NAME JOHN McNEILL

THAYER SCHOOL OF ENGINEERING

ENGS 64 ELECTRONICS W'81

82 mean

78

EXAM 1

closed-book

1. READ THE DIRECTIONS:

2. The exam consists of 6 equally-weighted problems.

3. Operational amplifiers are ideal.

4. Do each problem in the space below the question (use reverse side of page if necessary).

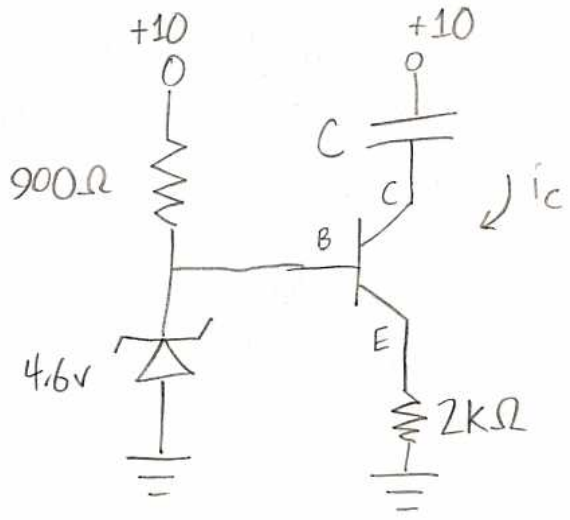
5. To receive the credit due you, be neat and legible. Label your answers. (Be sure to show your work -- it's the approach employed that counts!)

ALL PROBLEMS CAN BE SOLVED WITH A MINIMUM OF MATH -- IF YOU FIND YOURSELF ENTANGLED IN ALGEBRA, YOU HAVE UNNECESSARILY COMPLICATED THE PROBLEM.

1. 10
2. 4
3. 9
4. 10
5. 8
6. 6

47 → 78

2 now we have

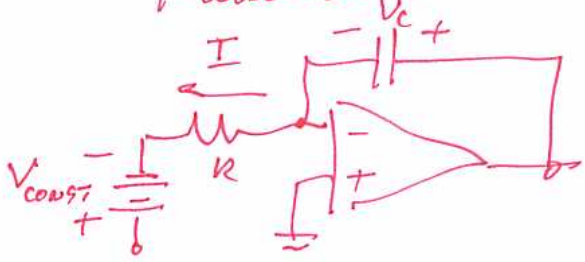


"BEWARE OF THIS OLD CLICHE!" -WDS

$I_C = 0$ after switch opened - DC current can't flow through a capacitor! ouch!!

3 saturation occurs at maximum current flow, which O certainly isn't

Function generator lab:



ramp!

$$v_o = v_c = \frac{It}{C}$$

where $I = \frac{V_{const}}{R}$ = constant

E! you saw on scope dc current flow into cap!

it sure can flow!

note: $i = C\frac{dv}{dt}$

$$\therefore v = \frac{1}{C}\int i\,dt = \frac{It}{C}$$