

**GUJARAT TECHNOLOGICAL UNIVERSITY****Diploma Engineering - SEMESTER-III • EXAMINATION – WINTER 2013****Subject Code: 3331601****Date: 28-11-2013****Subject Name: Digital Memory System****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic.

- Q.1** (a) Design AND, OR and NOT gate using NAND gate. **07**  
(b) Define : Fan-In, Fan-Out, Propagation Delay, Power dissipation, Noise immunity. **07**
- Q.2** (a) What is sequential circuit? Explain Master Slave J-K Flip flop. **07**  
(b) Compare different logic families. **07**
- OR
- (b) Using NAND gates, realize NOR and EX-OR gates. **07**
- Q.3** (a) Explain D and T Flip flop. **07**  
(b) Differentiate Static and Dynamic RAM. **07**
- OR
- Q.3** (a) Compare combinational and sequential circuits. **07**  
(b) Explain design of 32x4 ROM. **07**
- Q.4** (a) Explain Flynn's taxonomy classification. **07**  
(b) Explain 4-bit parallel load register with necessary diagram. **07**
- OR
- Q.4** (a) Explain Architecture of 8086 processor. **07**  
(b) Explain 4-bit bi-directional shift register with necessary diagram. **07**
- Q.5** (a) Explain 4-bit binary Binary Ripple counter with necessary diagram. **07**  
(b) Explain Cache Memory. **07**
- OR
- Q.5** (a) Explain Programmable Logic Array. **07**  
(b) Give Classification of memory and Explain PROM. **07**

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## ગુજરાતી

- પ્રશ્ન. ૧ અ NAND નો ઉપયોગ કરી, AND, OR અને NOT ગેટ ડિઝાઇન કરો. ૦૭  
બ વ્યાખ્યા આપો: Fan-In, Fan-Out, Propagation Delay, Power dissipation, Noise immunity ૦૭
- પ્રશ્ન. ૨ અ sequential circuit શું છે. Master Slave J-K Flip flop સમજાવો. ૦૭  
બ અલગ અલગ logic families સરખાવો. ૦૭
- અથવા
- બ NAND નો ઉપયોગ કરી, NOR અને EX-OR સમજાવો. ૦૭
- પ્રશ્ન. ૩ અ D અને T Flip flop સમજાવો. ૦૭  
બ Static અને Dynamic RAM નો તફાવત આપો. ૦૭
- અથવા
- પ્રશ્ન. ૩ અ combinational અને sequential circuits સરખાવો. ૦૭  
બ 32x4 ROM ની ડિઝાઇન સમજાવો. ૦૭
- પ્રશ્ન. ૪ અ Flynn's taxonomy classification સમજાવો. ૦૭  
બ 4-bit parallel load register આકૃતિસહ સમજાવો. ૦૭
- અથવા
- પ્રશ્ન. ૪ અ 8086 processor architecture સમજાવો. ૦૭  
બ 4-bit bi-directional shift register આકૃતિસહ સમજાવો. ૦૭
- પ્રશ્ન. ૫ અ 4-bit binary Binary Ripple counter આકૃતિસહ સમજાવો. ૦૭  
બ Cache Memory સમજાવો. ૦૭
- અથવા
- પ્રશ્ન. ૫ અ Programmable Logic Array સમજાવો. ૦૭  
બ Memory નું વર્ગીકરણ કરો અને PROM સમજાવો. ૦૭

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