PIET's College Of Engineering , Pune-5.

F.Y. B.Tech. (End Semester Examination)

ET 101 BASIC ELECTRONICS

Year: 2005-06 Date:15/7/06

Duration: 3 Hrs Max marks:**60**

Instructions:

1. EachQuestion is compulsory.
2. Solve **any 2 sub questions** from each question.
3. Each sub question carrys**5** marks.

Q1.a) What is line and load regulation? State their ideal values.
Explain the working of zener as a shunt regulator.

b) Explain the working of full wave centertaped rectifer.Draw waveforms across diodes and load resistor w.r.t. secondary windings.
What is PIV of diodes used in the above circuit if 16V rms is across total secondary winding.

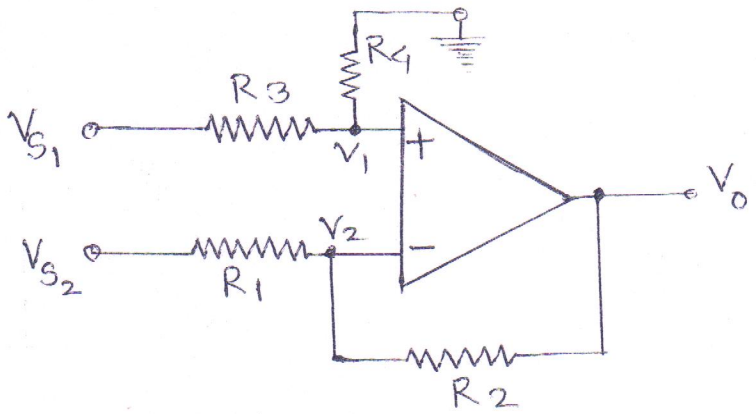
Q 2. a) With the help of circuit diagram explain how BJT is operated as a switch? Show the states of open switch & closed switch on dc load line.

b) Give significance of each component used in sigle stage transistor CE amplifier circuit. Explain the reason for high frequency roll off for the same circuit.

c) Define α_{dc} & β_{dc} of a transistor. Derive the relationship between them. Atransistor has collector current of 10mA,base current is 50 μA find α_{dc} & β_{dc} .

Q 3. a) Draw block schematic of voltage series feedback . Derive the relation $A_f = A/(1+A\beta)$.

b)



For the circuit shown above derive the expression for Vo.

(contd.)

c) Give reason OPAMP can not be used as an amplifier in open loop Configuration. Draw & explain inverting comparator.

Q 4. a) Using K-map minimize the following function & implement using minimum No. of gates.

$F(A,B,C,D) = \sum m\ (0,1,2,5,7,8,9,10,13)$

b) Differentiate between combinational &sequential circuits. Draw D-flip flop using NAND gate.write truth table.

c) Define modulus of a counter.With the logic diagram & waveforms explain 3-bit Ripple up counter using JK flipflop.

Q 5. a) Draw the circuit diagram & explain how to obtain square wave(Ton=Toff) Using IC 555 in astable mode. Write equation for time period.

b) with the circuit diagram explain Wein bridge oscillator using OPAMP. For the same circuit find the frequency of oscillation if R=10 KΩ & C= 1 nF.

c) Write short notes on IC 555 used as a timer.

Q 6.a) With the block schematic explain working of public address system.

b) Define transducer. Enlist the different types of temperature transducer. And describe the use of each.

c) Draw the block diagram of single tarce CRO & explain.