

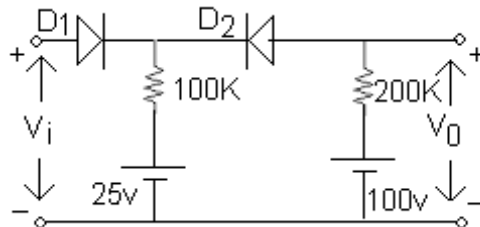
III B.Tech I Semester Supplementary Examinations, April/May 2005
DIGITAL CIRCUITS DESIGN AND APPLICATIONS
(Bio-Medical Engineering)

Time: 3 hours

Max Marks: 70

Answer any FIVE Questions
 All Questions carry equal marks

1. (a) The input voltage V_i to the two time clipper shown in figure varies linearly from 0V to 150V. Sketch the transfer characteristics by assuming idea diodes.



- (b) Draw and explain the operation of modified practical negative clamping circuit.
2. (a) Draw and explain the operation of collector coupled astable multivibrator through wave forms and give the design equations.
 (b) Explain the operations of emitter coupled astable multivibrator to work as voltage to frequency converter.
3. (a) Define three different errors in generation of sweep waveforms and give the relation between them.
 (b) Calculate the sweep speed error of a sweep circuit using Transistor as a switch.
4. (a) Draw and explain the operation of IC555 Timer as a monostable multivibrator.
 (b) Explain the operation through the characteristics of an SCR.
5. (a) Prove NAND gate is a universal gate.
 (b) Realize the function using 8×1 -MUX
 $F(w,x,y,z) = \sum m(0,3,4,7,9,13,15)$.
6. (a) Draw full adder using NAND gates only.
 (b) Draw and explain the operation of a 4-bit adder/subtractor.
7. (a) Explain race around condition and how it is eliminated in JKMS Flip Flop through diagram.
 (b) Draw and explain the operation of TTL-NAND gate.

8. Write any two short notes from the following:

- (a) Seven segment LED display system
- (b) Explain the internal block diagram of PLL
- (c) Explain different number systems
- (d) Explain encoder
