CODE No. 5102/O

FACULTY OF ENGINEERING
BE 2/4 (ECE) II Semester (Old) Examination, June -2016.

Sub: Pulse, Digital and Switching Circuits.

Time : 3 Hrs.　　　　　　　　　　　　　　　　　　　Max. Marks : 75

Note : Answer All Questions From Part- A and Any Five Questions from Part-B.

PART – 'A' (25 Marks)

1.　Show that a Low Pass RC Circuit can function as an Integrator circuit ?　(3)
2.　State Clamping Circuit Theorem ?　(2)
3.　Draw the circuit of compensating attenuator and explain ?　(3)
4.　Explain how a voltage to frequency converter works with a neat circuit diagram? (3)
5.　State a prove DeMorgan's Theorem ?　(2)
6.　Define Prime Implicants & essential prime Implicants ?　(2)
7.　Realize Half Subtractor using NAND gates ?　(2)
8.　Draw the logic diagram & Truth table of SR, JK and T Flip Flops ?　(3)
9.　Convert 'D' Flip Flop to "T" Flip Flop ?　(3)
10.　Distinguish between state table and Excitation table ?　(2)

PART – B (50 Marks)

11. a)　Why a High Pass RC circuit is called a differentiator ?　(3)
　　b)　1 KHz symmetrical square wave of ± 10 v is applied to Low Pass RC circuit having 1 ms time constant. Calculate and plot the output ? circuit.　(7)

12. a)　Design collector coupled mono stable multi vibrator using a NPN transistor. Neglect I_{CBO} and the Junction voltages. Assume $h_{fE(min)}=20$, $V_{BE}=-1V$ for the transistor in cut-off and $I_B=1.5\ I_{B(min)}$ for the transistor in saturation, $V_{cc}=8V$, $I\ C_{(sat)}=2mA$ T=2ms, and R1=R2, find R_c, R, V_{BB}, R_1 and C ?　(10)

13. a)　Design a full adder circuit ? Implement it using 3 to 8 decoder circuit ?　(5)
　　b)　Minimize the following function by K-Map Method :　(5)
　　　　$f(a,b,c,d,e)= \sum_m (1,2,3,8,9,10,15,16,17,18,22,26,27) +$
　　　　$\sum \phi(0,4,11,19,28,30,31)$?　http://www.osmaniaonline.com

14. a)　Explain hazards in Digital Circuit with examples ?　(4)
　　b)　Design a Code Converter which converts BCD to Excess-3 code ?　(6)

15.　Design a Mod-8 Synchronous counter using JK flipflops.　(10)

16. a)　Differentiate between Synchronous & Asynchronous sequential circuits.　(5)
　　b)　Design a 3-bit Asynchronous Ripple counter using JK flipflop.　(5)

17.　Write a short notes on any TWO :　(5+5)

　　a)　QuineMcClusky tabulation method.
　　b)　Switching hazards.
　　c)　Negative peak clamper circuit.
　　d)　UJT.

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