PHY- 701 : LINEAR IC's APPLICATIONS AND MICROPROCESSOR-II

UNIT – I

Signal processing circuits: Active Filters - First/second order low pass,high pass Butterworth filter, higher order filter, band pass filter (wide/narrow), Bandreject filter (Wide/narrow), All pass filter.Electronic Analog computation using OpAmps. Simulation of transfer function, squareroot, as Rectifier, RMS and phase shift detectors.

UNIT- II

Special Purpose Amplifiers: Opamps using FET input stages, tone controls and graphic equalizers, Isolation Amplifiers, Video Amplifiers LM 733 and RCA 3040, Wide band operational amplifiers. Norton's OpAmp-LM 3900, Norton OpAmp in inverting and Non inverting configuration, FET input OpAmp.

Basic references: (For Unit-I & II)

1. **Gayakwad,** OpAmp. and Linear Integrated circuits, PHI. (3rd Ed.)
2. **K.R.Botkar,** Integrated circuits, Khanna Prakashan, (8th Ed).
3. **Coughlin and Driscoll,** Operational Amplifiers and Linear integrated circuits,PHI

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UNIT-III

Introduction to 8085 instructions: Logical operations; OR, Exclusive-OR and NOT, Data Masking with logic AND, Examples, ORing data from two input ports, Branch Operations, Unconditional jump, Unconditionaljump to set up a continuous loop conditional jumps, Testing of a Carry flag Writing Assemblylanguage program: Microprocessor controlled Manufacture Process,

Programming Techniques with Additional Instructions: Programming Techniques; Looping,Counting and Indexing, conditional loop, counter, Examples, Additional Data transfer and 16-bitArithmetic instructions, 16-bit data transfer to Registers pairs (LXI), Data transfer from Memory toMicroprocessor, Examples, Data transfer from the Microprocessor to Memory or directly intoMemory, Arithmetic operations related to 16-bits (Register Pairs), Illustrative program: Block transferof Data bytes, Arithmetic Operations related to Memory, Examples, Illustrative program: Additionwith Carry, Logic operations: Rotate-Left, Right with and without carry, Applications of Rotateinstructions, Illustrative program: Checking sign with Rotate instructions,

UNIT-IV

Counters and Time delay: Counter, Time delay- using one Register, a Register pair, a loop within loop technique, Delay calculations, Additional techniques, Counter design with time delay,Hexadecimal zero to nine (Modulo ten_ Counters, Illustrative program: Generating pulse wave forms,Debugging counter and time delay programs.

Stack and Subroutine: Concepts of Stack and Subroutine, Examples, Illustrative programs: Resetting and displaying flags, Traffic Signal Controller, Multiple calling of a subroutine Restart, Conditionalcall and Return instructions, Advance subroutine concepts: Nesting, Multiple ending subroutines,Similarities and differences between CALL-RET, PUSH-POP instructions.

Code Conversion, BCD Arithmetic and 16-bit data operations: BCD to binary conversion,Illustrative program: 2-digit BCD to binary conversion, binary to BCD conversion, Illustrativeprogram: binary to unpacked BCD conversion, BCD to seven segment LED code conversion, BCD tocommoncathode- LED code conversion, Binary to ASCII Hex code conversion, ASCII Hex code toBinary conversion, BCD addition, Addition of Unsigned BXS numbers, BXD subtraction, subtractionof two packed BCD numbers, Advanced instructions, 16-bit data Transfer and Data exchange group,Example, Arithmetic group. Instructions related to the stack Pointer and program Counter,Miscellaneous instruction Multiplication: Multiplication of Two 8-bit unsigned numbers, Subtractionwith Carry, 16-bit subtraction, Review of instructions and Applications.

Basic Reference: (For Unit-III & IV)
Microprocessor Architecture, Programming and Applications with 8085 by Ramesh Gaonkar,
(fifth edition), Penram International Publishing (India) Private LTD.