Course :MSc Electronics

Marks: 100

Paper: VII

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Syllabus

ELECTRONICS (GENERAL) PAPER-VII. **Marks: 100**

i) DC circuit analysis: circuit theorems: Kirchhoff's laws, superposition, reciprocity theorem, Thevenin and Norton's theorems, maximum power transfer theorem.

ii) AC circuit analysis: Circuit transient; capacitor and inductor as circuit elements: wave shaping. Network analysis in frequency domain; mesh current method, node voltage method, thevenin's and Norton's methods. RLC series and parallel resonance circuits, Q-factor, low pass, high pass circuits, differentiating and integrating circuits. **i-ii OCT-NOV**

iii) Diode as circuit element: circuit model of diode; diodes arrays. Rectification with filter circuits, ripple factor, rectification efficiency, regulation. Clamping, clipping and switching circuits of elementary level. Zener diode as regulator.

iv) BJT: CB, CE and CC biasing circuits, stability factors, bias compensation. Quiescent point, Graphical method, dc and ac load lines. Approximate methods. **iii-iv DEC-JAN**

v) BJT. As small signal low frequency amplifier: Circuit models for the transistor, input/output impedances, current and voltage gains, and input/output phase relationship. Low frequency analysis, Bode plots.

vi) Feedback amplifiers: The concept of feedback, feedback connections, feedback amplifiers (Phase and frequency considerate) positive feedback, stability analysis, and oscillation. Basic oscillator circuits, Phase-shift, Collpitts, Hartley and crystal oscillators. **v-vi FEB**

vii) Small signal high frequency amplifier: BJT circuit models, frequency analysis, general frequency considerations, gain-bandwidth trade-off, Bode diagram, Zeros and poles.

viii) Operational amplifies: 741 operational amplifiers: Basic characteristics, DC offset parameters, Non-inverting and inverting, differentiator and integrator, voltage summing, voltage buffer. High pass, low pass and band pass filters of elementary level.

ix) Power amplifiers: Compound configuration, Cascade and cascode connections, Darlington and complementary symmetry pairs, Class A, Class B, Class C and Class D amplifications, and auto frequency amplifiers.

vii - xi MAR-APR

x) Digital circuits: Switching algebra, gates, Flip-flops, product of sums, and sum of products, K-map reduction method. Combinational logic circuits, adder, subtractor circuits of elementary level sequential logic circuits, counters, registers, circuits of elementary level.

xi) Special devices: SCR, DIAC, TRIAC, Unijunction transistor as circuit elements, circuit models and elementary level circuits involving these elements.

