



BTS 117(A)

**B.Tech. Degree III Semester (Supplementary) Examination in
Information Technology / Computer Science and Engineering,
June 2001**

**IT/CS 303 ELECTRONIC CIRCUITS AND LOGIC DESIGN
(1998 admissions)**

Time: 3 Hours

Max. Marks: 100

(Answer all questions)

- I a) Draw the circuit of an RC coupled amplifier and explain the function of each element in the circuit. (12)
b) Compare class A, B, AB and C power amplifiers. (8)
- OR**
- II a) With necessary circuit diagrams and waveforms explain any one non-sinusoidal oscillator. (12)
b) Describe the properties of a negative feedback amplifier. (8)
- III a) Explain the working of a UJT relaxation oscillator. (10)
b) Describe a positive clamper circuit. (10)
- OR**
- IV a) Explain the principle of Tunnel diode. (8)
b) Define the following
(i) CMRR (ii) Drift (iii) Offset (iv) Slew rate. (12)
- V a) Find the value of the base b for the following
(i) $(16)_{10} = (100)_b$
(ii) $(292)_{10} = (1204)_b$ (6)
b) Convert the following to excess 3 and gray code
(i) 36
(ii) 678 (6)
c) Simplify
(i) $\overline{A}B + BD + A\overline{B}C\overline{D} + BC$
(ii) $(\overline{A} + B + \overline{C})(\overline{A} + B + D + E)(C + D)$ (8)
- OR**
- VI a) What is a full subtractor? Design a full subtractor and implement it using only NAND gates. (12)
b) Explain the principle of binary multiplication. (8)
- VII a) Draw a Totem - pole output TTL gate and explain its operation. (12)
b) Define the following
(i) fan - in (ii) fan - out (iii) noise margin (iv) current sink. (8)
- OR**
- VIII a) Define a sequential system. How does it differ from a combinational system? (10)
b) What is a shift register? What are its different types? State applications for each type. (10)
- IX a) Define SSI, MSI and LSI. Give examples for each. (8)
b) State the advantages of using PLAs in digital circuits. Using PLAs realize the sum and carry out expression of a full adder. (12)
- OR**
- X a) Define a decoder and a demultiplexer and with the help of necessary diagram explain how a decoder can be converted into a demultiplexer. (12)
b) What are the advantages and disadvantages of MOSRAM. (8)