

**B.Tech. - VIEP - ELECTRONICS AND
COMMUNICATION ENGINEERING
(BTECVI)**

00284

Term-End Examination

December, 2016

BIEL-005(S) : ANALOG ELECTRONIC CIRCUITS

Time : 3 hours

Maximum Marks : 70

Note : Attempt any seven questions. All questions carry equal marks. Use of scientific calculators is permitted. Missing data, if any, may be suitably assumed.

1. For the network shown in Figure 1,
determine the following : $4 \times 2 \frac{1}{2} = 10$

(a) Z_i

(b) Z_o

(c) A_v

(d) A_i

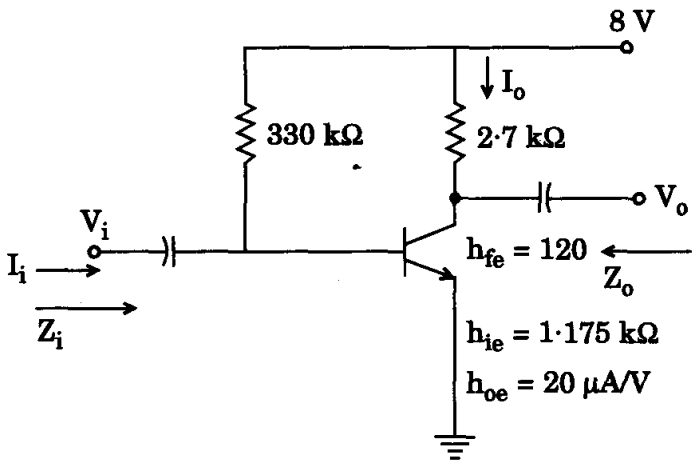


Figure 1

2. Calculate the following for the Darlington emitter-follower circuit shown in Figure 2. $4 \times 2 \frac{1}{2} = 10$
- Input Impedance (Z_i) if $r_i = 5 \text{ k}\Omega$
 - AC Current gain (A_i)
 - O/P Impedance (Z_o)
 - AC Voltage gain (A_v)

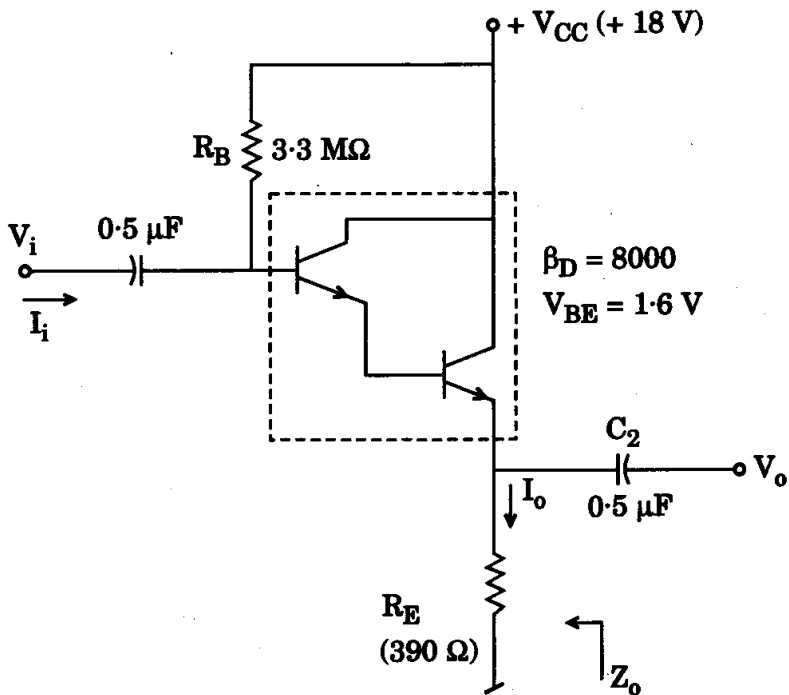


Figure 2

3. (a) Explain Cascaded systems. Also, explain RC coupled amplifier and its frequency response. 2+5=7
- (b) What is the purpose of emitter bypass capacitor in RC coupled amplifier circuit? 3
4. (a) Explain the operation of a class-A push-pull amplifier with the help of a neatly labelled block diagram. 7

(b) Calculate the efficiency of a transformer coupled class-A amplifier for a supply of 12 V and the following outputs : $2 \times 1.5 = 3$

(i) $V(p) = 12 \text{ V}$

(ii) $V(p) = 6 \text{ V}$

5. What do you understand by quality factor (Q) of parallel tuned circuit ? Also, discuss parallel tuned circuit with special reference to resonant frequency, circuit impedance and frequency response. $3+7=10$

6. What do you mean by negative feedback system ? Explain its classification with a neatly labelled diagram. $2+8=10$

7. Write the condition of oscillation. Give the circuit diagram of a RC phase shift oscillator and derive the expression for frequency of oscillation. $3+7=10$

8. Give the internal block diagram of IC-555 timer and enlist the functions performed by each pin. 10

9. Explain the differences between monostable, astable and bistable multivibrators. 10

10. Write short notes on any *two* of the following : $2 \times 5 = 10$

(a) Colpitts Oscillator

(b) Cascode Amplifier

(c) Series-Shunt Feedback