

EE-204-F

DIGITAL ELECTRONICS

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Class Work Marks: 50
Exam Marks: 100
Total Marks: 150
Duration of Exam: 3 Hrs.

NOTE: For setting up the question paper, question no 1 will be set up from all the four sections which will be compulsory and of short answer type. Two questions will be set from each of the four sections. The students have to attempt first common question, which is compulsory, and one question from each of the four sections. Thus students will have to attempt 5 questions out of 9 questions.

Section-A

Digital system and binary numbers: Signed binary numbers, binary codes, cyclic codes, error detecting and correcting codes, hamming codes. Gate-level minimization: The K-map method up to five variable, don't care conditions, POS simplification, NAND and NOR implementation, Quine Mc-Clusky method (Tabular method)

Section-B

Combinational Logic: Combinational circuits, analysis procedure, design procedure, binary Adder-subtractor, decimal adder, binary multiplier, magnitude comparator, decoders, encoders, multiplexers, demultiplexers

Section –C

Synchronous Sequential logic: Sequential circuits, storage elements: latches, flip flops, analysis of clocked sequential circuits, state reduction and assignments, design procedure. Registers and counters: Shift registers, ripple counter, synchronous counter, other counters

Section- D

Memory and programmable logic: RAM, ROM, PLA, and PAL. Design at the register transfer Level: ASMs, design example, design with multiplexers. Asynchronous sequential logic: Analysis procedure, circuit with latches, design procedure, reduction of state and flow table, race Free State assignment, hazards

TEXT BOOK:

- M. Morris Mano and M. D. Ciletti, "Digital Design", 4th Edition, Pearson Education
- Pedroni - Digital Electronics & Design, Elsevier
- R.P. Jain, "Modern digital electronics", 3rd edition, 12th reprint TMH Publication, 2007.
- Digital Design and computer organization: Nasib Singh Gill & J. B. Dixit

REFERENCE BOOKS:

- Grout - Digital Design using FPGA'S & CPLD's, Elsevier
- F. Vahid: Digital Design: Wiley Student Edition, 2006
- J. F. Wakerly, Digital Design Principles and Practices, Fourth Edition, Prentice-Hall, 2005.
- R. L. Tokheim, Digital electronics, Principles and applications, 6th Edition, Tata McGraw Hill Edition, 2003