

SECTION-B

2. Explain the concepts of :
 - (i) fan-out
 - (ii) propagation delay
 - (iii) power dissipation
 - (iv) noise margin that are used in the comparison of the logic families.
3. Explain the design and working of a 4-bit up-down counter.
4. Perform the following number conversions :
 - (i) $(135)_{10} = (?)_2$
 - (ii) $(479)_{10} = (?)_{BCD}$
 - (iii) $(10110111)_2 = (?)_{16}$
 - (iv) $(724)_8 = (?)_2$
 - (v) $(6254)_{10} = (?)_8$
5. Simplify the following using K-maps :
$$F(A,B,C,D) = \Sigma (0,1,2,5,8,9,10)$$
6. Explain the following :
 - (i) What is the expression relating the output and inputs of DAC?
 - (ii) Define step size of DAC.
 - (iii) Define full scale.
 - (iv) Define percentage resolution.
 - (v) Accuracy

SECTION-C

7. Compare the characteristics of CMOS and TTL families.
8. Given $F(A,B,C,D) = \Sigma (0,2,3,6,7,12,13,14) + d(1,4,11,15)$, where d denotes the don't care condition . Find simplified expression
 - (i) In SOP form
 - (ii) In POS form.Also realize the simplified expression using gates.
9. Explain the working of successive approximation D/A converter.