x - xi MAY

BOOKS RECOMMENDED:- As perbSyllabus

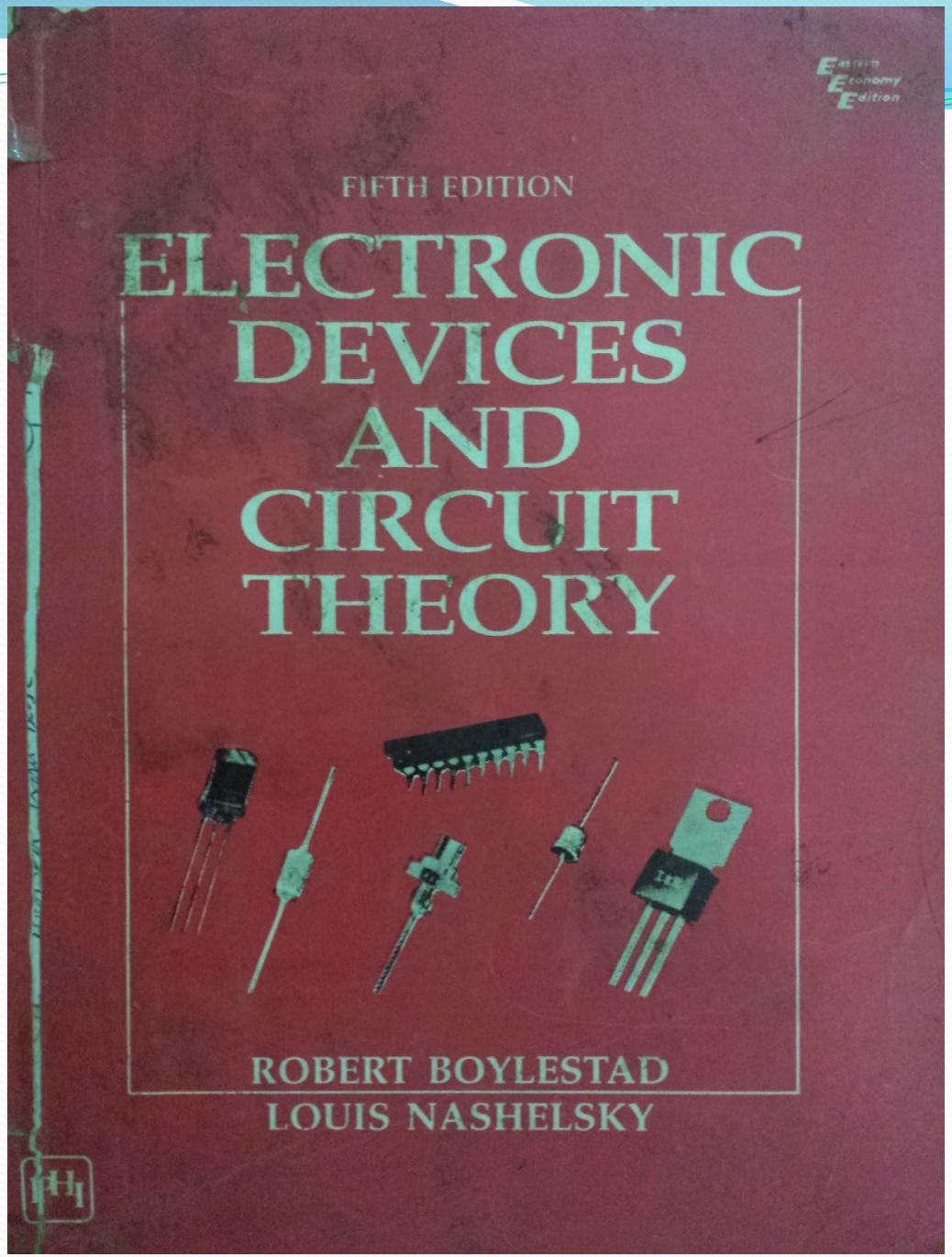
1. Schilling D. L, and Belove C., "Electronic Circuits". McGraw-Hill (1999).
2. Boylestad R. L. and Nashelsky L., "Electronic Devices and Circuit Theory". 10th ed., Prentice-Hall New York (2009).
3. Floyd T. L, "Electronic Devices". 7th ed., Pearson Education (2008).
4. Floyd T. L, "Digital fundamentals". 8th ed., Pearson Education (2009).
5. Mano M. M, "Digital Design". Prentice-Hall New Jersey (1995).
6. Administer J. A, "Electric Circuits". Schaum's outline series (1983).
7. Bell D. B, "Electronic devices & Circuits". Reston Publishing Company Inc., Virginia (1980).
8. Savant C. J. Jr, Roden M. S, and Carpenter G. L, "Electronic Design Circuit & Systems". The Benjamin/Cummings Publishing Co., California (1991).

