

15/12/14

SE-EE. sem III (CBSEGS)  
ADIC.

QP Code : 12543

(3 Hours)

[ Total Marks : 80

- N.B :** (1) Question No. 1 is compulsory.  
(2) Attempt any **three** questions from remaining.  
(3) Assume suitable data wherever necessary.

1. (a) Prove A. (A+B) = A, stating all the rules used. 4  
(b) Explain two opamp parameters. 4  
(c) Convert following :— 4  
(i)  $(101101)_2$  to gray code  
(ii)  $(247.6875)_{10}$  to octal.  
(d) Design full adder using NAND gate. 4  
(e) Explain hazards in combinational logic circuits. 4
2. (a) Explain 555 timer working as monostable multivibrator. 10  
(b) Explain an instrumentation amplifier and mention to applications. 10
3. (a) Design mod-12 asynchronous counter using JK flip flop. 10  
(b) Minimize the expression using K map and implement using gates. 10  
$$F = \sum m(0, 5, 9, 12, 13, 14, 15) + d(1, 2, 3, 4)$$
4. (a) Explain successive approximation type ADC. 10  
(b) Explain noise margin and fan out. 10
5. (a) Implement following expression  $F(A, B, C) = \sum m(0, 2, 5, 6, 7)$  using 10  
(i) 8 : 1 Mux (one)  
(ii) 4 : 1 Mux (two)  
(b) Explain high pass filter along with its frequency response. 10
6. (a) Explain carry look ahead adder. 10  
(b) Convert JK to SR flip flop. 5  
(c) Write short note on interfacing of logic families. 5