

SECTION - B

Q2. Obtain the minimal POS and SOP forms for the function given as :

$$F(A, B, C, D) = \pi(3, 4, 6, 7, 11, 12, 13, 14, 15)$$

Q3. Briefly explain the working of a 4-bit Bidirectional Universal shift register.

Q4. What is the significance of TTL? Describe the basic circuitry of a three-input TTL NAND gate.

Q5. Design a 2's complement BCD Adder/Subtractor.

Q6. Describe the Counter-ramp method of ADC.

SECTION-C

Q7. Design a Mod-5 Up counter, that counts in the sequence of 6-7-8-9-10-6-7-8-9-10 and so on using JK flip-flop.

Q8. i) Explain the operation of a Master-Slave JK flip-flop.

ii) Discuss Dual-slope Analog-to-Digital conversion operation.

Q9. i) Briefly describe RAM family.

ii) Explain and give a comparison of the various logic families in tabular form by defining all the parameters.