

B. Tech Degree III Semester Examination, December 2006**CS 305 ELECTRONIC CIRCUITS**

(1999 Admissions onwards)

Time : 3 Hours

Maximum Marks : 100

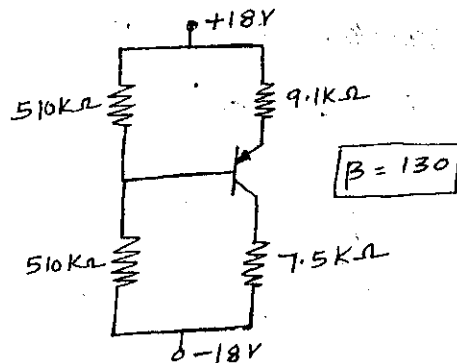
- I. (a) Explain with the help of energy band diagram the operation of tunnel diode. (10)
 (b) Describe briefly the construction of a MOSFET in enhancement mode. Draw its characteristics. (10)

OR

- II. (a) Write short notes on the following :
 (i) LDR (ii) PIN diode (iii) Varactor diode. (12)
 (b) Explain the process of avalanche breakdown in a PN junction diode. How it differs from zener breakdown. (8)
- III. (a) Draw the circuit of a CE transistor configuration and give its h – parameter model. Why the h – parameters are preferred over other parameters. (10)
 (b) Discuss the factors which lead to shift in the operating point of a transistor amplifier circuit. What is thermal runaway? (10)

OR

- IV. (a) Draw the frequency response of an RC coupled amplifier and explain why the frequency response decline in gain at very low frequency range and at high frequency range. (10)
 (b) Calculate the emitter current I_E and collector voltage V_c for the circuit of figure. (10)



- V. (a) Differentiate between positive and negative feedback. How does negative feedback help in stabilization of gain, reduction in distortion, and increase in bandwidth of an amplifier. (14)
 (b) An amplifier has an input of 10 mv and a gain of 200, without feedback. The distortion produced at the output of the amplifier is 10%. It is desired to reduce the distortion to 1% by using negative feedback. Calculate the gain and output voltage with feedback. (6)

OR

- VI. (a) With a neat sketch illustrate and explain the following pulse characteristics :
 (i) Rise time (ii) Fall time
 (iii) Ringing (iv) Undershoot
 (v) Overshoot. (10)
 (b) Draw the circuit of an Astable Multivibrator and explain its operation with relevant waveforms. (10)
- VII. (a) Explain how power amplifiers are classified. (8)
 (b) Draw the circuit of a complementary symmetry pushpull power amplifier and explain its working. (8)
 (c) Write short notes on heat sink. (4)

OR

- VIII. (a) Explain the principle of an oscillator. With neat diagram explain how oscillations are developed in an LC circuit. (8)
 (b) Draw the circuit diagram of a Wien bridge oscillator and explain its working. (8)
 (c) Write down the conditions for sustained oscillation. (4)
- IX. (a) Draw the block diagram of an op-amp and explain the function of each block. (10)
 (b) Derive the expression for voltage gain of an inverting and non inverting amplifier. (10)

OR

- X. (a) Draw and explain the following circuits. What are their applications ?
 (i) Precision rectifier (ii) Peak detector. (12)
 (b) Explain the operation of antilog amplifier with circuit diagram. (8)

