BIEL-005

B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination
June, 2015

00596

BIEL-005 : ANALOG ELECTRONIC CIRCUITS

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal masks.*

1. (a) Define h-parameters and their limitations.   *4*

    (b) Determine the current gain, voltage gain, input resistance and output resistance of CE amplifier, if R_L = 30 kΩ , R_S = 600 Ω, h_{ie} = 2,000 Ω, h_{re} =1·6×10^{-4} , h_{fe} = 49 and h_{oe} = 50 μA/V.   *6*

2. Draw a common base amplifier and its h-parameter equivalent circuit. Derive the expressions for input impedance, voltage gain, current gain and output impedance.   *10*

3. Draw n-stage CE cascaded amplifier and derive the expressions for voltage gain, current gain, input impedance and output impedance.   *10*

4. Draw and explain the high frequency transistor model for CE configuration of BJT. Derive the expression for Gain-Bandwidth product.   *10*

5. Explain push-pull concept and complete operation of Class-B push-pull amplifier, with suitable diagrams. Also mention the distortions in push-pull arrangement. *10*

6. (a) Mention the general behaviour of tuned amplifier. Why are these required ? *5*

   (b) Differentiate between series and parallel resonance circuits. Derive the formula for circuit impedance at resonance. *5*

7. List the negative feedback advantages and explain each with suitable proof. *10*

8. (a) Give the classification of oscillators and provide the condition for stability of oscillations. *5*

   (b) Comment on tuned-base oscillators and their limitations. *5*

9. (a) Define multivibrator and explain the various modes of operation in brief. *5*

   (b) Draw and explain the transistorized circuit for astable multivibrator. *5*

10. Write notes on any *two* of the following : *2×5=10*

    (a) Darlington Pair

    (b) Wein Bridge Oscillator

    (c) UJT