Total No. of Questions : 10] [Total No. of Printed Pages : 4

Roll No. .....

CS/IT–304(N)

B. E. (Third Semester) EXAMINATION, Dec., 2010

(New Scheme)

(Common for CS & IT Engg. Branch)

ELECTRONIC DEVICES AND CIRCUITS

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt *one* question from each Unit. All questions carry equal marks.

Unit–I

1. (a) With the help of energy band diagram explain the principle of working of tunnel diode.

   (b) Determine the quiescent levels of I_{CQ} and V_{CEQ} for the network of fig.1.

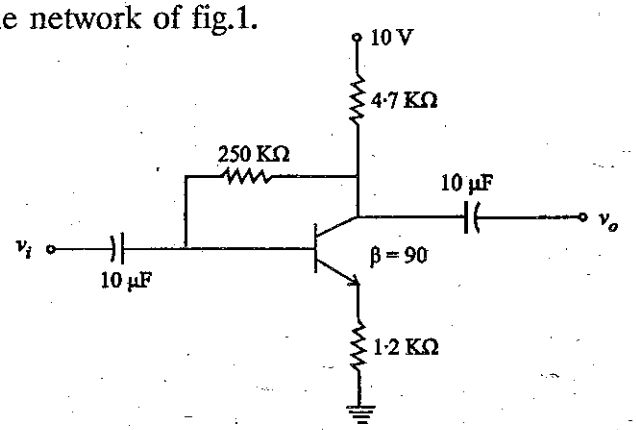

Fig. 1

P. T. O.

Or

2. (a) Explain the principle of working of depletion type MOSFFT.

   (b) With the help of high frequency model of a CE transistor, explain its working.

Unit – II

3. (a) Calculate the voltage gain of the circuit of fig. 2.

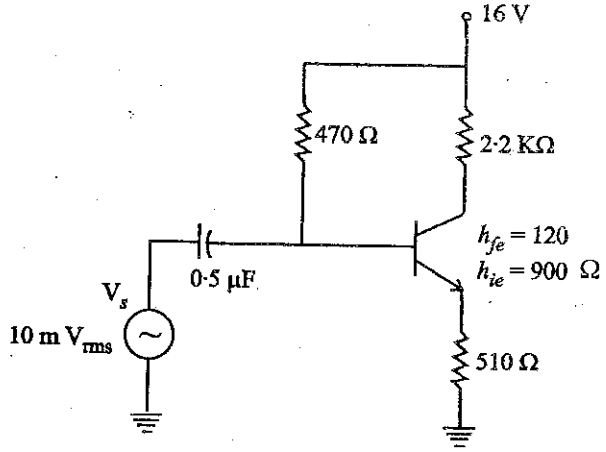

Fig. 2

   (b) Determine the efficiency of class A power amplifier.

Or

4. (a) Explain the principle of working of RC phase shift oscillator.

   (b) Determine the gain and input-output impedance of voltage series feedback amplifier.

Unit – III

5. (a) With the help of timing diagram explain the working of Astable multivibrator.

   (b) Calculate the differential mode gain, common mode gain and CMRR using *h*-parameters.

Or

6. (a) Obtain the output waveform of the circuits shown in fig. 3.

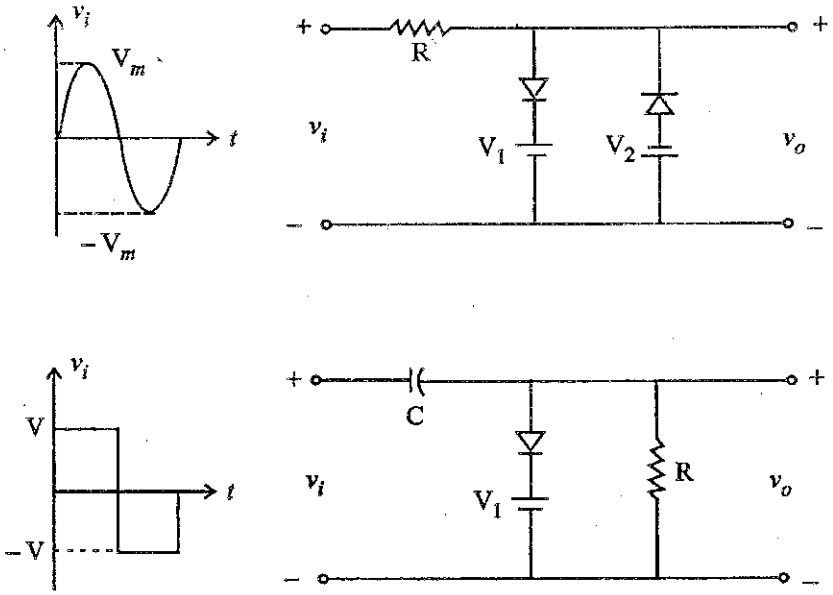

Fig. 3

(b) Explain briefly cascade and cascode amplifiers.

Unit – IV

7. Explain the following application of op-amp. :
   (a) Summer
   (b) Integrator
   (c) Log amplifier
   (d) Voltage to current converter

Or

8. (a) With the help of circuit diagram explain the working of op-amp. as comparator.
   (b) Explain briefly about active filters and its types.

Unit – V

9. (a) Explain the working of series regulator.
   (b) Explain the current limiting circuits.

Or

10. Write short notes on the following :
   (a) Fixed switching regulator
   (b) UPS