(DEC 222)

B. Tech. DEGREE EXAMINATION, MAY - 2015

(Examination at the end of Second Year)

ELECTRONICS & COMMUNICATIONS

Paper - II : Electronic Circuits - I

Time : 3 Hours   **Maximum Marks : 75**

Answer question No.1 compulsory

Answer ONE question from each unit

1)   a)   Define miller's theorem

      b)   Why h- parameter are not suitable at high frequencies?

      c)   What are the applications rectifiers?

      d)   List out characteristics of Darlington pair.

      e)   What are advantages of RC coupling in multistage amplifier?

      f)   List out characteristics of CS amplifier

      g)   Compare BJT and FET amplifiers

      h)   What is effect of bypass capacitor in CE amplifiers?

      i)   Define Harmonic distortion

UNIT-I

2)   a)   Explain the operation of center tapped FWR. with circuit and necessary waveforms

      b)   Design a filter for FWR circuit with LC filter to provide an output voltage of 10 volts with a load current of 200 mA and the ripple is limited to 2%

OR

3)   a)   With circuit and necessary waveforms explain the operation of Bridge Rectifier

b) In a Bridge rectifier, the transformer is connected to 220 volts, 60 Hz mains and turns ratio of the step down transformer is 11:1. Assuming the diodes to be ideal, find
   i) voltage across the load
   ii) D.C current
   iii) PIV.

UNIT – II

4) a) Classify different types of amplifiers?

   b) The h-parameters of a CE amplifier are hie = 1100Ω, h_{fe}=50, hre = 2.5×10^{-4}, h_{oe} = $24\mu A/V$ and R_s = 1k Ω and R_L= 10kΩ. Find the current and voltage gain, (with and without source resistance) input & output impedances

OR

5) a) Explain in detail different types of distortions in amplifier.

   b) Compare CE,CC and CB amplifier.

UNIT-III

6) a) Describe the emitter follower at high frequency and also derive the equation for higher cutoff frequency

   b) Write Short note Gain Bandwidth product

OR

7) a) Define and explain terms f_β and f_T.

   b) Derive the expression for CE short circuit current gain and explain the significance of f_T in hybrid π model.

UNIT-IV

8) a) Draw the circuit diagram of cascade amplifier and derive its overall voltage gain and Input impedance from its equivalent circuit.

   b) Discuss different coupling methods used in multistage amplifier

OR

9) a) Explain the small signal MOSFET circuit model.

   b) Draw and explain the CS amplifier with current source load.

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