

SE/IT/III CBS
ADC

3/6/2014

QP Code : NP-18735

(3 Hours)

[Total Marks : 80

- N.B. (1) Q.No.1 .is compulsory
(2) Attempt any three out of remaining five questions
(3) Assume suitable data wherever required but justify them.
(4) Draw appropriate waveforms wherever required.

- Q.1.a) Explain the working of Zener diode as Voltage regulator. (04)
- (b) Give the comparison between LED and LCD. (04)
- (c) Why Transistor biasing is required? And state the factors to be considered in designing a biasing circuit (04)
- (d) Convert the following decimal numbers to Binary, octal and Hexadecimal number.
(i) $(555)_{10}$ (ii) $(7905)_{10}$ (04)
- (e) Compare Combinational Logic with Sequential Logic. (04)
- Q.2. (a) Design and Implement one digit BCD adder using IC- 7843 (10)
- (b) Explain the working of Monostable Multivibrator using IC- 555 (10)
- Q.3. (a) Explain any four Linear applications of operational Amplifier (12)
- (b) Design a Modulo-9 up counter using 4-bit ripple counter. (8)
- Q.4. (a) Implement the following expression using only one 4:1 MUX and few Logic gates
$$F(A,B,C,D) = \sum M(0, 1, 2, 3, 6, 8, 11, 13, 15)$$
 (10)
- (b) Explain Differential Amplifier and explain any one method to improve CMRR. (10)
- Q.5. (a) Design a synchronous counter which goes through following states using J-K Flip-Flop.
1-3-5-7-1---- (10)
- (b) With a neat logic diagram explain the operation of 5-bit shift Register. (10)
- Q.6. Write short notes on the following. (20)
- (a) 3-bit Binary to gray code conversion
(b) VHDL Program Format
(c) S-R and J-K Flip-Flop

Con. 13862-14.