

5. (a) With the help of a circuit diagram explain the operation of 3 Tr/cell Memory. 8
 (b) How can the stored information be maintained in such a Memory ? 8
 (c) How does it differ from a 1 Tr/cell Memory ? 4
6. (a) Explain the operation of weighted resistor DAC. 12
 (b) Design a two digit BCD D/A converter. 8
7. (a) Explain the operation of a Ramp type ADC. 12
 (b) Why is it also called staircase type ADC ? 2
 (c) What are its relative merits and demerits ? 6
8. Write short notes any *four* of the following : 4×5
 (a) RTL ;
 (b) CMOS ;
 (c) PLL ;
 (d) ROM/PROM/EPROM'S ;
 (e) ECL ;
 (f) Bipolar switch for DAC ;
 (g) Sample/Hold circuit ;
 (h) Delta Modulation.
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Ex/CP 220/110/2007 (Old)

INTER COMPUTER SCIENCE & ENGG. EXAMINATION, 2007

(2nd Semester)

(Old Syllabus)

DIGITAL CIRCUITS

Time : Three hours

Full Marks : 100

Answer any *five* questions.

1. (a) With the help of a circuit diagram explain the operation of an Integrated Version of DTL gate. 12
 (b) Estimate the reverse recovery current. 4
 (c) What happens if the outputs of more than one gates are shorted? 4
2. Draw the Transfer characteristics of a standard TTL gate. Justify the diagram. 4+16
3. (a) Explain the operation of an MOS inverter. 8
 (b) What are the demerits of the same ? 2
 Justify your answer with necessary deduction. 8
 (c) How can they be resolved ? 2
4. (a) Draw the block diagram of the 555 IC Timer and explain its operation. 8
 (b) How can you connect the same to generate a Time delay ? 2
 Deduce the expression for the same. 6
 (c) Design a circuit to produce a time delay of 80 ms. 4
 [use C=.01 μ f]

[Turn over