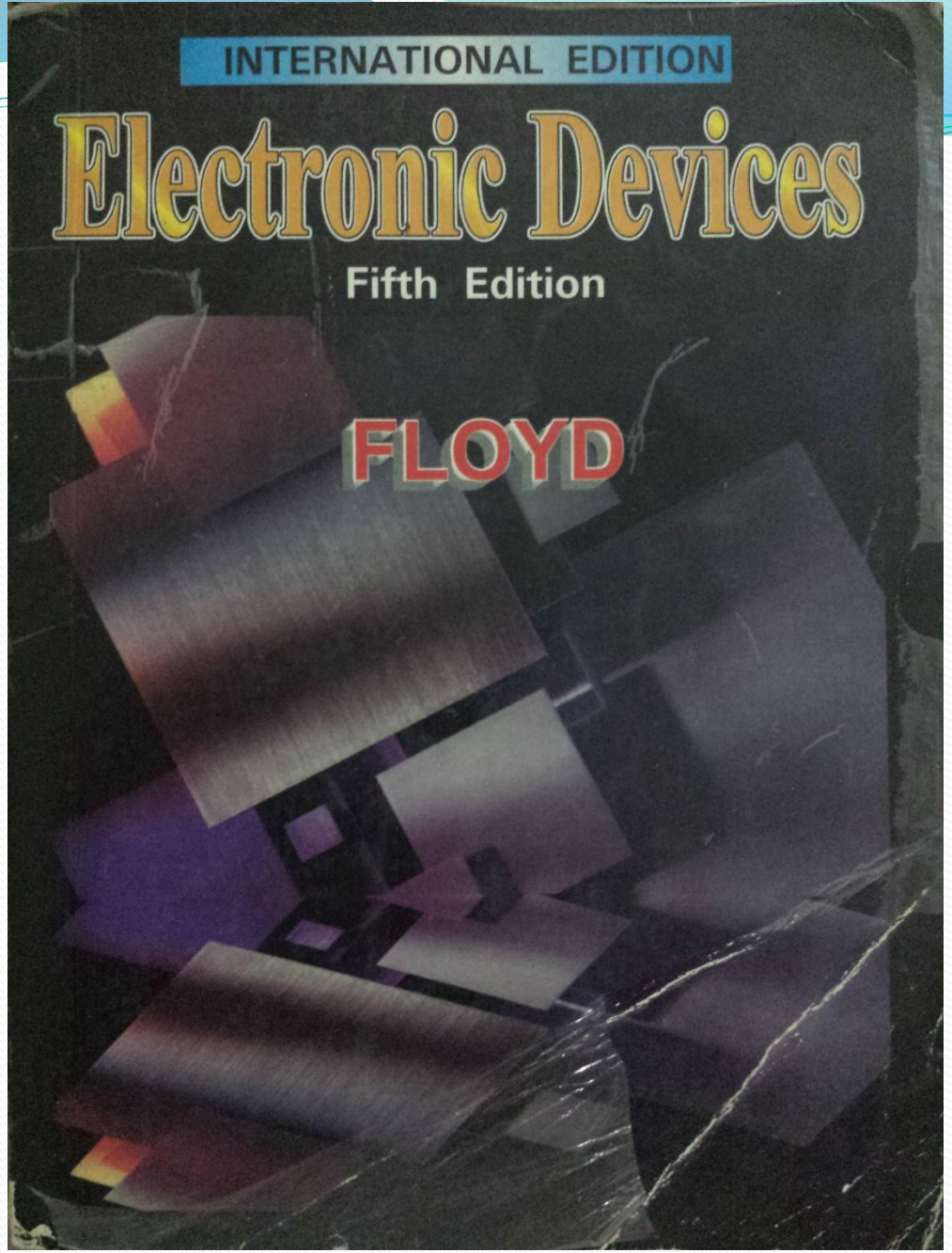
Other Books:

1. Malveeon:o ., " Electronic principles"
2. Grob., "Basic Electronics "
3. Slurzberg & Osterheld., " Essentials of communication Electronics"
4. Tharaja., "Basic Electronics"
5. T Bartee., " Fundamentals of Digital Computer"

Other Books

- 1. Grob , Basic Electronics, 6th Ed. McGraw Hill, 1989
- 2. B.L. Tharaja, Basic Electronics Solid State, 1998
- 3. Thomas C. BarteeDigital Computer Fundamentals, 6th Ed. McGraw Hill, 1985
- 4. Malveeno, Electronic Principles, 4th Ed., McGraw Hill, 1989
- 5. Slurzberg & Osterheld, Essentials of Communication Electronics, 3rd Ed., McGraw Hill, 1973.


