Roll No. .....

328453(28)

B. E. (Fourth Semester) Examination, April-May 2016

(New Scheme)

(ET & T Engg.)

ANALOG ELECTRONICS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : In each question part (a) is compulsory and carry 2 marks. Solve any two parts from (b), (c) & (d) and carry 7 marks.

Unit I

1. (a) What are the limitations of h-parameter model? 2

(b) Express common base h-parameters in terms of common collector h parameters. 7

(c) Derive the expression for R_i, A_v and R_o in Darlington pair. 7

(d) For the circuit shown in fig. 1 find the voltage gain $\left(\frac{V_o}{V_s}\right)$ and input impedance as a function of R_s, h_i, R_e and R_L. Assume that $h_{oe}(R_e + R_L) << 0.1$. 7

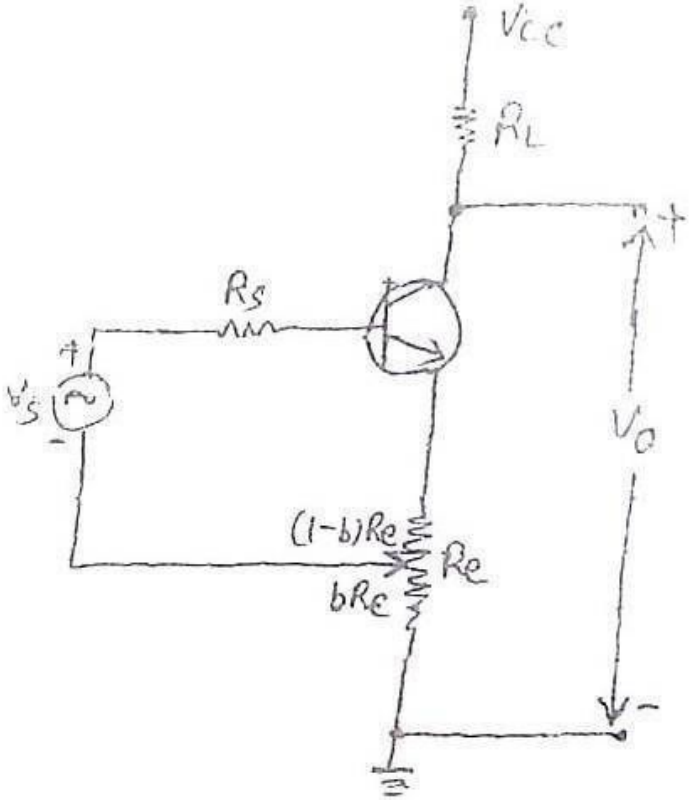

Fig. 1

Unit-II

2. (a) What is the criteria for validity of h-pi parameter? 2

(b) Derive the expression for f_H for emitter follower at high frequency. 7

(c) Derive the expression for $|A_{vs0}, f_H|$ for CE amplifier. 7

(d) Given the following transistor measurements made at i_c = 5 mA, V_{CE} = 10 V and room temperature :

$h_{fe} = 100$, $h_{ie} = 600\,\Omega$, $|A_{ie}| = 10$ at MHz, C_c = 3 pf. Find $f_\beta, f_T, C_e, r_{b'c}$ and $r_{bb'}$. 7

Unit-III

3. (a) What is distortion in amplifier? 2

(b) Explain the step response of an amplifier at low frequency and high frequency. 7

(c) Prove that the bandwidth shrinks in cascading of identical non-interacting stages. 7

(d) Explain different types of coupling amplifiers. 7