

Nirma University
School of Engineering
Electrical Engineering Department
2EE304: Analog and Digital Electronics
Sessional Examination Syllabus – October – 2019

Date: 11th October 2019 Time: 4:15 PM to 5:30 PM

1	Introduction to Transistor Biasing and Common Emitter Amplifier
1.1	Schokley's Equation, its importance and its application
1.2	Concept of dc and ac resistance, transistor model using diode
1.3	Basic transistor operation and various relationships
1.4	Concept of transistor biasing, Q-point, voltage biasing
1.5	Current biasing, fixed bias, emitter bias
1.6	Voltage Divider biasing, concept of bypass capacitor
1.7	Common emitter amplifier design using dual supply
1.8	Common emitter amplifier design using single supply
1.9	Introduction to r_e model of transistor, r_e model of common base and common emitter configuration
1.10	r_e model of all types of biasing circuits and calculation of voltage gain, current gain, input impedance and output impedance
1.11	Concept of cascading and effect of R_L and R_S
1.12	Concept of capacitive coupling and direct coupling
1.13	Examples based on above topic
2	Differential Amplifier and Introduction to Operational Amplifiers
2.1	Evolution of differential amplifier
2.2	Cascading and examples based on all above topics
3	Karnaugh Map and Design of Combinational Circuits
3.1	BCD adders, code converters, look ahead carry adder
3.2	Parity bit generators and checkers, Multiplexers, Demultiplexers
3.3	Demultiplexers and their applications, Decoders, Encoders
3.4	Expressions of Boolean function in SOP & POS forms, Merging & minimization of SOP and POS forms
3.5	Problems based on Karnaugh Map, Don't care combinations
3.6	Design of half and full adder, the half & full subtractor
4	Flip Flops & Design of Sequential Circuits
4.1	S-R latch, gated latches, edge triggered S-R flip flop, JK flip flop, D flip flop, T flip flop
4.2	Asynchronous counters and their design