Eastern Economy Edition
FIFTH EDITION
ELECTRONIC DEVICES AND CIRCUIT THEORY
ROBERT BOYLESTAD
LOUIS NASHELSKY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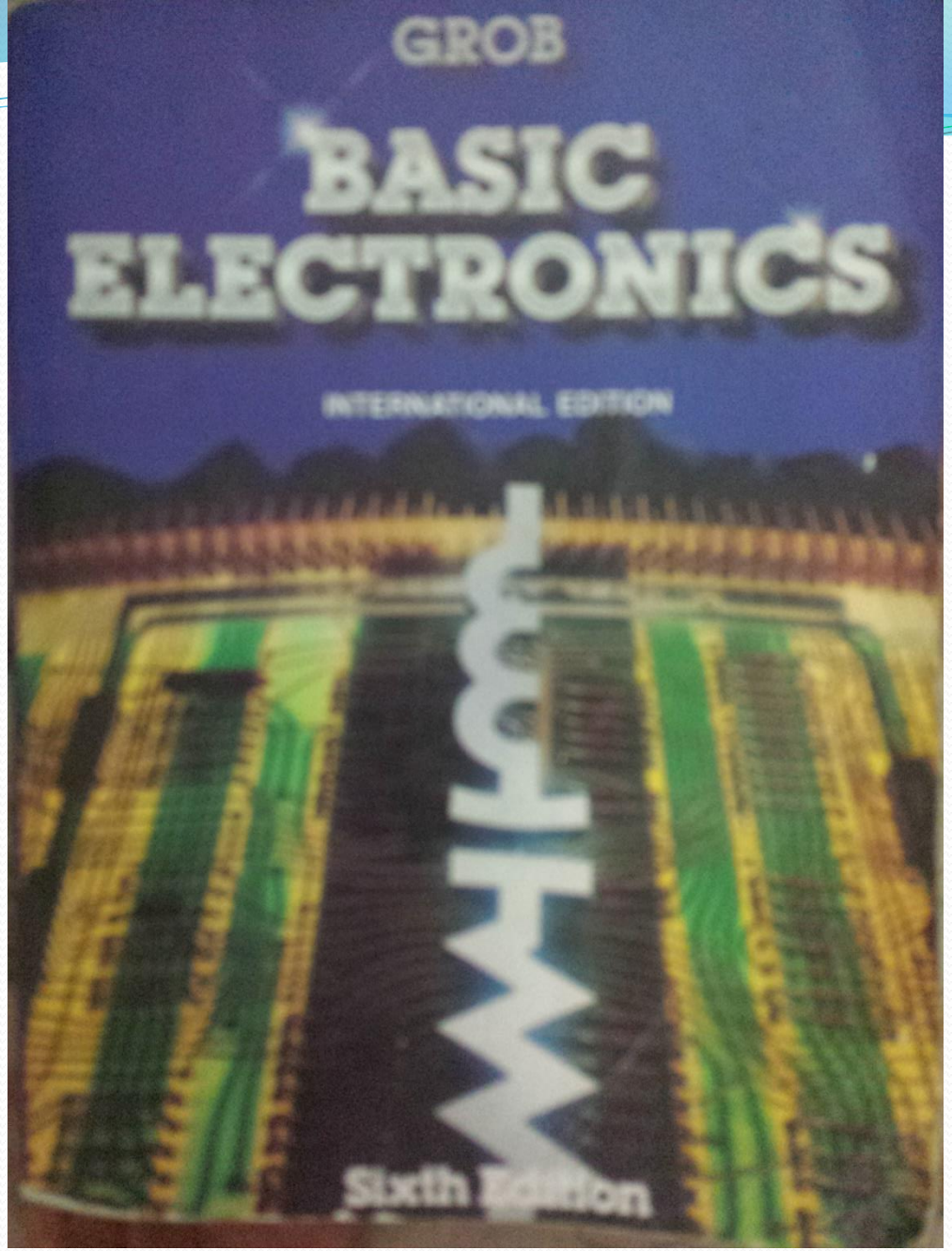
GROB
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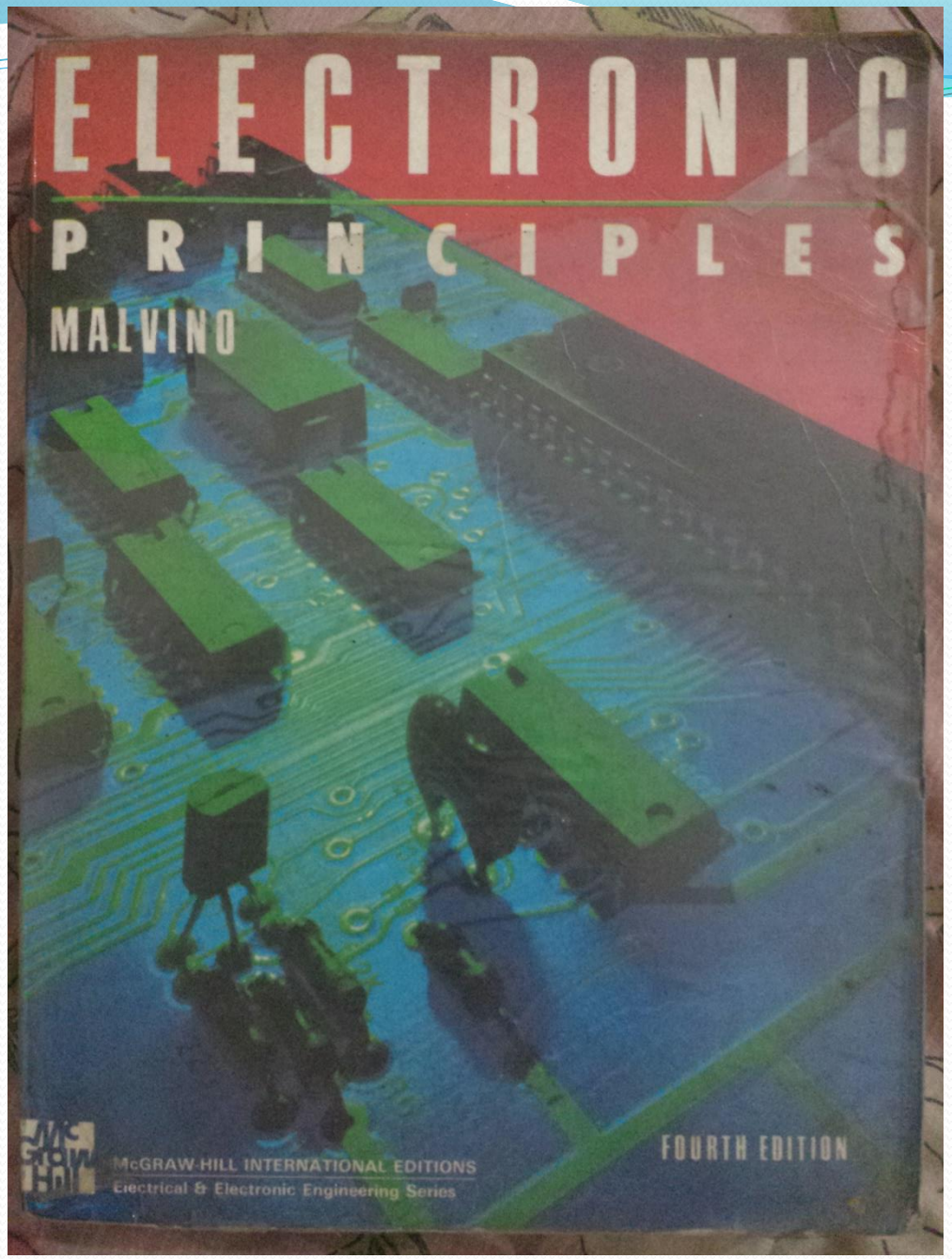
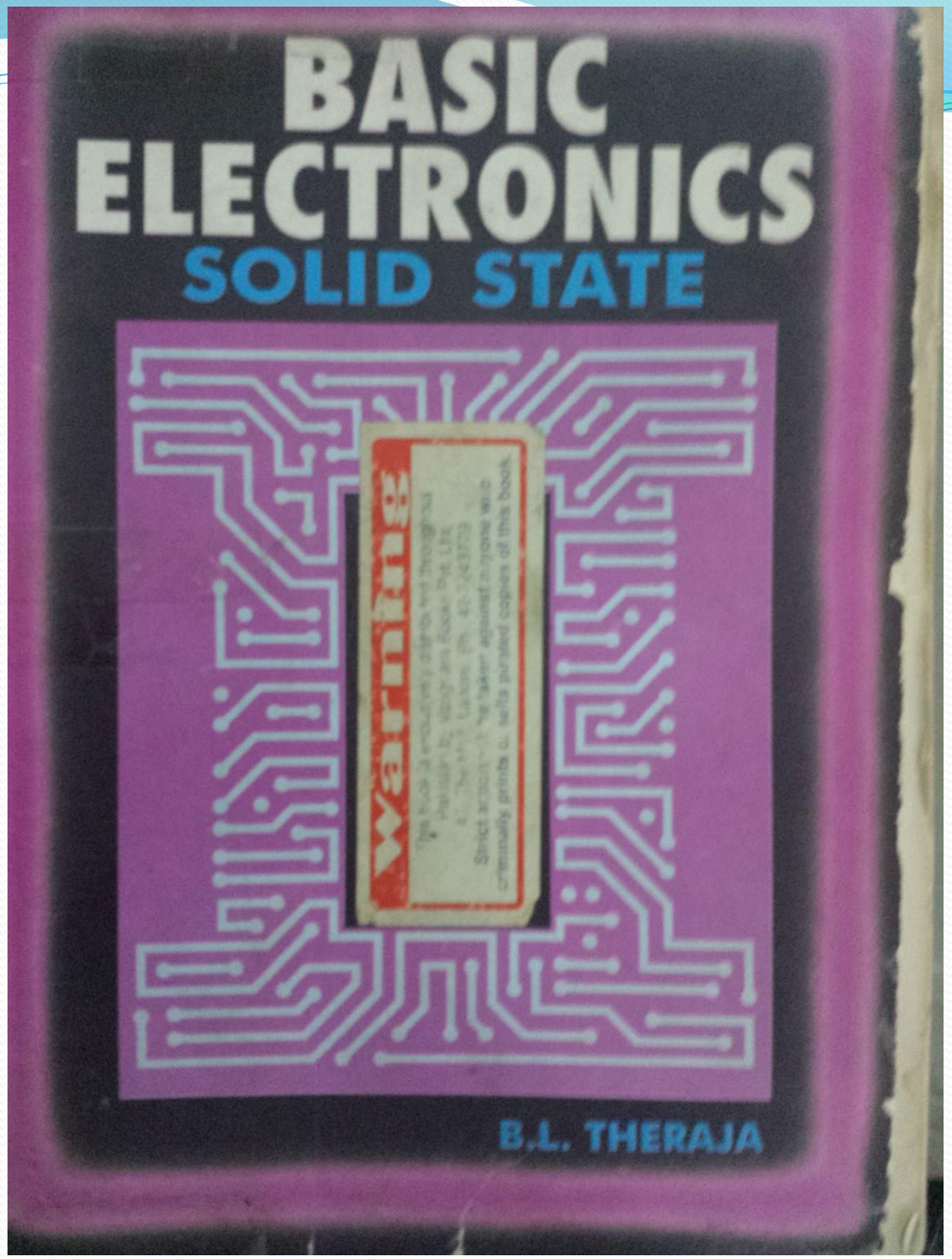
