Roll No .....

EI/IC/CS - 303

B.E. III Semester

Examination, December 2013

Digital Circuit and Systems

Time : Three Hours

Maximum Marks : 70

Note: 1. Attempt five questions one from each unit.
2. Assume data wherever necessary.

Unit - I

1. a) Convert : 7

i) 0.1011 → Decimal (Binary)

ii) $23_{(8)}$ → Decimal

iii) $(9AF)_{(16)}$ → Binary

b) State and prove basic laws of Boolean Algebra. 7

OR

2. a) $Y = A\bar{B} + AB$, simplify Boolean equation and the corresponding logic circuit. 7

b) Prove sum of equation $Y = ABCD + ABC\bar{D}$ using Karnaugh maps. 7

Unit - II

3. a) Explain the working of Half adder. 7

b) Explain BCD adders. 7

OR

4. a) Explain Half subtractor circuit. 7
   b) Explain Full Adder. 7

Unit - III

5. a) Explain Astable multivibrator. 7
   b) Explain working of PMOS, NMOS and CMOS logic. 7

OR

6. a) Explain Linear waveshaping circuits. 7
   b) Explain Schmitt Trigger. 7

Unit - IV

7. a) Explain Multiplexers and Demultiplexers. 7
   b) Explain counters. 7

OR

8. a) Explain the working of encoders. 7
   b) Explain PLA's. 7

Unit - V

9. What is the resolution of a 9 bit D/A converter which uses a ladder network? What is this resolution expressed as a percent? If the full scale output voltage of this converter is +5V, what is the resolution in volts. 14

OR

10. a) Explain AID converter and its working. 7
    b) State maximum conversion time and average conversion time. 7

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