

# ELECTRONIC CIRCUITS (Common to CSE & ISE)

Written by Administrator

Sunday, 08 November 2009 06:11 -

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**Sub Code**

:

**06CS32**

**IA Marks**

:

**25**

**Hrs / Week**

:

**04**

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## Exam Hours

## Total Hrs

## Exam Marks

**PART – A**

UNIT 1:

1. Diode Circuits: Clippers and Limiters, Clampers
2. Special-Purpose Devices: Optoelectronic Devices, The Schottky Diode, The Varactor, Other Diodes

**6 Hours**

UNIT 2:

3. Transistor AC Models: Base-Biased Amplifier, Emitter-Biased Amplifier, Small-Signal Operation, AC Beta, AC Resistance of the Emitter Diode, Two Transistor Models, Analyzing an Amplifier, AC Quantities on the Data Sheet

**6 Hours**

UNIT 3:

4. Voltage Amplifiers: Voltage Gain, The Loading Effect of Input Impedance, Multistage Amplifiers, Swamped Amplifier, Two-Stage Feedback, Troubleshooting

5. CC and CB Amplifiers: CC Amplifier, Output Impedance, Cascading CE and CC, Darlington Connections, Voltage Regulation, The Common-Base Amplifier

**7 Hours**

UNIT 4:

6. Power Amplifiers: Amplifier Terms, Two Load Lines, Class A Operation, Class B Operation, Class B Push-Pull Emitter Follower, Biasing Class B/AB Amplifiers, Class B/AB Driver, Class C Operation, Class C Formulas, Transistor Power Rating

**7 Hours**

**PART – B**

UNIT 5:

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7. MOSFETs: The Depletion-Mode MOSFET, D-MOSFET Curves, Depletion-Mode MOSFET Amplifiers, The Enhancement-Mode MOSFET, The Ohmic Region, Digital Switching, CMOS

**6 Hours**

UNIT 6:

8. Frequency Effects: Frequency Response of an Amplifier, Decibel Power Gain, Decibel Voltage Gain, Impedance Matching, Decibels above a Reference, Bode Plots

9. Negative Feedback: Four Types of Negative Feedback, VCVS Voltage Gain, Other VCVS Equations, The ICVS Amplifier, The VCIS Amplifier, The ICIS Amplifier, Bandwidth

**7 Hours**

UNIT 7:

10. Nonlinear Op-Amp Circuits: Comparators with Zero Reference, Comparators with Nonzero References, Comparators with Hysteresis, Window Comparator, Integrator, Waveform

Conversion, Waveform Generation

11. Oscillators: The 555 Timer, Astable Operation of the 555 Timer, 555 Circuits, The Phase-Locked Loop, Function Generator ICs

**7 Hours**

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12. Regulated Power Supplies: Supply Characteristics, Shunt Regulators, Series Regulators, Monolithic Linear Regulators, Current Boosters, DC-to-DC Converters, Switching Regulators

**6 Hours**

**Text Book**

1. **Electronic Principles**, Albert Malvino & David J Bates, 7<sup>th</sup> Edition, TMH, 2007.

(Chapter 4-10, 4-11, Chapter 5-8,5-9,5-10,5-11, Chapters 9, 10, 11, 12, Chapter 14-1,14-2, 14-3, 14-4, 14-5, 14-6, 14-7, Chapter 16-1, 16-2, 16-3, 16-4, 16-5, 16-6, Chapter 19, Chapter 22-1, 22-2, 22-3, 22-4, 22-5, 22-6, 22-7, Chapter

23-7, 23-8, 23-9, 23-10, 23-11 and Chapter 24).

## **Reference Books**

1. **Electronic Devices and Circuit Theory**, Robert L. Boylestad, Louis Nashelsky, 9<sup>th</sup> Edition, PHI/Pearson Education, 2006.

1. **Electronic Devices and Circuits**, David A. Bell, 4<sup>th</sup> Edition, PHI, 2006.