

Semester-I
Course: B.Sc. (Hons) IT
Paper Code: BSIT-104
Nomenclature: Electronic Devices and Circuits

Max. Marks: 40+10*
Time: 3hrs.

UNIT-I

Introduction to semiconductor:- Intrinsic and Extrinsic semiconductors, Energy Band diagram, P type and N type Semiconductor PN junction diode and its characteristics, Space charge capacitors and diffusion capacitors (simple idea only). Zener Diode, Zener Diode as voltage regulator.

UNIT-II

Rectifiers:- Rectifier-HWR, FWR, Bridge FWR, Rectifier Parameters. Filters, L & C Filters (Simple idea only), Voltage Multiplier Circuits, Shunt and series clipping circuits, Clamping circuits.

UNIT-III

Bipolar Junction Transistor:- Junction Transistors, working of Transistor, Potential curves in unbiased and biased transistors, transistor current components Early effect, static characteristics of CB and CE configuration (Active Saturation and cutoff regions), Transistor as an amplifier.

UNIT-IV

Field Effect Transistor:- Junction field effect transistors (JEET), Qualitative description of JEET, Drain and transfer characteristics of JEET, MOSFET-Depletion and enhancement type, and their drain and transfer characteristics. Small signal low frequency FET model, CS and CD low frequency model.

Reference Books:

1. Electronic Devices, Applications and integrated circuit by Kulshreshtha & Mehta.
2. Integrated Electronics by Millman & Haki.

Note:

1. Syllabus in each Theory Paper is divided in 4 units.
 - I. A Student is required to attempt 5 questions in all.
 - II. Question No 1 is compulsory, consisting of short answer type questions based on all the 4 units.
 - III. Two questions will be set from each unit. A student is required to attempt one question from each unit.
 - IV. All questions carry equal marks.
2. Use of simple calculator is permissible.
3. Instructions should be imparted using SI system of units. Familiarity with CGS system of units should also be ensured.
4. Distribution of Marks: $40+10*=50$.
 - * Each question paper will be of 40 marks and 10 marks in each theory paper are awarded through internal assessment in each semester.
5. Work load – 3 periods per week per theory paper.