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

Term-End Examination

00525

June, 2019

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) Show that   5

$$AB'C + B + BD' + ABD' + A'C = B + C.$$

   (b) Express the Boolean function $F = AB + A'C$ in a product of Maxterm.   5

2. Reduce the expression in SOP and POS form using K-map.   10

   $F(A, B, C, D) = \Sigma_m(1, 5, 6, 12, 13, 14) + d(2, 4)$

3. Explain carry look ahead adder with neat diagram and relevant expressions. *10*

4. (a) Explain briefly 3 to 8 line decoder. *4*

   (b) What is multiplexer ? Explain the working of 4 to 1 line multiplexer with logic circuit and function table. *6*

5. Explain the working of master slave JK flip-flop with the help of a logic diagram, function table, logic symbol and timing diagram. *10*

6. Describe the working principle of universal shift register with the help of logic diagram and mode control table. *10*

7. Design a synchronous Mod-6 counter using clocked T flip-flop. *10*

8. (a) Explain the operation of tri-state TTL NAND gate with the help of a neat diagram. *8*

   (b) List the two advantages of Totem-pole output arrangement. *2*

9. (a) Compare the characteristics of TTL, ECL, RTL and CMOS. 7

   (b) Define the following characteristics of digital ICs : 3

   (i) Power dissipation

   (ii) Noise margin

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

    (a) Static and Dynamic RAM Cell

    (b) EPROM

    (c) ASCII Codes

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