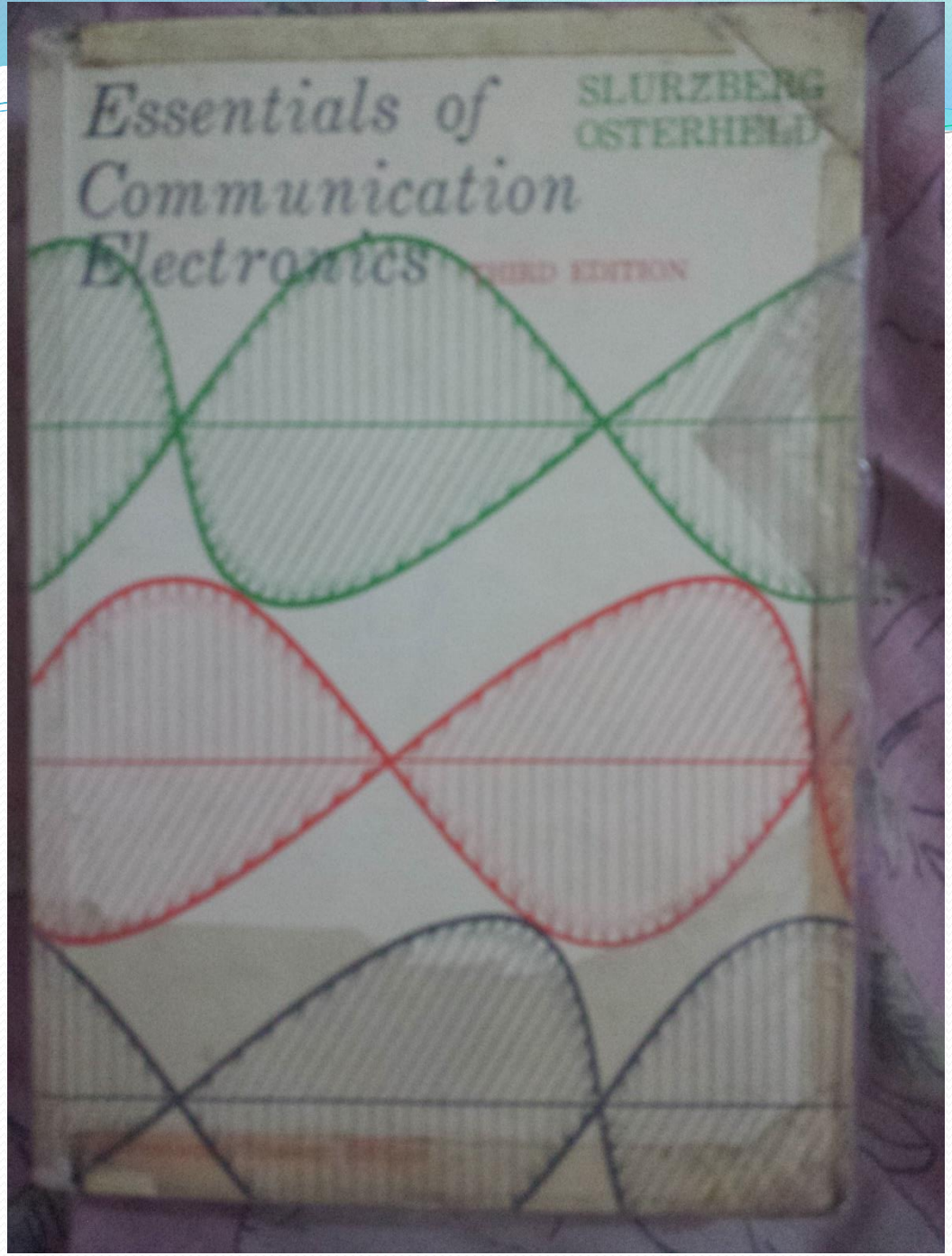
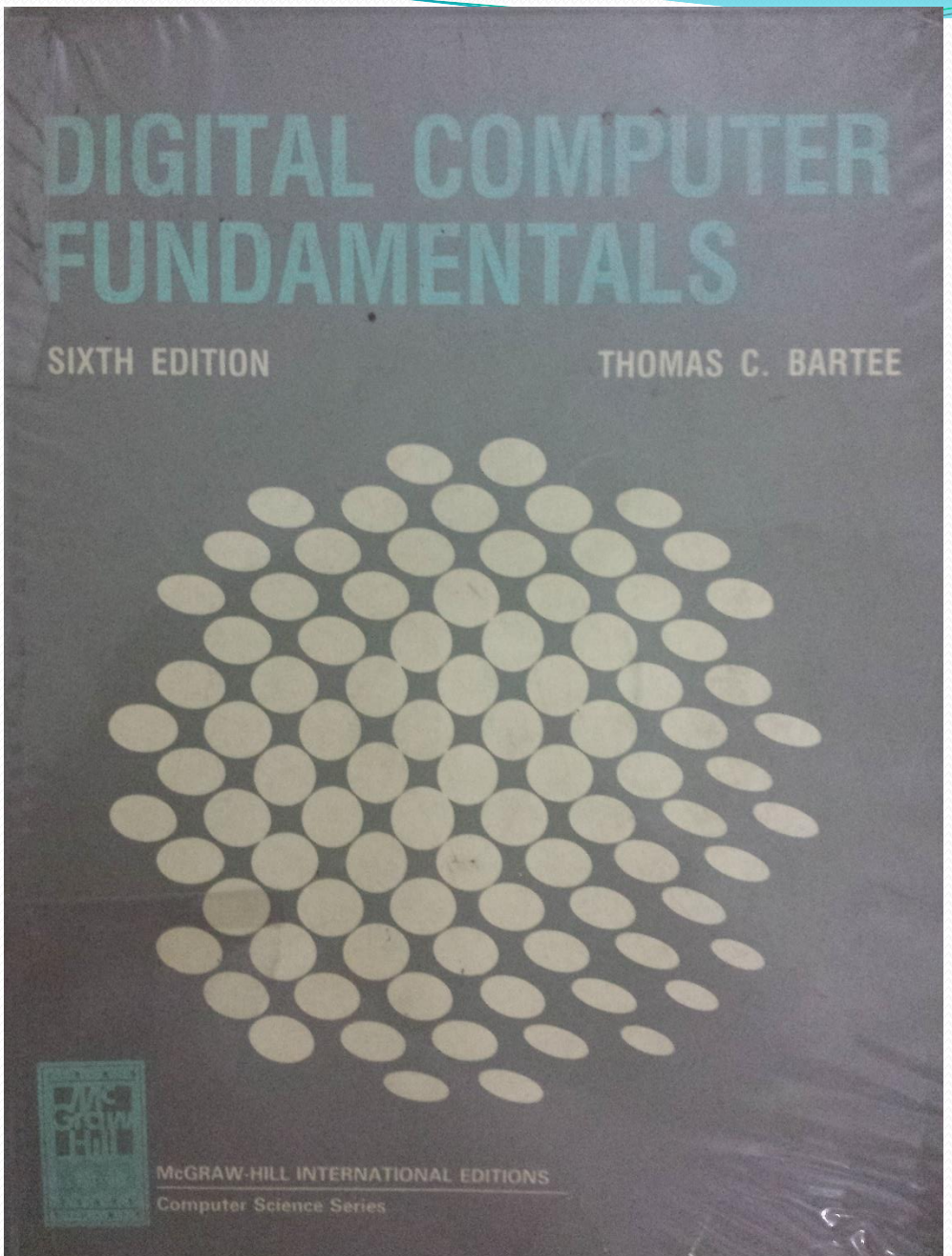
INTERNATIONAL EDITION
McGraw-Hill
Sixth Edition


ELECTRONIC
PRINCIPLES
MALVINO
McGRAW-HILL INTERNATIONAL EDITIONS
Electrical & Electronic Engineering Series
FOURTH EDITION


BASIC
ELECTRONICS
SOLID STATE
Warning
B.L. THERAJA


Essentials of
Communication
Electronics
SLURZBERG
OSTERHELD


DIGITAL COMPUTER
FUNDAMENTALS
SIXTH EDITION
THOMAS C. BARTEE
McGRAW-HILL INTERNATIONAL EDITIONS
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THE END