

**FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
DECEMBER 2006**

EE 2K 504/PT EE 2K 404—PULSE AND DIGITAL ELECTRONICS

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

- I. (a) Explain how BJT can act as a switch.
(b) What are voltage and current sweeps ?
(c) Realize EX-OR Boolean function using only NAND gates.
(d) State the advantages of ECL logic circuits.
(e) Explain the limitations of K Map.
(f) What are decoders and demultiplexers ? Explain.
(g) Explain the function table of TFF and DFF.
(h) What is critical race ? Explain.

(8 × 5 = 40 marks)

- II. (a) Explain in detail resistive switching and clamped inductive switching of BJTs with neat sketches.

Or

- (b) Draw a neat collector coupled astable circuit using BJT and explain its principle of operation.

- III. (a) State and explain all the laws of Boolean algebra. Give examples.

Or

- (b) Explain NMOS and PMOS logic families with neat circuit diagrams.

- IV. (a) Design a Gray to binary and binary to Gray code converters. Draw the realization diagram.

Or

- (b) What are multiplexers ? Explain the principle of 4 : 1 MUX with a neat sketch.

- V. (a) Realize :

1 JKFF from SRFF.

2 SRFF from JKFF.

Or

- (b) Write short notes on :

1 ASM charts.

2 Hazards.

(4 × 15 = 60 marks)