

S.E (E) sem IV (R)

A. D. I. C.

(REVISED COURSE)

5/6/2007

Con/3114-07.

ND-1618

Malayalam (3 hours) digital [Total Marks : 100

integrated circuits

MDR

N.B. 1) Q.1 is compulsory.

- 2) Answer any four questions out of the remaining six questions.
- 3) Assume suitable data wherever necessary.
- 4) Figure to the right indicate full marks.

1. Solve the following :-

(20)

- a) Draw the basic logical diagram of IC 741 and state the importance of each pin.
- b) State any four essential blocks of voltage regulating IC along with their significance
- c) Explain the advantages of totem pole output of TTL gate.
- d) Explain the switching mode regulator

2.a) Draw the functional block diagram of IC 723 voltage regulator and explain its working (10)

- b) Hence show the circuit diagram, if the IC is to be used as a voltage regulator for a) 3.5V at 1A (10)
- b) 15V at 500mA.

3.a) Draw the basic block diagram of IC 555. Obtain the circuit to achieve square wave output with frequency of 1.5 KHz and duty cycle of 60%. (10)

b) Design the circuit to obtain time delay of 100µsecs. Also waveform at each point. (10)

4.a) Explain in details the analog portion of IC 7107 (10)

b) Explain temperature controller using IC 3059 (10)

5.a) Explain the following terms of switch mode regulators - (10)

- a) ripple rejection ratio, b) load regulation , c) line regulation, d) Buck, e) Boost
- b) Draw and explain the precision rectifier. State the advantages over conventional rectifier (10)

6.a) Draw and explain the static MOS RAM cell. Explain any one programming mechanism in details (10)

b) Using OP-AMP explain the Wienbridge oscillator in details. (10)

7. Solve the following :- (20)

- a) CMOS logic family with basic gates
- b) Architectural and operational features of IC 440
- c) Sample and Hold circuit.
