

Code No.: ETEC 206
Paper: Digital Circuits & System – I

L T C
3 1 4

INSTRUCTIONS TO PAPER SETTERS:

MAXIMUM MARKS: 75

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from question no. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

UNIT – I

Analog & Digital signals, AND, OR, NOT, NAND, NOR & XOR gates, Boolean algebra. Standard representation of Logical functions, K-map representation and simplification of logical functions, Don't care conditions, X-OR & X-NOR simplification of K-maps. Combinational circuits: Multiplexers, demultiplexers, Decoders & Encoders, Adders & Subtractor, Code Converters, comparators, decoder/drivers for display devices

[No. of Hrs.: 11]

UNIT – II

Flip Flops: S-R, J-K, D & T Flip-flops, excitation table of a flip-flop, race around condition. Sequential circuits: Shift registers, Ripple counter, Design of Synchronous counters and sequence detectors, 555 Timer and its application as mono-stable and astable multi-vibrator. Nyquist Sampling Theorem

[No. of Hrs.: 11]

UNIT - III

A/D and D/A converters: Binary-weighted DAC, R-2R Ladder type networks, Successive-approximation ADC, Linear-ramp ADC, Dual-slope ADC Bipolar-Transistor Characteristics, RTL and DTL circuits, TTL, ECL and CMOS Logic families.

[No. of Hrs.: 11]

UNIT - IV

Logic Implementations using ROM, PAL & PLA., Semiconductor Memories: Memory organization & operation, classification and characteristics of memories, RAM, ROM and content addressable memory.

[No. of Hrs.: 11]

TEXT BOOKS:

1. R.P. Jain, "Modern Digital Electronics", TMH, 3rd Ed, 2004.
2. Morris Mano, "Digital Design", PHI, 2nd Ed, 2002.

REFERENCE BOOKS:

1. R. J. Tocci, "Digital Systems", PHI, 2000
2. Malvino and Leach, "Digital principles and applications", TMH, 2000.
3. I. J. Nagrath, "Electronics, Analog & Digital", PHI, 1999.
4. J. M. Yarbrough, "Digital Logic-Application and Design", PWS Publishing, 1999.
5. B. S. Nai, "Digital Electronics and Logic Design", PHI, 2000.
6. Balabanian and Carlson, "Digital Logic Design Principles", Wiley Pub., 2000.