No. of Printed Pages : 3 **BIELE-012**

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

Term-End Examination

June, 2019

BIELE-012 : ELECTRONIC SWITCHING CIRCUITS

Time : 3 Hours *Maximum Marks : 70*

Note : Attempt any seven questions. All questions carry equal marks. Assume missing data, if any. Use of scientific calculator is permitted.

1. What is the difference between a Latch and a Flip-Flop ? Explain with the neat sketch, the operation of a SR flip-flop and a J-K flip-flop. 10

2. Design a 3-bit up counter with the help of J-K flip-flop. 10

3. What is Combinational Network ? Explain all the steps for designing a hazard free combinational network. 10

4. With the help of suitable example, explain the synthesis of symmetric functions. 10

5. Write short notes on any *two* of the following :

5 each

(a) Shift Register

(b) Sequence Detector

(c) Conversion of Mealy circuit to Moore circuit

6. (a) Write down the difference among a truth table, a state table and an excitation table with suitable examples. 5

   (b) What do you mean by GLITCH and propagation delay in asynchronous counters ? 5

7. Derive the equation for a characteristic impedance of symmetrical T and π-networks. 10

8. (a) Explain the working principle of negative edge triggered D flip-flop. 5

   (b) How can you differentiate the architecture of an asynchronous up counter and down counter ? 5

9. (a) Explain dynamic hazards with suitable
         example.   5

    (b) Explain pulse mode sequential circuit.   5

10. Design a contact network with 4 inputs relay
    W, X, Y and Z, which receives BCD numbers
    and produces a signal whenever the present
    numbers is 03 or multiple of 03.   10