation and V-I characteristics of UJT.