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BIEL-003

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

00953 **Term-End Examination**

June, 2018

BIEL-003 : DIGITAL ELECTRONICS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. Assume any missing data suitably. Use of scientific calculator is allowed.*

1. (a) Convert $(367)_8$ into Excess-3 code and Gray code. 5

(b) Implement the expression given below with logic gates and write its complement.

$$F\,(A + B)\,(C + D + E)\,(F + G + H + I).$$ 5

2. (a) Design and implement full subtractor using multiplexer. 5

(b) Design and explain the working of a decoder. 5

3. (a) Explain the race around condition and what measures should be taken to avoid it. *5*

(b) Design a Mod-3 ripple down counter. *5*

4. (a) Simplify
$F(A, B, C, D) = \Sigma (0, 2, 3, 6, 7, 8, 10, 12, 13)$
using K-map. *5*

(b) Derive T flip-flop from D flip-flop. *5*

5. (a) Draw basic CMOS circuit and state two of its advantages. *5*

(b) Explain the working of a basic totem-pole TTL two input NAND gate. *5*

6. (a) Differentiate between SRAM and DRAM. *5*

(b) Write short notes on dynamic RAM cell. *5*

7. (a) Compare features of PROM, PAL and PLA. *5*

(b) Design and explain the working of DEMUX. *5*

8. Design and implement conversion circuit for binary code to gray code. *10*

9. (a) Differentiate between edge triggering and level triggering with proper example. *5*

(b) Write notes on the following : *5*

(i) Latches

(ii) Flash Memory

10. What do you mean by universal shift register ? Explain the principle of operation of 4-bit universal shift register. *10*
