

BT-7/M-24

48319

MIXED SIGNAL DESIGN

Paper-ECO-16A

Time Allowed : 3 Hours] [Maximum Marks : 75

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All questions carry equal marks.

UNIT-I

1. Design MOSFET as a switch. Discuss its charge injection cancellations, speed and precision considerations. 15
2. Explain in detail Unity Gain sampler buffer and precision multiply by two circuit. 15

UNIT-II

3. Design and explain the CMOS as a comparator and discuss its functions. 15
4. Differentiate between simple PLL and charge pump PLL. Explain the operation and applications of PLL. 15

UNIT-III

5. With the help of the architecture diagram explain the operation of R-2R ladder networks in detail. 15

6. Explain each in detail the following :

(a) Charge scaling DACs. 7½

(b) Pipeline DACs. 7½

UNIT-IV

7. Design and discuss the architecture of flash and two step flash ADCs. Also explain the applications of DACs and ADCs. 15

8. Write short notes on the following: $2 \times 7\frac{1}{2} = 15$

(a) The successive approximation ADC.

(b) The oversampling ADCs.

