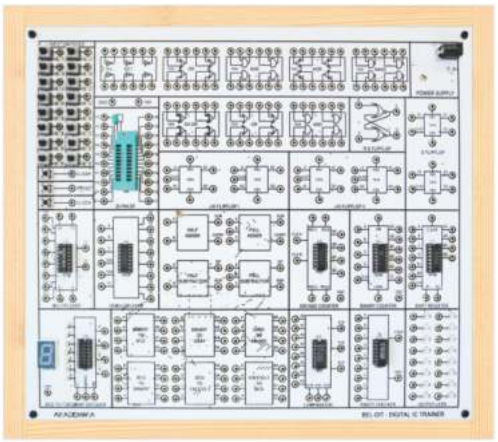
BEL - DIT
Digital IC Trainer



FEATURES

- Built in regulated power supply (7.5V, 300mA)
- It is a single board system capable of covering more than 10 experiments
- Covers basic logic gates, universal gates, flip-flops, counters, resistors, multiplexer and de-multiplexer, seven segment display driver, parity generator / checker and code converters
- Easy interconnections between circuits
- On-board resources such as logic switches for providing inputs to digital ICs and LED indicators to check the outputs from the digital ICs
- 20 pin ZIF socket

SPECIFICATIONS

- Basic logic gate ICs
- NOT (IC-7404), OR (IC-7432), AND (IC-7408), NOR (IC-7402), NAND (IC-7400), EX-0R (IC-7486), EX-NOR(74266)
- NAND and NOR gates as universal logic gates
- De-Morgan's theorem I and II
- Boolean equation
- Half adder, full adder, half subtractor, full subtractor
- Flip-Flops RS (using NOR), JK(7476), D (IC-7474), MS-JK , D (IC-7474) and T (using JK)
- Ripple counter (IC-7490)
- Synchronous binary counter (IC-74191)
- 4-bits ring counter using (IC-7476)
- Decade / BCD counter using IC-7490
- Universal shift register IC-74194
- 9-bits parity generator / checker (IC-74280)
- Multiplexer (IC-74153) and De-multiplexer (IC-74138)
- BCD to seven segment decoder (IC-7447) and seven segment display
- 4-bits comparator (IC-7485)
- Code Converter: Binary to Gray, Gray to Binary, Binary to BCD, BCD to Binary, BCD to Excess-3, Excess- 3 to BCD
- 16 Switches to provide logic 0 and 1 inputs with indication
- 16 LEDs to observe the output logic states
- Manual clock, preset and clear to observe the counter operation

EXPERIMENTS

- To verify the truth table and function of basic logic gates
- To verify NAND and NOR gates as universal logic gates
- To verify the De-Morgan's theorem I and II
- To verify the Boolean equation
- To study and verify working and truth table of half adder, full adder, half subtractor and full subtractor
- Design of half adder and half subtractor using multiplexer and de-multiplexer
- Study the behavior of basic flip-flops (RS, JK, MSJK, D , T)
- To study and design ripple/ asynchronous counter using JK flip-flop
- To study the synchronous binary counter using IC-74191
- To design 4-bits ring counter using JK flip-flop
- To verify decade / BCD counter using IC-7490
- To study universal shift register using IC-74194
- To study 9-bits parity generator / checker using IC-74280
- To study multiplexer IC-74153 and de-multiplexer IC-74138
- To study BCD to seven segment decoder IC-7447
- To study 4- bits comparator IC-7485
- To study Binary to Gray, Gray to Binary, Binary to BCD, BCD to Binary, BCD to Excess-3, and Excess-3 to BCD converters
- To study 4-bits binary adder
- Study of TTL clock generation using NAND gate
- Study of de-bounce circuit using NAND gate