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BIEL-003

B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

00806 **Term-End Examination**

June, 2016

BIEL-003 : DIGITAL ELECTRONICS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Assume any missing data suitably.*

1. (a) Design a full adder circuit using gates. 5

(b) Convert the given Boolean function into canonical SOP form : 5

$$F(A, B, C, D) = \overline{A}BC + A\overline{D} + ACD$$

2. (a) Why are asynchronous counters called ripple counters ? Explain. 5

(b) Design a half adder circuit using gates. 5

3. (a) What is the difference between static RAM and dynamic RAM ? 5

(b) Draw a ROM array and explain its working principle. 5

4. (a) Find the canonical form of the following functions : 5

(i) $F(A, B, C) = \Sigma m(0, 1, 4, 7)$

(ii) $F(A, B, C) = AB + BC$

(b) Write a brief note on interfacing TTL with CMOS. 5

5. (a) Construct Hamming code for BCD data 0110. Use even parity. 5

(b) Explain the concept of PAL. 5

6. Design a BCD to seven segment decoder using *2×5=10*

(a) PROM

(b) PLA

7. (a) Explain the various specifications of digital ICS. 5

(b) Convert the Gray code no. 110011 to binary. 5

8. (a) Find the value of x. 5

$$(211)_x = (152)_8$$

(b) What is meant by multiple-emitter transistor ? Explain in brief. 5

9. (a) Design a NAND gate using CMOS and explain it. 5

(b) Subtract using r's complement. 5

$$(60)_{10} - (41{\cdot}75)_{10}$$

10. Write short notes on any ***two*** of the following : *2×5=10*

(a) PROM

(b) JK flip-flop

(c) ASCII Code

(d) PRBS Generator