NEP-31 / PSCELT101-Paper-I : Semiconductor Devices and Electronic Circuits

P. Pages : 1

80 1 4

GUG/W/23/15087

Time : Three Hours

Max. Marks : 80

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Notes : 1. All questions are compulsory and carry equal marks.
2. Draw neat and well-labelled diagrams wherever necessary.

1. a) Determine the following parameter of the stage CE configuration using the h-parameter **8**
i) Current Gain   ii) Voltage Gain

    b) Explain the input and output characteristics of CB configuration. **8**

OR

    c) Explain the CE hybrid model with a suitable diagram. **8**

    d) Explain the need of bias stabilization. **8**

2. a) Explain the working of the CE amplifier with respect to high frequency. **8**

    b) Explain the mid-range frequency response of RC couple amplifier. **8**

OR

    c) Derive an expression for the voltage amplification of RC couple transistor amplifier for high frequency. **8**

    d) Differentiate between RC couple and transformer couple amplifier. **8**

3. a) Explain the construction and working of Transformer coupled class A amplifier. **8**

    b) Derive the expression for the efficiency of transformer coupled class A amplifier. **8**

OR

    c) Explain the construction and working of class B push pull amplifier. **8**

    d) Discuss the double tune amplifier. **8**

4. a) Discuss the feedback requirement for oscillations. **8**

    b) Explain the construction and working of phase shift oscillator. **8**

OR

    c) Explain the working of Wein bridge oscillator with suitable circuit diagram. **8**

    d) Draw and explain crystal oscillator. State its advantages. **8**

5. a) Discuss the transistor action. **4**
    b) Explain the thermal instability. **4**
    c) State the advantages of negative feedback. **4**
    d) Explain the working of Colpitt's oscillator. **4**

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