B.E.(with Credits)-Regular-Semester 2012

Electronics Engineering Sem IV

EN 402 Digital Circuits & Fundamentals of Microprocessors

P. Pages : 3

Time : Three Hours Max. Marks : 80

Notes : 1. All questions carry marks as indicated.
2. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Find the minimal expression using k-map for the following functions. **8**

i) f (A, B, C, D) $\sum M$ (0,1,2,3,5,7,8,9,10,12,13)

ii) f (W,X,Y,Z) = πM (0,6,9,10,13) ·d (1,3,8)

b) Explain BCD adder. **8**

OR

2. a) What is full subtractor? Design full subtractor using suitable logic gates. **8**

b) Design a 4 bit binary to BCD converter. **8**

3. a) Design 3 bit odd parity generator and checker. **8**

b) Implement F (W, X, Y, Z) = $\sum M$ (0,2,5,6,9,10,14) using 8 : 1 MUX. Use W, X, Y as control inputs. **8**

OR

4. a) Explain 3:8 Decoder draw its logical circuit and also implement the function. f = $\sum M$ (0,2,3,7). **8**

b) Design a decimal to BCD priority encoder having highest priority to Iq. **8**

5. a) Explain 1 bit memory cell. **8**

b) What is register ? Explain the working of right shift register draw its timing diagram. **8**

OR

6. a) Draw logic diagram of J-K flip flop using NAND gate and explain its working? Give the characteristics equation of J-K flip flop. **8**

b) What is lock out condition? Design a MOD-5 counter to avoid lock out condition (use J-K flip flops). **8**

7. a) Draw and explain architecture of up 8085. **8**

b) Draw and explain the timing diagram of INR M. **8**

OR

8. a) Explain in detail status flags of μp 8085. **8**

b) Explain addressing modes of μp 8085 with suitable example. **8**

9. a) What are interrupts in up 8085? Explain hardware and software interrupts in detail. **8**

b) Explain RIM and SIM instruction of up 8085. **8**

OR

10. a) Write an ALP to find the largest number among ten data bytes. **8**

b) Draw and explain block diagram of 8255. **8**

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