

KURUKSHETRA UNIVERSITY KURUKSHETRA

Course: B.Sc. (Hons) IT

Semester-IV

Paper Code: BSIT-402

Nomenclature: - Oscillators and Multivibrators

Max. Marks: 40+10*

Time: 3hrs.

UNIT-I

Operational Amplifier-II: Offset Voltages and currents, input bias Current, input offset voltage, error introduced by offset voltage, integrating and differentiating circuit using opamp, multiplication, division, Schmitt Trigger, Active filters using opamp (1st order)

UNIT-II

Feedback in Amplifier:- Classification of Amplifiers (voltage, current, Transconductance, Transresistance amplifier), Feedback concept, calculation of transfer gain in degenerative and regenerative feedbacks, Feedback topologies, Effect of negative feedback on gain, Non-linear distortion, Frequency response, Effect of negative voltage shunt feedback on input and output resistance, Effect of negative voltage series feedback on input and output resistance, Effect of negative current shunt feedback on input and output resistance, Effect of negative current series feedback on input and output resistance.

UNIT-III

Oscillators: Principle of oscillations, condition for sustained oscillation, Principal, working and frequency calculation of RF oscillators (Hartley oscillator, Colpitts oscillator, crystal oscillator) and AF Oscillators (Wein Bridge oscillator, Phase-shift oscillator)

UNIT-IV

Multivibrators: Astable Multivibrator, Bistable Multivibrator, Monostable Multivibrator using BJT, Triangular waveform generator, The 555 Timer, Block diagram of 555 and its application as Astable & Monostable Multivibrator.

Reference Books:

1. Basic Electronics Solid state by B.L. Theraja.
2. Opamp and linear circuits by Ramakant A Gayakward.
3. Electronics for Scientist & Engineers by Vishvanathan & Mehta.
4. Integrated Electronics by Millman & Halkias

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.

* Each theory question paper will be of 40 marks of 3 hours duration and 10 marks in each theory paper are to be awarded through internal assessment in each semester.
5. Work load – 3 periods per week per theory paper