00191

B.TECH. IN ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

December, 2013

BIELE-012 : ELECTRONIC SWITCHING CIRCUITS

Time : 3 hours   *Maximum Marks : 70*

Note : (i) *Attempt **seven** questions. **All** questions carry **equal** marks.*

(ii) *Assume **any** missing data suitably.*

1. Explain the procedure for identifying the   **10**
    symmetric functions. Test whether or not the given
    switching function is symmetric
    $f(x, y, z) = \Sigma(1, 2, 4, 7)$.

2. Design a minimal-contact network whick realizes   **10**
    the function.
    $T(w, x, y, z) = \Sigma(0, 3, 13, 14, 15)$.

3. Outline the analysis procedure for the   **10**
    asynchronous sequential logic circuit. Define
    non-critical race and explain how races can be
    avoided.

4. Explain the methods of eliminating various types   **10**
    of hazards and the methods for the identification
    of hazards.

5. Explain the operation of pulse-mode circuits and what are the differences between fundamental-mode and pulse-mode circuits ? **10**

6. Design a sequence detector with two asynchronous inputs. Circuit which detects a specific sequence (00, 01, 11) of combination of the two inputs. **10**

7. What is a decade counter ? Explain its operation with the help of neatly labelled circuit diagram and the state diagram. **10**

8. Explain the operation of any one type of A/D converter and any one type of D/A converter. **10**

9. Design a sequence generator whose output is a sequence 1011110. **10**

10. Explain the operation of an universal shift register obtained using D-FF. Give its circuit diagram also. **10**

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